



MARX & ECOLOGY

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MARX AND THE RIFT IN THE UNIVERSAL METABOLISM OF NATURE¹

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The rediscovery over the last decade and a half of Marx's theory of metabolic rift has come to be seen by many on the left as offering a powerful critique of the relation between nature and contemporary capitalist society. The result has been the development of a more unified ecological world view transcending the divisions between natural and social science, and allowing us to perceive the concrete ways in which the contradictions of capital accumulation are generating ecological crises and catastrophes.

Yet, this recovery of Marx's ecological argument has given rise to further questions and criticisms. How is his analysis of the metabolism of nature and society related to the issue of the "dialectics of nature," traditionally considered a

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fault line within Marxist theory? Does the metabolic rift theory—as a number of left critics have recently charged—violate dialectical logic, falling prey to a simplistic Cartesian dualism?¹ Is it really conceivable, as some have asked, that Marx, writing in the nineteenth century, could have provided ecological insights that are of significance to us today in understanding the human relation to ecosystems and ecological complexity? Does it not rather stand to reason that his nineteenth-century ruminations on the metabolism of nature and society would be “outmoded” in our more developed technological and scientific age?²

In the following discussion I shall attempt briefly to answer each of these questions. In the process I shall also seek to highlight what I consider to be the crucial importance of Marx’s ecological materialism in helping us to comprehend the emerging Great Rift in the earth system, and the resulting necessity of an epochal transformation in the existing nature-society metabolism.

The Dialectics of Nature

The problematic status of the dialectics of nature in Marxian theory has its classic source in Georg Lukács’s famous footnote in *History and Class Consciousness* in which he stated with respect to the dialectic:

It is of the first importance to realise that the method is limited here to the realms of history and society. The misunderstandings that arise from Engels’ account of dialectics can in the main be put down to the fact that Engels—following Hegel’s mistaken lead—extended the method to apply also to nature. However, the crucial determinants of dialectics—the interaction of subject and object, the unity of theory and practice, the historical changes in the reality underlying the categories as the root cause of changes in thought, etc.—are absent from our knowledge of nature.³

Within what came to be known as “Western Marxism” this was generally taken to mean that the dialectic applied only to society and human history, and not to nature independent of human history.⁴ Engels, in this view, was wrong in his *Dialectics of Nature*, in attempting to apply dialectical logic to nature directly, as were the many Marxian scientists and theorists who had proceeded along the same lines.⁵

It would be difficult to exaggerate the importance of this stricture for Western Marxism, which saw it as one of the key elements separating Marx from Engels and Western Marxism from the Marxism of the Second and Third Internationals. It heralded a move away from the direct concern with issues of material nature and natural science that had characterized much of Marxian thought up to that point. As Lucio Colletti observed in *Marxism and Hegel*, a vast literature “has always agreed” that differences over philosophical materialism/realism and the dialectics of nature constituted the “main distinguishing features between ‘Western Marxism’ and ‘dialectical materialism.’” According to Russell Jacoby, “Western Marxists” almost by definition “confined Marxism to social and historical reality,” distancing it from issues related to external nature and natural science.⁶

What made the stricture against the dialectics of nature so central to the Western Marxist tradition was that dialectical materialism—in the sense that this was attributed to Engels and adopted by the Second and Third Internationals—was seen as deemphasizing the role of the subjective factor (or human agency), reducing Marxism to mere conformity to objective natural laws, giving rise to a kind of mechanical materialism or even positivism. In sharp contrast to this, many of those historical materialists who continued to argue, even if in a qualified way, for a dialectics of nature, regarded its complete rejection as threatening the loss of materialism altogether, and a reversion to idealist frames of thought.⁷

Ironically, it was none other than Lukács himself, who, in a major theoretical shift, took the strongest stand against the wholesale abandonment of the dialectics of nature, arguing that this struck at the very heart of not just Engels's but also Marx's ontology. Even in *History and Class Consciousness* Lukács, following Hegel, had recognized the existence of a limited, "merely objective dialectics of nature" consisting of a "dialectics of movement witnessed by the detached observer."⁸ In his famous 1967 preface to the new edition of this work, in which he distanced himself from some of his earlier positions, he declared that his original argument was faulty in its exaggerated critique of the dialectics of nature, since, as he put it, the "basic Marxist category, labour as the mediator of the metabolic interaction between society and nature, is missing.... It is self-evident that this means the disappearance of the ontological objectivity of labor," which cannot itself be separated from its natural conditions.⁹ As he explained in his well-known *Conversations* that same year, "since human life is based on a metabolism with nature, it goes without saying that certain truths which we acquire in the process of carrying out this metabolism have a general validity—for example the truths of mathematics, geometry, physics, and so on."¹⁰

For the post-*History and Class Consciousness* Lukács, then, it was Marx's conception of labor and production as the metabolic relation between human beings and external nature which was the key to the dialectical understanding of the natural world. Human beings could comprehend nature dialectically within limits because they were organically *part of it*, through their own metabolic relations. Even as sharp a critic of the dialectics of nature as Alfred Schmidt in his *Concept of Nature in Marx*, acknowledged that it was only in terms of Marx's use of the "concept of 'metabolism,'" in which he "introduced a completely new understanding of

man's relation to nature," that we can "speak meaningfully of a 'dialectic of nature.'"¹¹

The remarkable discovery in the Soviet archives of Lukács's manuscript *Tailism and the Dialectic*, some seventy years after it was written in the mid-1920s (just a few years after the writing of *History and Class Consciousness* itself) makes it clear that this critical shift in Lukács's understanding, via Marx's concept of social and ecological metabolism, had already been largely reached by that time. There he explained that "the metabolic interchange with nature" was "socially mediated" through labor and production. The labor process, as a form of metabolism between humanity and nature, made it possible for human beings to perceive—in ways that were limited by the historical development of production—certain objective conditions of existence. Such a metabolic "exchange of matter" between nature and society, Lukács wrote, "cannot possibly be achieved—even on the most primitive level—without possessing a certain degree of objectively correct knowledge about the processes of nature (which exist prior to people and function independently of them)." It was precisely the development of this metabolic "exchange of matter" by means of production that formed, in Lukács's interpretation of Marx's dialectic, "the material basis of modern science."¹²

Lukács's emphasis on the centrality of Marx's notion of social metabolism was to be carried forward by his assistant and younger colleague, István Mészáros in *Marx's Theory of Alienation*. For Mészáros the "conceptual structure" of Marx's theory of alienation involved the triadic relation of humanity-production-nature, with production constituting a form of mediation between humanity and nature. In this way human beings could be conceived as the "self-mediating" beings of nature. It should not altogether surprise us therefore that it was Mészáros who provided the first comprehensive Marxian critique of the emerging planetary ecological crisis in his 1971

Deutscher Prize Lecture—published a year before the Club of Rome's *Limits to Growth* study. In *Beyond Capital* he was to develop this further in terms of a full-scale critique of capital's alienated social metabolism, including its ecological effects, in his discussion of "the activation of capital's absolute limits" associated with the "destruction of the conditions of social metabolic reproduction."¹³

Lukács and Mészáros thus saw Marx's social-metabolism argument as a way of transcending the divisions within Marxism that had fractured the dialectic and Marx's social (and natural) ontology. It allowed for a praxis-based approach that integrated nature and society, social history and natural history, without reducing one entirely to the other. In our present ecological age this complex understanding—complex because it dialectically encompasses the relations between part and whole, subject and object—becomes an indispensable element in any rational social transition.

Marx and the Universal Metabolism of Nature

To understand this more fully we need to look at the actual ecological dimensions of Marx's thought. Marx's use of the metabolism concept in his work was not simply (or even mainly) an attempt to solve a philosophical problem but rather an endeavor to ground his critique of political economy materialistically in an understanding of human-nature relations emanating from the natural science of his day. It was central to his analysis of both the production of use-values and the labor process. It was out of this framework that Marx was to develop his major ecological critique, that of metabolic rift, or, as he put it, the "irreparable rift in the interdependent process of social metabolism, a metabolism prescribed by the natural laws of life itself."¹⁴

This critical outlook was an outgrowth of the historical contradictions in nineteenth-century industrial agriculture and

the consequent revolution in agricultural chemistry—particularly in the understanding of the chemical properties of the soil—during this same period. Within agricultural chemistry, Justus von Liebig in Germany and James F.W. Johnston in Britain both provided powerful critiques of the loss of soil nutrients in the early to mid-nineteenth century due to capitalist agriculture, singling out for criticism British high farming. This extended to the robbing, in effect, of the soil of some countries by others.

In the United States figures like the early environmental planner George Waring, in his analysis of the despoliation of the earth in agriculture, and the political economist Henry Carey, who was influenced by Waring, emphasized that food and fiber, containing the elementary constituents of the soil, were being shipped long distances in a one-way movement from country to city, leading to the loss to the soil of its nutrients, which had to be replaced by natural (later synthetic) fertilizers. In his great 1840 work, *Organic Chemistry and its Application to Agriculture and Physiology* (commonly known as his *Agricultural Chemistry*), Liebig had diagnosed the problem as due to the depletion of nitrogen, phosphorus, and potassium, with these essential soil nutrients ending up in the increasingly populated cities where they contributed to urban pollution. In 1842, the British agricultural chemist J.B. Lawes developed a means for making phosphates soluble and built a factory to produce his superphosphates in the first step in the development of synthetic fertilizer. But for the most part in the nineteenth century countries were almost completely dependent on natural fertilizers to restore the soil.

It was in this period of deepening agricultural difficulties, due to the depletion of soil nutrients, that Britain led the way in the global seizure of natural fertilizers, including, as Liebig pointed out, digging up and transporting the bones of the Napoleonic battlefields and the catacombs of Europe, and, more importantly, the extraction by forced labor of guano

(from the excrement of sea birds) on the islands off the coast of Peru, setting off a worldwide guano rush.¹⁵ In the introduction to the 1862 edition of his *Agricultural Chemistry*, Liebig wrote a scathing critique of capitalist industrial agriculture in its British model, observing that “if we do not succeed in making the farmer better aware of the conditions under which he produces and in giving him the means necessary for the increase of his output, wars, emigration, famines and epidemics will of necessity create the conditions of a new equilibrium which will undermine the welfare of everyone and finally lead to the ruin of agriculture.”¹⁶

Marx was deeply concerned with the ecological crisis tendencies associated with soil depletion. In 1866, the year before the first volume of *Capital* was published, he wrote to Engels that in developing the critique of ground rent in volume three, “I had to plough through the new agricultural chemistry in Germany, in particular Liebig and Schönbein, which is more important for this matter than all the economists put together.”¹⁷ Marx, who had been studying Liebig’s work since the 1850s, was impressed by the critical introduction to the 1862 edition of the latter’s *Agricultural Chemistry*, integrating it with his own critique of political economy.

Since the *Grundrisse* in 1857–1858, Marx had given the concept of metabolism (*Stoffwechsel*)—first developed in the 1830s by scientists engaged in the new discoveries of cellular biology and physiology and then applied to chemistry (by Liebig especially) and physics—a central place in his account of the interaction between nature and society through production. He defined the labor process as the metabolic relation between humanity and nature. For human beings this metabolism necessarily took a socially mediated form, encompassing the organic conditions common to all life, but also taking a distinctly human-historical character through production.¹⁸

Building on this framework, Marx emphasized in *Capital* that the disruption of the soil cycle in industrialized capitalist agriculture constituted nothing less than “a rift” in the metabolic relation between human beings and nature. “Capitalist production,” he wrote,

collects the population together in great centres, and causes the urban population to achieve an ever-greater preponderance. This has two results. On the one hand it concentrates the historical motive force of society; on the other hand, it disturbs the metabolic interaction between man and the earth, i.e. it prevents the return to the soil of its constituent elements consumed by man in the form of food and clothing; hence it hinders the operation of the eternal natural condition for the lasting fertility of the soil.... But by destroying the circumstances surrounding this metabolism...it compels its systematic restoration as a regulative law of social production, and in a form adequate to the full development of the human race.... All progress in capitalist agriculture is a progress in the art, not only of robbing the worker, but of robbing the soil; all progress in increasing the fertility of the soil for a given time is progress towards ruining the more long-lasting sources of that fertility.... Capitalist production, therefore, only develops the technique and the degree of combination of the social process of production by simultaneously undermining the original sources of all wealth—the soil and the worker.¹⁹

Following Liebig, Marx highlighted the global character of this rift in the metabolism between nature and society, arguing, for example, that: “for a century and a half England has indirectly exported the soil of Ireland without even allowing its cultivators the means for replacing the constituents of the exhausted soil.”²⁰ He integrated his

analysis with a call for ecological sustainability, i.e., preservation of “the whole gamut of permanent conditions of life required by the chain of human generations.” In his most comprehensive statement on the nature of production under socialism he declared: “Freedom, in this sphere, can consist only in this, that socialized man, the associated producers, govern the human metabolism with nature in a rational way, bringing it under their collective control...accomplishing it with the least expenditure of energy and in conditions most worthy and appropriate for their human nature.”²¹

Over the last decade and a half ecological researchers have utilized the theoretical perspective of Marx’s metabolic-rift analysis to analyze the developing capitalist contradictions in a wide array of areas: planetary boundaries, the carbon metabolism, soil depletion, fertilizer production, the ocean metabolism, the exploitation of fisheries, the clearing of forests, forest-fire-management, hydrological cycles, mountaintop removal, the management of livestock, agro-fuels, global land grabs, and the contradiction between town and country.²²

However, a number of critics on the left have recently raised theoretical objections to this view. One such criticism suggests that the metabolic-rift perspective falls prey to a “Cartesian binary,” in which nature and society are conceived dualistically as separate entities.²³ Hence, it is seen as violating the fundamental principles of dialectical analysis. A related criticism charges that the very concept of a rift in the metabolism between nature and society is “non-reflexive” in that it denies “the dialectical reciprocity of the biophysical environment.”²⁴ Still others have suggested that the reality of the metabolic rift itself generates an “epistemic rift” or a dualistic view of the world, which ends up infecting Marx’s own value theory, causing him to downplay ecological relations in his analysis.²⁵

Here it is important to emphasize that Marx’s metabolic-rift theory, as it is usually expounded, is a theory of ecological crisis—of the disruption of what Marx saw as the everlasting dependence of human society on the conditions of organic existence. This represented, in his view, an insurmountable contradiction associated with capitalist commodity production, the full implications of which, however, could only be understood within the larger theory of nature-society metabolism.

To account for the wider natural realm within which human society had emerged, and within which it necessarily existed, Marx employed the concept of the “universal metabolism of nature.” Production mediated between human existence and this “universal metabolism.” At the same time, human society and production remained *internal to* and *dependent on* this larger earthly metabolism, which preceded the appearance of human life itself. Marx explained this as constituting “the universal condition for the metabolic interaction between nature and man, and as such a natural condition of human life.” Humanity, through its production, “withdraws” or extracts its natural-material use values from this “universal metabolism of nature,” at the same time “breathing [new] life” into these natural conditions “as elements of a new [social] formation,” thereby generating a kind of second nature. However, in a capitalist commodity economy this realm of second nature takes on an alienated form, dominated by exchange value rather than use value, leading to a rift in this universal metabolism.²⁶

This, I believe, provides the basic outline for a materialist-dialectical understanding of the nature-society relation—one that is in remarkably close accord not only with the most developed science (including the emerging thermodynamics) of Marx’s day, but also with today’s more advanced ecological understanding.²⁷ There is nothing dualistic or non-reflexive in such view. In Marx’s materialist

dialectic, it is true, neither society (the subject/consciousness) nor nature (the object) is subsumed entirely within the other, thus avoiding the pitfalls of both absolute idealism and mechanistic science.²⁸ Human beings transform nature through their production, but they do not do so just as they please; rather they do so under conditions inherited from the past (of both natural and social history), remaining dependent on the underlying dynamics of life and material existence.

The main reason no doubt that a handful of left critics, struggling with this conceptual framework, have characterized the metabolic-rift theory as a form of Cartesian dualism is due to a failure to perceive that within a materialist-dialectical perspective it is impossible to analyze the world in a meaningful way except through the use of abstraction which temporarily isolates, for purposes of analysis, one “moment” (or mediation) within a totality.²⁹ This means employing conceptions that at first sight—when separated out from the overall dynamics—may appear one-sided, mechanical, dualistic, or reductionist. In referring, as Marx does, to “the metabolic interaction between nature and man” it should never be supposed that “man” (humanity) actually exists completely independently of or outside of “nature”—or even that nature today exists completely independent of (or unaffected by) humanity. The object of such an exercise in abstraction is merely to comprehend the larger concrete totality through the scrutiny of those specific mediations that can be rationally said to constitute it within a developing historical context.³⁰ Our very knowledge of nature, in Marx’s view, is a product of our human-social metabolism, i.e., our productive relation to the natural world.

Far from representing a dualistic or non-reflexive approach to the world, Marx’s analysis of “the metabolism of nature and society” was eminently dialectical, aimed at comprehending the larger concrete totality. I agree with David Harvey’s observation in his 2011 Deutscher Prize Lecture that

the “universality” associated with Marx’s conception of “the metabolic relation to nature” constituted a kind of outer set of conditions or boundary in his conception of reality within which all the “different ‘moments’” of his critique of political economy were potentially linked to each other. It is true also, as Harvey says, that Marx seems to have set aside in his critique of capital these larger boundary questions, leaving for later on the issues of the world economy and the universal metabolism of nature.³¹ Indeed, Marx’s wider ecological view remained in certain respects necessarily undifferentiated and abstract—unable to reach the level of concrete totality. This is because there was a seemingly endless amount of scientific literature to pore through before it would be possible to discuss the distinct, historic mediations associated with the coevolutionary nature-society dialectic.

Still, Marx did not shirk in the face of the sheer enormity of this task and we find him at the end of his life carefully taking notes on how shifts in isotherms (the temperature zones of the earth) associated with climate change in earlier geological eras led to the great extinctions in Earth’s history. It is this shift in the isotherms that James Hansen, the leading U.S. climatologist, sees as the main threat facing flora and fauna today as a result of global warming, with the isotherms moving toward the poles faster than the species.³² Another instance of this deep concern with natural science is Marx’s interest in John Tyndall’s Royal Institution lectures regarding the experiments he was carrying out on the interrelation of solar radiation and various gases in determining the earth’s climate. It was quite possible that Marx, who attended some of these lectures, was actually present when Tyndall provided the first empirical account of the greenhouse effect governing the climate.³³ Such attentiveness to natural conditions on Marx’s part makes it clear that he took seriously both the issue of the universal metabolism of nature and the more specific socio-metabolic interaction of society and nature

within production. The future of humanity and life in general depended, as he clearly recognized, on the sustainability of these relationships in terms of “the chain of human generations.”³⁴

The Rift in Earth’s Metabolism

All of this leaves us with the third objection to Marx’s metabolic-rift theory in which it is seen as outdated, and no longer of any direct use in analyzing our current world ecology, given today’s more developed conditions and analysis. Thus the criticism has been made that the metabolic rift is “outmoded as a way to describe ruptures in natural pathways and processes” unless developed further to address ecosystems and dynamic natural cycles and to take into account the labor process.³⁵

Such a dialectical synthesis, however, was a strength of Marx’s metabolic-rift theory from the start, which was explicitly based on an understanding of the labor process as the metabolic exchange between human beings and nature, and thus pointed to the importance of human society in relation to biogeochemical cycles, and to exchanges of matter and energy in general.³⁶ The concept of ecosystem itself had its origin in this dialectical-systems approach, in which Marx’s friend E. Ray Lankester, the foremost Darwinian biologist in England in the generation after Darwin and an admirer of Marx’s *Capital*, was to play a leading role. Lankester first introduced the word “œcology” (later ecology) into English in 1873, in the translation that he supervised of Ernst Haeckel’s *History of Creation*. Lankester later developed a complex ecological analysis, beginning in the 1880s, under his own concept of “bionomics,” a term viewed as synonymous with ecology. It was Lankester’s student, Arthur Tansley, who, influenced by Lankester’s bionomic studies (and by the early systems theory of the British Marxist

mathematician Hyman Levy), was to introduce the concept of ecosystem as a materialist explanation of ecological relations in 1935.³⁷

In the twentieth century the concept of metabolism was to become the basis of systems ecology, particularly in the landmark work of Eugene and Howard Odum. It was Howard Odum, as Frank Golley explains in *A History of the Ecosystem Concept in Ecology*, who “pioneered a method of studying [eco-]system dynamics by measuring...the difference of input and output, under steady state conditions,” to determine “the metabolism of the whole system.” Based on the foundational work of the Odums, metabolism is now used to refer to all biological levels, starting with the single cell and ending with the ecosystem (and beyond that the earth system). In his later attempts to incorporate human society into this broad ecological systems theory, Howard Odum was to draw heavily on Marx’s work, particularly in developing a theory of what he called ecologically “unequal exchange” rooted in “imperial capitalism.”³⁸

Indeed, if we were to return today to Marx’s original issue of the human-social metabolism and the problem of the soil nutrient cycle, looking at it from the viewpoint of ecological science, the argument would go like this. Living organisms, in their normal interactions with each other and the inorganic world, are constantly gaining nutrients and energy from consuming other organisms or, for green plants, through photosynthesis and nutrient uptake from the soil—which are then passed along to other organisms in a complex “food web” in which nutrients are eventually cycled back to near where they originated. In the process the energy extracted is used up in the functioning of the organism although ultimately a portion is left over in the form of difficult to decompose soil organic matter. Plants are constantly exchanging products with the soil through their roots—taking up nutrients and giving off energy-rich compounds that produce an active

microbiological zone near the roots. Animals that eat plants or other animals usually use only a small fraction of the nutrients they eat and deposit the rest as feces and urine nearby. When they die, soil organisms use their nutrients and the energy contained in their bodies. The interactions of living organisms with matter (mineral or alive or previously alive) are such that the ecosystem is generally only lightly affected and nutrients cycle back to near where they were originally obtained. Also on a geological time scale, weathering of nutrients locked inside minerals renders them available for future organisms to use. Thus, natural ecosystems do not normally “run down” due to nutrient depletion or loss of other aspects of healthy environments such as productive soils.

As human societies develop, especially with the growth and spread of capitalism, the interactions between nature and humans are much greater and more intense than before, affecting first the local, then the regional, and finally the global environment. Since food and animal feeds are now routinely shipped long distances, this depletes the soil, just as Liebig and Marx contended in the nineteenth century, necessitating routine applications of commercial fertilizers on crop farms. At the same time this physical separation of where crops are grown and where humans or farm animals consume them creates massive disposal issues for the accumulation of nutrients in city sewage and in the manure that piles up around concentrations of factory farming operations. And the issue of breaks in the cycling of nutrients is only one of the many metabolic rifts that are now occurring. It is the change in the nature of the metabolism between a particular animal—humans—and the rest of the ecosystem (including other species) that is at the heart of the ecological problems we face.³⁹

Despite the fact that our understanding of these ecological processes has developed enormously since Marx and Engels’s day, it is clear that in pinpointing the metabolic

rift brought on by capitalist society they captured the essence of the contemporary ecological problem. As Engels put it in a summary of Marx’s argument in *Capital*, industrialized-capitalist agriculture is characterized by “*the robbing of the soil*: the acme of the capitalist mode of production is the undermining of the *sources of all wealth*: the soil and labourer.”⁴⁰ For Marx and Engels this reflected the contradiction between town and country, and the need to prevent the worst distortions of the human metabolism with nature associated with urban development. As Engels wrote in *The Housing Question*:

The abolition of the antithesis between town and country is no more and no less utopian than the abolition of the antithesis between capitalists and wage-workers. From day to day it is becoming more and more a practical demand of both industrial and agricultural production. No one has demanded this more energetically than Liebig in his writings on the chemistry of agriculture, in which his first demand has always been that man shall give back to the land what he receives from it, and in which he proves that only the existence of the towns, and in particular the big towns, prevents this. When one observes how here in London alone a greater quantity of manure than is produced in the whole kingdom of Saxony is poured away every day into the sea with an expenditure of enormous sums, and what colossal structures are necessary in order to prevent this manure from poisoning the whole of London, then the utopia of abolishing the distinction between town and country is given a remarkably practical basis.⁴¹

Although problems of the nutrient cycle and waste treatment, as well as the relation between country and city, have changed since the nineteenth century, the fundamental

problem of the rift in natural cycles generated by the human-social metabolism remains.

Marx and Engels's approach to materialism and dialectics can therefore be seen as intersecting in complex ways with the development of the modern ecological critique. The reason that this story is so unknown can be traced to the tendency of Western Marxism to write off all of those (even leading scientists) who delved into the dialectics of nature—except perhaps as reminders of various follies and capitulations (notably the Lysenko affair in the Soviet Union).⁴² Here I am referring to such important critical figures, in the British context, as Levy, Christopher Caudwell, J.D. Bernal, J.B.S. Haldane, Joseph Needham, Lancelot Hogben, and Benjamin Farrington—along with other, non-Marxian, materialists and socialists, such as Lankester and Tansley.⁴³ Later on we see a developing ecological critique drawing in part on Marx emerging in the work of such thinkers as Howard Odum, Barry Commoner, Richard Levins, Richard Lewontin, and Steven Jay Gould.⁴⁴ Although Frankfurt School thinkers made remarkable observations on the “domination of nature” by the “dialectic of the Enlightenment,” as well as on the negative environmental effects of modern industrial technology, it was not there, but rather within the more adamantly materialist and scientific traditions, that the main socialist contributions to ecological thought emerged.⁴⁵

Today we are making enormous advances in our critical understanding of the ecological rift. Marx's metabolic approach to the nature-society connection has been widely adopted within environmental thought, though seldom incorporating the full dialectical critique of the capital relation that his own work represented. A cross-disciplinary research tradition on “industrial metabolism,” addressing material flows associated with urban areas, has developed in the last couple of decades. As Marina Fischer-Kowalski, founder of

the Institute of Social Ecology in Vienna and the foremost representative of material-flows analysis today, noted in the late 1990s, metabolism has become “a rising conceptual star” within socio-ecological thought. “Within the nineteenth-century foundations of social theory,” she added, “it was Marx and Engels who applied the term ‘metabolism’ to society.”⁴⁶

The global ecological crisis is now increasingly understood within social science in terms of the industrialization of the human-metabolic relation to nature at the expense of the world's ecosystems, undermining the very bases on which society exists. Marx's concept of “social metabolism” (also sometimes referred to as “socio-ecological metabolism”) has been used by critical ecological economists to chart the whole history of human-nature intersections, together with the conditions of ecological instability in the present. This has led to analyses of modes of production as successive “socio-metabolic regimes,” as well as to demands for a “socio-metabolic transition.”⁴⁷ Meanwhile, a more direct linking of Marx's metabolic-rift theory to the critique of capitalist society has allowed researchers in environmental sociology to carry out penetrating, historical-empirical inquiries into a whole range of ecological problems—extending to issues of unequal ecological exchange or ecological imperialism.⁴⁸

Much of this work of course has its roots in the recognition that the world is crossing crucial “planetary boundaries” defined by the departure from the conditions of the Holocene epoch that nurtured the growth of human civilization—a critical approach pioneered by Johan R ockstrom of the Stockholm Resilience Institute and leading climate scientists such as Hansen. Here the main concern is what could be called the Great Rift in the human relation to nature brought on by the crossing of the earth-system boundaries associated with climate change, ocean

acidification, ozone depletion, loss of biological diversity (and species extinction), the disruption of the nitrogen and phosphorus cycles, loss of land cover, loss of fresh water sources, aerosol loading, and chemical pollution.⁴⁹

On Earth Day 2003, NASA released its first quantitative satellite measurements and maps of the “earth’s metabolism,” focusing on the extent to which the plant life on earth was fixing carbon through photosynthesis. This data is also being used for monitoring the growth of deserts, the effects of droughts, the vulnerability of forests, and other climate-change developments.⁵⁰ The issue of the earth’s metabolism is of course directly related to the human interaction with the environment. Humanity now consumes a substantial share of the global terrestrial net primary production through photosynthesis and that share is growing at unsustainable levels. Meanwhile, the disruption of the “carbon metabolism” through human production is radically affecting the earth’s metabolism in ways that, if not altered, will have catastrophic effects on life on the planet, including the human species itself.⁵¹ As Hansen describes the potential consequences of the Great Rift in the carbon metabolism in particular:

The picture that emerges for Earth sometime in the distant future, if we should dig up and burn every fossil fuel is thus consistent with...an ice-free Antarctica and a desolate planet without human inhabitants. Although temperatures in the Himalayas may have become seductive, it is doubtful that the many would allow the wealthy few to appropriate this territory to themselves or that humans would survive the extermination of most other species on the planet.... It is not an exaggeration to suggest, based on the best available scientific evidence, that burning all fossil fuels could result in the planet being not only ice-free but human-free.⁵²

Marx and Socio-Ecological Revolution

It is precisely here, when we confront the sheer enormity of the Great Rift in the earth’s metabolism, that Marx’s approach to the metabolism of nature and society becomes most indispensable. Marx’s analysis stressed the rupture by capitalist production of the “eternal natural conditions,” constituting the “robbery” of the earth itself.⁵³ But his analysis was unique in that it pointed beyond the forces of accumulation and technology (i.e., the treadmill of production) to the qualitative, use-value structure of the commodity economy: the question of human needs and their fulfillment. The natural-material use value of human labor itself, in Marx’s theory, resided in its *real productivity* in terms of the genuine fulfillment of human needs. In capitalism, he argued, this creative potential was so distorted that labor power was seen as being “useful” (from a capitalist exchange-value perspective) only insofar as it generated surplus value for the capitalist.⁵⁴

To be sure, Marx did not himself follow out the full ramifications of this distortion of use value (and of labor’s own usefulness). Although he raised the question of the qualitative, use-value structure of the commodity economy he was to leave it largely unexamined in his critique of political economy.⁵⁵ It was generally assumed in the context of mid-nineteenth-century capitalism that those use values that were produced—outside of the relatively insignificant realm of luxury production—conformed to genuine human needs. Under monopoly capitalism, beginning in the last quarter of the nineteenth century, and with the emergence more recently of the phase of globalized monopoly-finance capital, this all changed. The system increasingly demands, simply to keep going under conditions of chronic overaccumulation, the production of *negative* use values and the *non-fulfillment* of human needs.⁵⁶ This entails the absolute alienation of the labor process, i.e., of the metabolic relation between human

beings and nature, turning it predominantly into a form of waste.

The first to recognize this in a big way was William Morris, who emphasized the growth of monopolistic capital and the waste associated with the massive production of useless goods and the “useless toil” that this entailed.⁵⁷ Morris, who had studied Marx’s *Capital* carefully—and especially the analysis of the labor process and the general law of accumulation—emphasized more than any other thinker the direct connection between socially wasted production and socially wasted labor, drawing out the consequences of this in terms of human life and creativity and the environment itself. In his 1894 lecture “Makeshift,” Morris stated:

I noticed the other day that Mr. Balfour was saying that Socialism was impossible because under it we should produce so much less than we do now. Now I say that we might produce half or a quarter of what we do now, and yet be much wealthier, and consequently much happier, than we are now: and that by turning whatever labour we exercised, into the production of useful things, things that we all want, and by...refusing to labour in producing useless things, things which none of us, not even fools want....

My friends, a very great many people are employed in producing mere nuisances, like barbed wire, 100 ton guns, sky signs and advertising boards for the disfigurement of the green fields along the railways and so forth. But apart from these nuisances, how many more are employed in making market wares for rich people which are of no use whatever except to enable the said rich to ‘spend their money’ as ‘tis called; and again how many more in producing

wretched makeshifts for the working classes because they can afford nothing better?⁵⁸

Others, including Thorstein Veblen at the beginning of the twentieth century, and Paul Baran and Paul Sweezy in the 1960s, were to develop further the economic critique of waste and the distortion of use values in the capitalist economy, pointing to “the interpenetration effect,” whereby the sales effort penetrated into production itself, destroying whatever claims to rationality existed in the latter.⁵⁹ Yet, Morris remained unsurpassed in his emphasis on the effects of the capitalist-commodity-exchange process on the qualitative nature of the labor process itself, converting what was already an exploited labor force into one which was also engaged in useless, uncreative, empty toil—no longer serving to satisfy social needs, but rather squandering both resources and lives.

It is here that Marxian theory, and in particular the critique of monopoly capital, suggests a way out of capitalism’s endless creative destructiveness. It is through the politicization of the use value structure of the economy, and the relation of this to the labor process and to the whole qualitative structure of the economy, that Marx’s dialectical approach to the metabolism between nature and society takes on potent form. U.S. expenditures in such areas as the military, marketing, public and private security, highways, and personal luxury goods add up to trillions of dollars a year, while much of humanity lacks basic necessities and a decent life, and the biosphere is being systematically degraded.⁶⁰ This inevitably raises issues of communal needs and environmental costs, and above all the requirement of planning—if we are to create a society of substantive equality, ecological sustainability, and freedom in general.

No transformation of the overall use-value structure of production is conceivable of course without the self-mobilization of humanity within a co-revolutionary process, uniting our multiple struggles. The combined ecological and

economic contradictions of capital in our time, plus the entire imperialist legacy, tell us that the battle for such a transition will first emerge in the global South—of which there are already signs today.⁶¹ Yet, the underlying conditions are such that the revolutionary reconstitution of society must be truly universal in its scope and its aspirations, encompassing the entire globe and all of its peoples, if humanity is to succeed in pulling the world back from the brink of catastrophe brought on by capitalism’s unrelenting creative destructiveness. In the end it is a question of the human metabolism with nature, which is also a question of human production, and of human freedom itself.

Notes

1. ↵Jason W. Moore, “Transcending the Metabolic Rift,” *Journal of Peasant Studies* 38, no. 1 (January 2011): 1–2, 8, 11; Mindi Schneider and Philip M. McMichael, “Deepening, and Repairing, the Metabolic Rift,” *Journal of Peasant Studies* 37, no. 3 (July 2010): 478, 482; Alexander M. Stoner, “Sociobiophysicality and the Necessity of Critical Theory,” *Critical Sociology*, online version (March 19, 2013): 6–7.
2. ↵Schneider and McMichael, “Deepening, and Repairing, the Metabolic Rift,” 481–82. See also Maarten de Kadt and Salvatore Engel-Di Mauro, “Failed Promise,” *Capitalism, Nature, Socialism* 12, no. 2 (2001): 50–56.
3. ↵Georg Lukács, *History and Class Consciousness* (London: Merlin Press, 1968), 24.
4. ↵The term “Western Marxism” was first introduced by Maurice Merleau-Ponty in *Adventures of the Dialectic* (Evanston, IL: Northwestern University Press, 1973). It was seen as deriving from the work of Lukács (*History*

and Class Consciousness), Karl Korsch, the Frankfurt School, and Antonio Gramsci, and extending to most Western philosophical Marxists. It drew its principal inspiration from the rejection of what were seen as positivistic influences in Marxism, and the concept of the dialectics of nature in particular. See Russell Jacoby, “Western Marxism,” in Tom Bottomore, ed., *A Dictionary of Marxist Thought* (Oxford: Blackwell, 1983), 523–26.

5. ↵For an important defense of Engels in this respect see John L. Stanley, *Mainlining Marx* (New Brunswick, NJ: Transaction Publishers, 2002), 1–61. In the dedication to their landmark book, *The Dialectical Biologist*, Levins and Lewontin write: “To Frederick Engels, who got it wrong a lot of the time but who got it right where it counted.” Richard Levins and Richard Lewontin, *The Dialectical Biologist* (Cambridge, MA: Harvard University Press, 1985), v.
6. ↵Lucio Colletti, *Marxism and Hegel* (London: Verso, 1973), 191–93; Jacoby, “Western Marxism,” 524. See also Merleau-Ponty, *Adventures of the Dialectic*, 32; Jean-Paul Sartre, *Critique of Dialectical Reason*, vol. 1 (London: Verso, 2004), 32; Herbert Marcuse, *Reason and Revolution* (Boston: Beacon Press, 1960), 314; Alfred Schmidt, *The Concept of Nature in Marx* (London: New Left Books, 1971), 59–61; Steven Vogel, *Against Nature* (Albany: State University of New York Press, 1996), 14–19.
7. ↵Gramsci explicitly argued that a complete rejection of the dialectics of nature would lead to “idealism” or “dualism” and the destruction of a materialist outlook, voicing this in a discussion of Lukács’s *History and Class Consciousness*. Antonio Gramsci, *Selections from the Prison Notebooks* (London: Merlin Press, 1971), 448. For a sharp criticism of Western philosophical Marxism for its move away from materialism and any consideration of

- natural conditions see Sebastiano Timpanaro, *On Materialism* (London: Verso, 1975).
8. ↪Lukács, *History and Class Consciousness*, 207.
 9. ↪Lukács, *History and Class Consciousness*, xvii.
 10. ↪Georg Lukács, *Conversations with Lukács* (Cambridge, MA: MIT Press, 1974), 43. Lukács added the following clarification on the social aspect in the same paragraph: “Since the metabolism between society and nature is also a social process, it is always possible for concepts obtained from it to react on the class struggle in history.”
 11. ↪Schmidt, *The Concept of Nature in Marx*, 78–79.
 12. ↪ Georg Lukács, *A Defence of “History and Class Consciousness”: “Tailism and the Dialectic”* (London: Verso, 2003), 96, 106, 113–14, 130–31. The later Lukács recognized, like Marx, that the more contemplative materialism associated with Epicurus, Bacon, Feuerbach, and modern science could generate genuine discoveries in science through processes of sense perception and rational abstraction, particularly when accompanied (as Engels had emphasized) by experimentation. Ultimately, however, all of this was related to the development of the relations of production, which constantly transformed human metabolic interaction with nature as well as social relations. See Lukács, *History and Class Consciousness*, xix–xx, and *A Defence of “History and Class Consciousness,”* 130–32; John Bellamy Foster, Brett Clark, and Richard York, *The Ecological Rift* (New York: Monthly Review Press, 2010), 229–31. Note: my overall interpretation of Lukács’s dialectic has changed somewhat since the chapter cited here was written.
 13. ↪István Mészáros, *Marx’s Theory of Alienation* (London: Merlin Press, 1970), 99–119, 162–65, 195–200, and *Beyond Capital* (New York: Monthly Review Press, 1995), 170–77, 872–97. Mészáros used “I” for industry rather than production in *Marx’s Theory of Alienation*, in

- his depiction of Marx’s conceptual structure, to avoid confusing it with “P” for property. But industry obviously means production.
14. ↪Karl Marx, *Capital*, vol. 3 (London: Penguin, 1981), 949.
 15. ↪See John Bellamy Foster, *Marx’s Ecology* (New York: Monthly Review Press, 2000), 149–54.
 16. ↪Liebig quoted in K. William Kapp, *The Social Costs of Private Enterprise* (New York: Shocken Books, 1971), 35.
 17. ↪Karl Marx and Frederick Engels, *Collected Works*, vol. 42 (New York: International Publishers, 1975), 227.
 18. ↪Foster, *Marx’s Ecology*, 155–62.
 19. ↪Karl Marx, *Capital*, vol. 1 (London: Penguin, 1976), 637–38.
 20. ↪Marx, *Capital*, vol. 1, 860; Brett Clark and John Bellamy Foster, “Guano: The Global Metabolic Rift and the Fertilizer Trade,” in Alf Hornborg, Brett Clark, and Kenneth Hermele, eds., *Ecology and Power* (London: Routledge, 2012), 68–82.
 21. ↪Marx, *Capital*, vol. 3, 754, 959.
 22. ↪See Ryan Wishart, “The Metabolic Rift: A Selected Bibliography,” October 16, 2013, <http://monthlyreview.org/commentary/metabolic-rift/>; Foster, Clark, and York, *The Ecological Rift*; Paul Burkett, *Marxism and Ecological Economics* (Boston: Brill, 2006).
 23. ↪Moore, “Transcending the Metabolic Rift,” 1–2, 8, 11.
 24. ↪Stoner, “Sociobiophysicality and the Necessity of Critical Theory,” 7. It should be noted that Stoner aims his criticisms of the metabolic rift for its “non-reflexivity” at the present author rather than Marx directly. He does so based on the contention: “We must careful about ascribing the theory of metabolic rift to Marx, since he did not use this terminology, and was not driven to develop a

- theory based on such terminology.” However, Stoner, neglects to provide any explanation (other than a specious reference to Adorno) as to why he thinks all of Marx’s statements on the metabolism of nature and society and the rift in the social-ecological metabolism (from the *Grundrisse* in 1857–1858 up through *Notes on Adolph Wagner* in 1879–1880) are actually non-existent or have been falsely attributed to him.
25. ↵Schneider and McMichael, “Deepening, and Repairing, the Metabolic Rift,” 478–82. Schneider and McMichael argue that the rift in the metabolism between nature and society generates an “epistemic rift” in which nature and society become separated within thought, creating various dualisms that depart from a dialectical perspective. Remarkably, they carry this analysis into a partial criticism of Marx’s theory itself. In his value analysis, they suggest, Marx continually “risks a one-sided representation of the society-nature relationship,” himself falling prey at times to such methodological dualism, since “the abstraction of value and of nature discount ecological relations in capital theory.” Here they fail to recognize that Marx in the treatment of value relations was engaged in *critique*—of the value structure of capital itself. In his conception, capital fails to ground its value abstractions in ecological relations, *and this is* inherent in its character as an alienated mode of production. Marx makes this clear by sharply distinguishing *value* under capitalism from *wealth*—with the latter, as opposed to the former, having its source in both labor and the earth. See Karl Marx, *Critique of the Gotha Programme* (New York: International Publishers, 1938), 3.
 26. ↵Karl Marx and Frederick Engels, *Collected Works*, vol. 30, 54–66.
 27. ↵Such an analysis of course needs to be integrated with Marx’s value-theory-based critique. This was

- accomplished in Paul Burkett, *Marx and Nature* (New York: St. Martin’s Press, 1999).
28. ↵Of course society, since it is materially produced, is also objective—a historical manifestation of the metabolism between nature and humanity. See Lukács, *A Defence of “History and Class Consciousness,”* 100-1, 115.
 29. ↵On the role of “isolation” as the key to abstraction in a dialectical approach to science and knowledge see Hyman Levy, *The Universe of Science* (New York: Century Company, 1933), 31–81, and *A Philosophy for a Modern Man* (New York: Alfred A. Knopf, 1938), 30–36; Bertell Ollman, *Dialectical Investigations* (New York: Routledge, 1993), 24–27; Paul Paolucci, *Marx’s Scientific Dialectics* (Chicago: Haymarket Books, 2007), 118–23, 136–42; and Richard Lewontin and Richard Levins, *Biology Under the Influence* (New York: Monthly Review Press, 2007), 149–66.
 30. ↵See István Mészáros, *Lukács’ Concept of Dialectic* (London: Merlin Press, 1972), 61–91.
 31. ↵David Harvey, “History versus Theory: A Commentary on Marx’s Method in Capital,” *Historical Materialism* 20, no. 2 (2012): 12–14, 36.
 32. ↵Karl Marx and Friedrich Engels, *MEGA IV*, 26 (Berlin: Akademie Verlag, 2011), 214–19. See also Joseph Beete Jukes, *The Student’s Manual of Geology*, third edition (Edinburgh: Adam and Charles Black, 1872), 476–512; James Hansen, *Storms of My Grandchildren* (New York: Bloomsbury, 2009), 146–47.
 33. ↵Michael Hulme, “On the Origin of ‘The Greenhouse Effect’: John Tyndall’s 1859 Interrogation of Nature,” *Weather* 64, no. 5 (May 2009): 121–23; Daniel Yergin, *The Quest* (New York: Penguin, 2011), 425–28; Friedrich Lessner, “Before 1848 and After,” in Institute for Marxism-Leninism, ed., *Reminiscences of Marx and Engels* (Moscow: Foreign Languages Publishing House,

- n.d.), 161; Y.M. Uranovsky, “Marxism and Natural Science,” in Nikolai Bukharin, et. al., *Marxism and Modern Thought* (New York: Harcourt, Brace and Co., 1935), 140; Spencer R. Weart, *The Discovery of Global Warming* (Cambridge, MA: Harvard University Press, 2003), 3–4; W.O. Henderson, *The Life of Friedrich Engels*, vol. 1 (London: Frank Cass, 1976), 262.
34. ↪It is interesting to note in this regard that Marx’s friend Lankester was to emerge as the most virulent early twentieth-century critic of the catastrophic human destruction of species throughout the globe, particularly in his essay “The Effacement of Nature by Man.” See E. Ray Lankester, *Science From an Easy Chair* (New York: Henry Holt, 1913), 373–79.
35. ↪Schneider and McMichael, “Deepening, and Repairing, the Metabolic Rift,” 481–82. Others have been even more critical, claiming that Marx’s analysis cannot be considered ecological because he did not use the word “ecology” (coined by Haeckel in 1866 but not in general use in Marx and Engels’s lifetime—according to the *Oxford English Dictionary* the first reference to the term in English, outside of translations of Haeckel’s work, was in 1893) and because he could not have known about “the development of chemical sciences that produced PCBs, CFCs, and DDT.” De Kadt and Engel Di-Mauro, “Failed Promise,” 52–54.
36. ↪The earth-system notions of biogeochemical cycles and of the biosphere had their origins in the work of the Soviet scientist V.I. Vernadsky in the 1920s, and reflected the extraordinary development of dialectical ecology in the USSR in this period—prior to the purges, directed at ecologists in particular in the 1930s. See Foster, *Marx’s Ecology*, 240–44.
37. ↪See “Ecology,” *Oxford English Dictionary*, vol. 2 (Oxford: Oxford University Press, 1971), 1975;

- “Ecology,” *Oxford English Dictionary Online*; Ernst Haeckel, *The History of Creation*, vol. 2, translation supervised and revised by E. Ray Lankester (New York: D. Appleton and Co., 1880), 354; E. Ray Lankester, *The Advancement of Science* (New York: Macmillan, 1890), 287–387; Arthur G. Tansley, “The Use and Abuse of Vegetational Concepts Terms,” *Ecology* 16 (1935): 284–307; Foster, Clark, and York, *The Ecological Rift*, 324–34; Peter Ayres, *Shaping Ecology: The Life of Arthur Tansley* (Oxford: John Wiley and Sons, 2012), 42–44.
38. ↪Eugene P. Odum, “The Strategy of Ecosystem Development,” *Science* 164 (1969): 262–70; Frank Benjamin Golley, *A History of the Ecosystem Concept in Ecology* (New Haven: Yale University Press, 1993), 70; Howard T. Odum and David Scienceman, “An Energy Systems View of Marx’s Concepts of Production and Labor Value,” in *Emergy Synthesis 3: Theory and Applications of the Emergy Methodology*, Proceedings from the Third Biennial Emergy Conference, Gainesville, Florida, January 2004 (Gainesville, FL: Center for Environmental Policy, 2005): 17–43; Howard T. Odum, *Environment, Power, and Society* (New York: Columbia University, 2007), 303, 276; John Bellamy Foster and Hannah Holleman, “A Theory of Unequal Ecological Exchange: A Marx-Odum Dialectic,” forthcoming, *Journal of Peasant Studies* (2014).
39. ↪I owe this description of the viewpoint of modern soil science and the effects of the changing human metabolism on the nutrient cycle to Fred Magdoff. See Fred Magdoff and Harold Van Es, *Better Soils for Better Crops* (Waldford, MD: Sustainable Agricultural Research and Education Program, 2009).
40. ↪Frederick Engels, *On Marx’s Capital* (Moscow: Progress Publishers, 1956), 95.

41. ↪Frederick Engels, *The Housing Question* (Moscow: Progress Publishers, 1975), 92; see also Marx and Engels, *Collected Works*, vol. 25, 460–62.
42. ↪For a reasoned account of the Lysenko controversy see Levins and Lewontin, *The Dialectical Biologist*, 163–96.
43. ↪See John Bellamy Foster, “Marx’s Ecology and Its Historical Significance,” in Michael R. Redclift and Graham Woodgate, eds., *International Handbook of Environmental Sociology*, 2nd ed. (Northampton, MA: Edward Elgar, 2010), 106–20.
44. ↪See Barry Commoner, *The Poverty of Power* (New York: Bantam, 1976), 236–44; Levins and Lewontin, *The Dialectical Biologist*, and *Biology Under the Influence*; Richard York and Brett Clark, *The Science and Humanism of Stephen Jay Gould* (New York: Monthly Review Press, 2011).
45. ↪It is noteworthy that in his 1932 article, “The Method and Function of an Analytic Social Psychology,” that played such a crucial formative role in the development of the Frankfurt School, Fromm emphasized the need to deal with the nature-society dialectic and pointed to the importance of Nikolai Bukharin’s *Historical Materialism*, saying that it “underlines the natural factor in a clear way.” Fromm could only have meant Bukharin’s use in this work of Marx’s concept of metabolism. (Erich Fromm, *The Crisis of Psychoanalysis* [Greenwich, CT: Fawcett Publications, 1970], 153–54.) The Frankfurt School, however, did not follow this path, which would have required a radical reconsideration of the whole, difficult question of the dialectics of nature. Consequently, thinkers such as Fromm, Horkheimer, Adorno, and Marcuse were later to make various broad, critical-philosophical observations on the domination of nature, which all too often lacked substantive, materialist reference points with respect to ecosystem analysis,

- ecological science, and ecological crises themselves. Although the critical apparatus that they were able to employ allowed them to perceive the general conflict between capitalist society and the environment, the separation that had occurred between Western Marxism and natural science hindered further development in a field that demanded a critical or dialectical naturalism/realism and the recognition of nature’s own dynamics. On this general problem see Roy Bhaskar, *The Possibility of Naturalism* (Atlantic Highlands, NJ: Humanities Press, 1979). On Adorno’s limited recognition of the importance of Marx’s concept of social metabolism see Deborah Cook, *Adorno on Nature* (Durham, UK: Acumen, 2011), 24–26, 103–4.
46. ↪Marina Fischer-Kowalski, “Society’s Metabolism,” in Michael Redclift and Graham Woodgate, eds., *International Handbook of Environmental Sociology* (Northampton, MA: Edward Elgar, 1997), 122.
 47. ↪Helmut Haberl, Marina Fischer-Kowalski, Fridolin Krausmann, Joan Martinez-Alier, and Verena Winiwarter, “A Socio-Metabolic Transition Towards Sustainability?: Challenges for Another Great Transformation,” *Sustainable Development* 19 (2011): 1–14. The authors of this article avoid attributing the origin of the concept of “social metabolism” to Marx, preferring to cite R.U. Ayres and U.E. Simonis as their first instance of the use of the concept, due to Ayres and Simonis’s use of the category of “industrial metabolism” in a 1994 edited volume. Nevertheless, both Fischer-Kowalski and Martinez-Alier were clear in their earlier writings that the concept of “social metabolism” had its origin in Marx. Their failure to note that here may be related to the fact that this article seeks to avoid the question of capitalism altogether, tracing the contemporary ecological problem

- simply to “industrial society,” contradicting in that respect earlier work by at least some of these authors.
48. ↪Wishart, “Metabolic Rift: A Selected Bibliography.”
 49. ↪Johann Rockström, et. al., “A Safe Operating Space for Humanity,” *Nature* 461 (September 24, 2009): 472–75; Foster, Clark, and York, *The Ecological Rift*, 13–18.
 50. ↪“NASA Satellite Measures Earth’s Carbon Metabolism,” *NASA Earth Observatory*, April 22, 2003, <http://earthobservatory.nasa.gov>.
 51. ↪J.G. Canadell, et. al., “Carbon Metabolism of the Terrestrial Biosphere,” *Ecosystems* (2000) 3: 115–30.
 52. ↪James Hansen, “An Old Story But Useful Lessons,” September 26, 2013, <http://columbia.edu/~jeh1/>.
 53. ↪Marx, *Capital*, vol. 1, 637–38.
 54. ↪“Real labour,” Marx wrote, “is purposeful activity aimed at the creation of a use value, at the appropriation of natural material in a manner which corresponds to particular needs.” Marx and Engels, *Collected Works*, vol. 30, 55. Obviously the more the labor process is alienated and thus estranged from these essential natural and social conditions, the more it takes on an artificial, unreal form.
 55. ↪This is not to say that Marx was completely unaware of the problem of specifically capitalist use values and the wasted labor associated with it. On this see John Bellamy Foster, “James Hansen and the Climate-Change Exit Strategy,” *Monthly Review* 64, no. 9 (February 2013): 14.
 56. ↪On the role of specifically capitalist use values in today’s phase of monopoly-finance capital see John Bellamy Foster, “The Epochal Crisis,” *Monthly Review* 65, no. 5 (October 2013): 1–12.
 57. ↪See William Morris, *William Morris: Artist, Writer, Socialist*, vol. 2 (Cambridge: Cambridge University Press, 1936), 469–82, and *Collected Works*, vol. 23 (New York: Longhams Green, 1915), 98–120, 238–54. Morris’s stance here was closely related to the general ecological

- tenor of his socialism evident in his 1890 utopian novel, *News From Nowhere*. See also Harry Magdoff, “The Meaning of Work,” *Monthly Review* 34, no. 5 (October 1982): 1–15.
58. ↪Morris, *William Morris: Artist, Writer, Socialist*, 479. The ellipsis before the word “refusing” in the first paragraph of this quote replaces the word “not,” which was clearly a typographical error in the preparation of the text.
 59. ↪Thorstein Veblen, *Absentee Ownership and Business Enterprise in Recent Times* (New York: Augustus M. Kelley, 1923); Paul A. Baran and Paul M. Sweezy, *Monopoly Capital* (New York: Monthly Review Press, 1966), and “The Last Letters,” *Monthly Review* 64, no. 3 (July–August 2012): 68, 73.
 60. ↪John Bellamy Foster, Hannah Holleman, and Robert W. McChesney, “The U.S. Imperial Triangle and Military Spending,” *Monthly Review* 60, no. 5 (October 2008): 10; “U.S. Marketing Spending Exceeded \$1 Trillion in 2005,” *Metrics 2.0*, January 26, 2006, <http://metrics2.com>; U.S. Bureau of Economic Analysis, National Income and Product Accounts, “Government Consumption Expenditures and Investment by Function,” Table 3.15.5, <http://bea.gov>; “U.S. Remains World’s Largest Luxury Goods Market in 2012,” *Modern Wearing*, October 22, 2012, <http://modernwearing.com>; “Groundbreaking Study Finds U.S. Security Industry to be \$350 Billion Industry,” *ASIS Online*, August 12, 2013, <http://asisonline.org>.
 61. ↪On this see Foster, “James Hansen and the Climate-Change Exit Strategy,” 16–18, and “The Epochal Crisis,” 9–10.

THE ECOLOGY OF MARXIAN POLITICAL ECONOMY²

John Bellamy Foster

It is no secret today that we are facing a planetary environmental emergency, endangering most species on the planet, including our own, and that this impending catastrophe has its roots in the capitalist economic system. Nevertheless, the extreme dangers that capitalism inherently poses to the environment are often inadequately understood, giving rise to the belief that it is possible to create a new “natural

² *Monthly Review*, Volume 63, Issue 04 (September), 2011. See <http://monthlyreview.org/2011/09/01/the-ecology-of-marxian-political-economy>

capitalism” or “climate capitalism” in which the system is turned from being the enemy of the environment into its savior.¹ The chief problem with all such views is that they underestimate the cumulative threat to humanity and the earth arising from the existing relations of production. Indeed, the full enormity of the planetary ecological crisis, I shall contend, can only be understood from a standpoint informed by the Marxian critique of capitalism.

A common weakness of radical environmental critiques of capitalism is that they rely on abstract notions of the system based on nineteenth-century conditions. As a result many of the historically specific underpinnings of environmental crises related to twentieth- (and twenty-first) century conditions have been insufficiently analyzed. Marx’s own indispensable ecological critique was limited by the historical period in which he wrote, namely, the competitive stage of capitalism, and thus he was unable to capture certain crucial characteristics of environmental destruction which were to emerge with monopoly capitalism. In the following analysis, therefore, I will discuss not only the ecological critique provided by Marx (and Engels), but also that of later Marxian and radical political economists, including such figures as Thorstein Veblen, Paul Baran, Paul Sweezy, and Allan Schnaiberg.

Marx and the Capitalist *Raubbau*

It is seldom recognized that Marx’s very first political economic essay—“Debates on the Law on Theft of Wood,” written in 1842 during his editorship of *Rheinische Zeitung*—was focused on ecological issues. A majority of those in jail in Prussia at that time were peasants arrested for picking up dead wood in the forests. In carrying out this act the peasants were merely exercising what had been a customary right, but was disallowed with the spread of private property. Observing the

debates on this issue in the Rhineland Diet (the provincial assembly of the Rhineland), Marx commented that the dispute centered on how best to protect the property rights of landowners, while the customary rights of the population in relation to the land were simply ignored. Impoverished peasants were viewed as the “enemy of wood” because the exercise of their traditional rights to gather wood primarily as fuel for cooking and warming their homes transgressed the ownership rights of private property holders.²

It was not long after this that Marx began his systematic research into political economy. It therefore should not surprise us that as early as his *Economic and Philosophical Manuscripts of 1844* he was already focusing on the issue of primitive accumulation, i.e., the dispossession of the peasantry, who were being removed from the land in the course of capitalist development. It was this separation of workers from the earth as means of production that he was later to refer to in *Capital* as the “historical precondition of the capitalist mode of production” and its “permanent foundation,” the basis for the emergence of the modern proletariat.³ Capitalism began as a system of encroachment on nature and public wealth.

Here it is important to recognize that at the very root of Marx’s critique of political economy was the distinction between use value and exchange value. Every commodity, he explained in the opening pages of *Capital*, had both a use value and an exchange value, with the latter increasingly dominating the former. Use value was associated with the requirements of production in general and with the basic human relation to nature, i.e., fundamental human needs. Exchange value, in contrast, was oriented to the pursuit of profit. This established a contradiction between capitalist production and production in general (that is, the natural conditions of production).

This contradiction was most evident in Marx’s time in terms of what came to be known as the Lauderdale Paradox, named after James Maitland, the eighth Earl of Lauderdale (1759–1839). Lauderdale was one of the early classical political economists, author of *An Inquiry into the Nature of Public Wealth and into the Means and Causes of its Increase* (1804). Public wealth, he explained, consisted of use values, which, like water and air, oftentimes existed in abundance, while private riches were based on exchange values, which demanded scarcity. Under such conditions—he charged against the system—the expansion of private riches went hand in hand with the destruction of public wealth. For instance, if water supplies that had previously been freely available were monopolized and a fee placed on wells, then the measured riches of the nation would be increased at the expense of public wealth.

“The common sense of mankind,” Lauderdale declared, “would revolt” at any proposal to increase private riches “by creating a scarcity of any commodity generally useful and necessary to man.” But the bourgeois society in which he lived, he recognized, was already doing that. Thus Dutch colonists had in particularly fertile periods burned “spiceries” or paid natives to “collect the young blossoms or green leaves of the nutmeg trees” to kill them off; while planters in Virginia by legal enactment burned a certain share of their crops to maintain the price. “So truly is this principle understood by those whose interest leads them to take advantage of it,” he wrote, “that nothing but the impossibility of general combination protects the public wealth against the rapacity of private avarice.”⁴

Marx saw the Lauderdale Paradox, arising out of “the inverse ratio of the two kinds of value” (use value and exchange value), as one of the chief contradictions of bourgeois production. The entire pattern of capitalist development was characterized by the wasting away and

destruction of the natural wealth of society.⁵ “For all its stinginess,” he wrote, “capitalist production is thoroughly wasteful with human material, just as its way of distributing its products through trade, and its manner of competition, make it very wasteful of material resources, so that it loses for society [public wealth] what it gains for the individual capitalist [private riches].”⁶

The domination of exchange value over use value in capitalist development and the ecological impact of this can also be seen in Marx’s general formula of capital, M-C-M’. Capitalism is commonly described as a system conforming to simple commodity production, C-M-C, in which money is simply an intermediary in a process of production and exchange, beginning and ending with particular use values embodied in concrete commodities. In sharp contrast, Marx explained that capitalist production and exchange takes the form of M-C-M’, in which money capital is advanced for labor and materials with which to produce a commodity, which can then be sold for *more money*, i.e., M’, or M + Δm (surplus value), at the end of the process. The crucial difference here is that *the process never really ends*, since money or abstract value is the object. The M’ is reinvested in the following period, resulting in M’-C-M’’, which leads to M’’-C-M’’’ in the period after that, and so on.

In order to maintain a given share of wealth under this system, the capitalist must continually seek to expand it. The law of value therefore constantly whispers to each individual capitalist and to the capitalist class as a whole, “Go on! Go on!” This, however, requires the incessant revolutionization of production to displace labor power and promote profits in the service of ever-greater accumulation. Moreover, as production grows “the consuming circle within circulation” must grow correspondingly. Intrinsic to the capital relation, Marx insisted, was the refusal to accept any absolute boundaries to its advance, which were treated as mere barriers to be

surmounted. These propositions, intrinsic to Marx’s political economy, constituted the foundations for what Schnaiberg was later to call the “treadmill of production” model.⁷

Marx’s most pointed ecological contribution, however, lay in his theory of metabolic rift. Building on the work of the great German chemist Justus von Liebig, Marx argued that in shipping food and fiber hundreds and thousands of miles to the new urban centers of industrial production, where population was increasingly concentrated, capital ended up robbing the soil of its nutrients, such as nitrogen, phosphorus, and potassium, which instead of being returned to the earth created pollution in the cities. Liebig called this “*Raubbau*” or the robbery system. As Ernest Mandel put it in his *Marxist Economic Theory*:

Serious scientists, notably the German Liebig, had drawn attention to a really disturbing phenomenon, the increased exhaustion of the soil, the *Raubbau*, resulting from greedy capitalist methods of exploitation aimed at getting the highest profit in the shortest time. Whereas agricultural societies like China, Japan, ancient Egypt, etc., had known a rational way of carrying on agriculture which conserved and even increased the fertility of the soil over several thousand years, the capitalist *Raubbau* had been able, in certain parts of the world, to exhaust the fertile layer of soil... in half a century.⁸

For Marx this capitalist *Raubbau* took the form of “an irreparable rift” within capitalist society in the metabolism between humanity and the earth—“a metabolism prescribed by the natural laws of life itself”—requiring its “systematic restoration as a regulative law of social production.” In the industrialization of agriculture, he suggested, the true nature of “capitalist production” was revealed, which “only develops... by simultaneously undermining the original sources of all wealth—the soil and the worker.”

In order to understand the significance of this ecological critique for Marx's overall critique of capitalism, it is necessary to recognize that the labor and production process was itself designated, in his analysis, as the metabolic relation between human beings and nature. Marx's primary definition of socialism/communism was therefore that of a society in which "the associated producers govern the human metabolism with nature in a rational way...accomplishing it with the least expenditure of energy." Along with this, he developed the most radical conception of sustainability possible, insisting that no one, not even all the countries and peoples of the world taken together, owned the earth; that it was simply held in trust and needed to be maintained in perpetuity in line with the principle of *boni patres familias* (good heads of the household). His overall ecological critique thus required that instead of the open rifts developed under capitalism, there needed to be closed metabolic cycles between humanity and nature. This allowed him to incorporate thermodynamic conceptions into his understanding of economy and society.²

The totality of Marx's ecological insights went, of course, beyond the foregoing points. Space, however, does not allow full treatment of them here. Still, it is worth noting that his analysis together with that of Engels also touched on such critical issues as the "squandering" of fossil fuels and other natural resources; desertification; deforestation; and regional climate change—already understood by scientists in Marx's day as resulting in part from the human degradation of the local environment.¹⁰

Monopoly Capital and the Environment

Elements of Marx's general ecological critique resonated with developments in material science, providing inspiration directly and indirectly for a number of important materialist

scientists and philosophers of science in the decades that followed. Things were quite different, however, within Marxian political economy, where Marx's critique of the capitalist *Raubbau* was rarely acknowledged (or drawn upon) between the close of the nineteenth century and the close of the twentieth century.¹¹

The main discoveries of Marxian and radical political economy in the ecological realm in the twentieth century can be seen as arising out of responses to the changed conditions associated with the monopoly stage of capital, and the altered environmental regime that it brought into being. The earliest theorists of monopoly capitalism were Rudolf Hilferding in Germany and Thorstein Veblen in the United States. Hilferding, although building his analysis directly on Marx's political economy, had surprisingly little to say about environmental conditions. In contrast, Veblen—a socialist economist influenced by Marx but not himself a Marxist—saw the transition from free competition to the age of the monopolistic corporation as having immense implications for the environment, resource use, and economic waste.

In his final, 1923 work, *Absentee Ownership and Business Enterprise in Recent Times*, Veblen stressed that "the American plan" of resource exploitation was one of accumulation by encroachment on both the environment and on the indigenous population. In line with the Lauderdale Paradox, it took the form of "a settled practice of converting all public wealth to private gain on a plan of legalized seizure." The "custom," he wrote, was "to turn every public need to account as a means of private gain, and to capitalise it as such."

In the stage of free competition, Veblen argued, "staple resources" had been overexploited "by speeding up the output and underbidding on the price," leading to "a rapid exhaustion, with waste, of the natural supply." This set the stage for monopoly capital (absentee ownership) with its more

collusive methods of turning public wealth to private gain, by means of the careful regulation of scarcity and monopolistic pricing. This evolution was especially evident in the timber, coal, and oil industries, each of which initially involved prodigious waste, and led to eventual monopoly control by a relatively few absentee owners. As a result of these developments, Veblen noted, the “enterprise of lumbermen during the period since the middle of the nineteenth century has destroyed appreciably more timber than it has utilised.”¹²

Veblen’s more important ecological insights, however, had to do with the transformation of use value and consumption under the new regime of big business. A characteristic of monopoly capitalism was the virtual elimination of price competition by corporations, which was accompanied by the restriction of output. This allowed for monopolistic (or oligopolistic) pricing, which produced large gains for the giant enterprises. With price warfare effectively banned, “competitive strategy” was primarily “confined to two main lines of endeavour:—to reduce the production-cost of a restricted output; and to increase their sales without lowering prices.” Veblen pointed out that the very effectiveness of monopoly capital in containing production costs—by holding down wages and thereby, in Marxian terms, increasing the rate of surplus value—meant that at any given price the margin available for increases in sales costs (without cutting into profit margins) expanded. Thus a larger and larger share of the total cost of goods was associated with promotion of sales as opposed to the production of the commodity.¹³ The implications of this for the use value structure of the economy were profound. “One result,” he stated,

has been a very substantial and progressive increase of sales-cost; very appreciably larger than an inspection of the books would show. The producers have been giving continually more attention to the

saleability of their product, so that much of what appears on the books as production-cost should properly be charged to the production of saleable appearances. The distinction between workmanship and salesmanship has progressively been blurred in this way, until it will doubtless hold true now that the shop-cost of many articles produced for the market is mainly chargeable to the production of saleable appearances.¹⁴

He saw this as applying especially to the “vogue of ‘package goods’”:

The designing and promulgation of saleable containers,—that is, to say such containers as will sell the contents on the merits of the visual effect of the container,—has become a large and, it is said, a lucrative branch of the business of publicity. It employs a formidable number of artists and “copy writers” as well as of itinerant spokesmen, demonstrators, interpreters; and more than one psychologist of eminence has been retained by the publicity agencies for consultation and critical advice on the competitive saleability of rival containers and the labels and doctrinal memoranda which embellish them. The cost of all this is very appreciable...It is presumably safe to say that the containers account for one-half the shop cost of what are properly called “package goods,” and for something approaching one-half the price paid by the consumer. In certain lines, doubtless, as, e.g., in cosmetics and household remedies, this proportion is exceeded by a very substantial margin.¹⁵

The upshot of the infiltration of “salesmanship” into production was the proliferation of economic waste—defined by Veblen in *The Theory of the Leisure Class* as “expenditure” that “does not serve human life or human well-

being on the whole.” Indeed, much of the initial demand for purchased goods under monopoly capitalism was due to “invidious pecuniary comparison,” i.e., status distinctions arising from having something beyond the reach of others, as well as the various forms of “conspicuous consumption” and “conspicuous waste” associated with this. The more one could display the ostentatiousness of one’s life the higher one’s social prestige. Corporate advertising encouraged such invidious comparisons first among the rich and then within the middle and working classes, often by instilling in people a fear of loss of social status.¹⁶

It is crucial to understand that the problem, raised by Veblen, of the transformation of consumption and the distortion of use values under capitalism played no significant role in the earlier work of Marx or his immediate followers (or indeed in that of other nineteenth-century critics of the system). To be sure, Engels wrote that under capitalism “the useful effect” of a commodity “retreats far into the background, and the sole incentive becomes the profit to be made on selling.”¹⁷ Implicit in this view was the notion that use values could be subordinated to exchange values and the structure of consumption to the forces of production. Yet, nowhere in *Capital* did Marx provide any analysis of the “interaction of production and consumption resulting from technical change” and the accompanying transformation of the use-value structure of the economy. The reason was that, in nineteenth-century competitive capitalism, workers’ consumption goods (as distinct from capitalist luxury goods) were not yet subjected to the gargantuan “sales effort,” which was to arise fully only with monopoly capitalism.¹⁸ While waste was commonplace in competitive capitalism—arising from the irrationality and duplication inherent to competition itself—such waste did not have the same “functional” role for accumulation that it was later to acquire under monopoly capitalism, where the chief problem was no longer efficiency

of production, on the supply-side, but the generation of markets, on the demand-side. For this reason, advertising and marketing in general, along with such factors as product differentiation, played only a miniscule role in the nineteenth century. Analysis of these developments thus had to await their appearance in the early twentieth century. This analysis was accomplished first by Veblen, and then—in a synthesis of Marx and Veblen—in Baran and Sweezy’s *Monopoly Capital* in 1966.

For Baran and Sweezy the principal problem under monopoly capitalism was the absorption of the enormous economic surplus resulting from the constantly expanding productivity of the system. This economic surplus could be absorbed in three ways: capitalist consumption, investment, or waste.¹⁹ Capitalist consumption was limited by the drive to accumulate on the part of the capitalist class, while investment itself was constrained by market saturation (due principally to the repression of wage-based consumption and conditions of industrial maturity). Hence, capitalism in its monopoly stage was threatened by a problem of markets and a declining rate of utilization of both productive capacity and employable labor.²⁰ Under such circumstances, the deepening reliance on economic waste served to keep markets going, becoming a necessary part of the monopoly-capitalist economy.

Baran and Sweezy argued that economic waste took various forms, notably military spending and the sales effort, the latter including: “advertising, variation of the products’ appearance and packaging, ‘planned obsolescence,’ model changes, credit schemes, and the like.” The sales effort preceded capitalism’s monopoly stage, but it was only under monopoly capitalism that it assumed “gigantic dimensions.”

The most obvious form of the sales effort was of course advertising, which grew by leaps and bounds in the twentieth century. Perhaps the “dominant function” of advertising for the system, Baran and Sweezy observed, was “that of waging,

on behalf of the producers and sellers of consumer goods, a relentless war against saving and in favor of consumption.”²¹ Yet, advertising, they recognized, was only the tip of the iceberg where modern marketing was concerned, which today also includes targeting, motivation research, product management, sales promotion, and direct marketing.²² According to Blackfriars Communications, the United States in 2005 spent over \$1 trillion, or around 9 percent of GDP, on various forms of marketing.²³

However, the main structural impact of the sales effort on the system for Baran and Sweezy, following Veblen, was to be found in “the emergence of a condition in which the sales and production efforts interpenetrate to such an extent as to be virtually indistinguishable.” This marked “a profound change in what constitutes socially necessary costs of production as well as in the nature of the social product itself.” Under these circumstances, constant model changes, product obsolescence, wasteful packaging, etc., all served to reorder the relations of consumption—altering the use value structure of capitalism and enlarging the waste incorporated within production. They estimated that automobile model changes alone were costing the country some 2.5 percent of its GDP. In comparison to this the expenditures of the automobile manufacturers on advertising were miniscule. “In the case of the automobile industry,” they wrote, “and doubtless there are many others that are similar in this respect, by far the greater part of the sales effort is carried out not by obviously unproductive workers such as salesmen and advertising copy writers but by seemingly productive workers: tool and die makers, draftsmen, mechanics, assembly line workers.” They concluded, “What is certain is the negative statement which, notwithstanding its negativity, constitutes one of the most important insights to be gained from political economy: an output the volume and composition of which are determined by the profit maximization policies of oligopolistic

corporations neither corresponds to human needs nor costs the minimum possible amount of human toil and human suffering.”²⁴

Adopting a related perspective, Michael Kidron conservatively estimated in his *Capitalism and Theory* that in 1970, 61 percent of U.S. production could be classified as economic waste—i.e., resources diverted to the military, advertising, finance and insurance, waste in business, conspicuous luxury consumption, etc.²⁵ Increasingly, what was being produced under monopoly capitalism were formal or *specifically capitalist use values*, the primary “usefulness” of which lay in the exchange value they generated for corporations.²⁶

Rational standards of human welfare and resource use, Baran and Sweezy claimed, required an entirely different approach to production. As early as 1957, in *The Political Economy of Growth*, Baran suggested that the optimum economic surplus in a planned economy would be less than that of maximum-potential economic surplus—requiring a slower rate of economic growth—due, among other reasons, to the need to curtail certain “noxious types of production (coal mining, for example).”²⁷ Likewise Sweezy argued in the 1970s that the need for every worker to have a car to go to work was not a product of human nature but artificially generated as a result of the whole “automobile-industrial complex” of so-called “modernized” capitalist society. The system of privatized (but publicly subsidized) transportation “externalized” costs such as air pollution, urban decay, and traffic fatalities onto the rest of society, while generating huge profits for corporations. In contrast, a more rational society would produce social use values: “functional, aesthetically attractive and durable,” meeting genuine human needs, utilizing “methods of production compatible with humanized labor processes.”²⁸

Other thinkers in the same period developed related notions. John Kenneth Galbraith advanced his famous thesis of the “dependence effect” applicable to oligopolistic capitalism in *The Affluent Society* in 1958. He argued that the very process of “production of goods creates the wants that the goods are presumed to satisfy”—a thesis designed to overthrow the neoclassical theory of consumer sovereignty. Joan Robinson in her Richard T. Ely Lecture to the American Economic Association in 1971 (with Galbraith as the chair) raised the issue of the “Second Crisis of Economic Theory.” Mistakenly assuming that Keynes had provided the solution to “the first crisis,” i.e., the level or *quantity* of production, Robinson went on to contend that now was the time to turn to the “second crisis,” i.e., the *quality* or content of production. Military production, pollution, inequality, and poverty were all being generated, she argued, not in spite of—but *because of*—the strategies adopted to expand capitalist growth. In the same year Barry Commoner in his *The Closing Circle* highlighted the ecological dangers associated, in particular, with the petrochemical industry, which he argued was deeply embedded in an increasingly toxic mode of production driven by profit.²⁹

Elements of this general ecological critique of monopoly capitalism were drawn together in Allan Schnaiberg’s 1980 treatise, *The Environment: From Surplus to Scarcity*, one of the founding works of environmental sociology. Already in the 1970s, environmentalists had begun to speak of environmental impact as a result of three factors: population, affluence (or consumption), and technology—with the last two factors, consumption and technology, standing for the role of the economy.³⁰ The structure of Schnaiberg’s book was clearly derived from this, with chapters two through five focusing, successively, on population, technology, consumption, and production. Schnaiberg’s brilliance was to draw on Marxian and radical political economy to show that

the first three of these were conditioned by the fourth, making what he called “the treadmill of production” the fundamental environmental problem. He wrote of the “monopoly capital treadmill,” and insisted: “Both the volume and source of...treadmill production is high-energy monopoly-capital industry.”

For Schnaiberg, the monopoly stage of capitalism was geared to labor-saving, energy-intensive production. By constantly displacing labor and producing ever-greater economic surplus, which overflowed corporate coffers, the system generated a growing problem of effective demand—which it then attempted to solve by introducing various extraordinary means of expanding consumption. Contemporary consumption, he argued in Galbraithian terms, did not reveal consumer preferences so much as the profitability requirements of corporations—with consumer choices circumscribed by modern marketing and the technology of the treadmill. Schnaiberg’s realistic conclusion was that attempts to address the ecological problem by focusing on population, consumption, or technology would inevitably fail—since the real problem was the treadmill of production itself.³¹

The treadmill of production (or of accumulation), as we have seen, can be explained in Marx’s terms, using the general formula for capital—or $M-C-M'$, which in the next period of production, becomes $M'-C-M''$, and in the period after that $M''-C-M'''$, *ad infinitum*. For Marx, capital was a system of self-expanding value. It had, as Sweezy was to say, “no braking mechanism other than periodic economic breakdowns.”³² This is the basis of the standard ecological critique directed at capitalism, which emphasizes the scale effect of capitalist growth in relation to the earth’s limited carrying capacity. Hence, it is rightly assumed that to solve the ecological problem it is necessary to intervene in order to slow down, stop, reverse, and eventually dismantle the

treadmill, particularly at the center of the system. Nevertheless, the standard treadmill perspective, if taken by itself, tends to reduce the ecological problem to a *quantitative* one, deemphasizing the more *qualitative* aspects of the dialectic, represented today by the promotion of specifically capitalist use values and thus economic waste.

Here it is useful to stress that the C in the M-C-M' relation, standing for the concrete use value aspect of the commodity, has now become transformed under monopoly control into a specifically capitalist use value, which we can designate as CK—to stand for the almost complete subordination of use value to exchange value in the development of the commodity. The problem of M-C-M' then becomes one of M-CK-M', in which the qualitative as well as quantitative problems of accumulation/ecological destruction assert themselves through the creation of formal use values. In today's packaged goods, the package, designed to sell the commodity and incorporated into its production costs, is now the larger part of the commodity. Thus Campbell soup marketers commonly refer to the soup as the mere *substrate* of the product. Or to take a more economically significant example, since the 1930s the production cost of the motor vehicle has only been a small part of the final sales price, most of which is related to marketing and distribution. As Stephen Fox stated in his *Mirror Makers: A History of American Advertising*, today's cars are "two-ton packaged goods, varying little beneath the skins of their increasingly outlandish styling." The average automobile sold in the United States today has lower fuel efficiency than the Model T Ford.³³ All of this suggests that use value, C, associated with the conditions of production in general, has increasingly given way under monopoly capitalism, to specifically capitalist use value, CK—incorporating all sorts of socially unproductive features, with the object of generating higher sales, and hence realizing profit, M'.

It is this relentless reduction of consumption to the needs of capital accumulation by means of the alienation of use value (e.g., making plastic wrapping part of the production price of a loaf of bread) that lies behind the worst aspects of what is mistakenly thought of as "consumerism": the seemingly endless demand for superfluous, even toxic, products associated with today's throwaway society.³⁴ How else do we explain that, worldwide, upwards of 500 billion and perhaps as many as a trillion plastic shopping bags (given away for free) are consumed every year; that some 300 billion pounds of packaging are disposed of every year in the United States; and that 80 percent of all U.S. goods are used once and then thrown away? Much of this is toxic waste; Americans discard seven billion tons of PVC (polyvinyl chloride) plastic—the most hazardous plastic product—annually. In 2008 the Center for Health, Environment and Justice issued a report indicating that an ordinary new shower curtain, which uses PVC plastic, released 108 separate volatile compounds in the home environment over twenty-eight days of ordinary usage, creating a level of these compounds that was sixteen times beyond what was recommended by the U.S. Green Building Council.³⁵

Quite apart from its toxic nature, the economic and ecological waste embedded in the production and consumption process is enormous. "To say that 'capitalism has been simultaneously the most efficient *and* the most wasteful productive system in history,'" Douglas Dowd wrote in *The Waste of Nations*, "is to point to the contrast between the great efficiency with which a particular factory produces and packages a product, such as toothpaste, and the contrived and massive inefficiency of an economic system that has people pay for toothpaste a price over 90 percent of which is owed to the marketing, not the production, of the dentifrice."³⁶

William Morris, who saw the very beginnings of monopoly capitalism, referred to "the mass of things which no

sane man could desire, but which our useless toil makes—and sells.”³⁷ Today we have to recognize that many of these superfluous goods carry enormous costs to the environment and human health. Indeed, many of our most common use values, as Commoner explained, are the products of modern chemistry—introducing synthetic chemicals that are carcinogenic, mutagenic, and teratogenic into production, consumption, and the environment. These goods are cheap to produce (being energy- and chemical-intensive, not labor-intensive), they sell, and they generate high profit margins for corporations. The fact that many of them are virtually indestructible (non-biodegradable) and if incinerated—to prevent them from overwhelming landfills—give off dioxin and other deadly toxins, is viewed by the economic system as simply beside the point.³⁸

In the face of such contradictions, radical economist Juliet Schor has written of the “materiality paradox,” which suggests that people in our society are not too materialistic, but rather are not materialistic enough. We no longer retain, reuse, and repair products, because we have been taught to expect them to break down or fall apart due to product obsolescence, and then quickly to discard them. Indeed, as a society, we have become entrapped in a still deeper pattern of psychological obsolescence, promoted by modern marketing, encouraging us to throw away what we have only just bought—as soon as it is no longer “new.”³⁹

The Meaning of Revolution

The ecological critique generated by twentieth-century monopoly capital theory—the bare outlines of which I have sought to present here—only adds additional force to Marx’s classical ecological critique of capitalism. Every day we are destroying more and more public wealth—air, water, land, ecosystems, species—in the pursuit of private riches, which

turns consumption into a mere adjunct to accumulation, thereby taking on more distorted and destructive forms.

The metabolic rift in the relation of humanity to the earth that Marx described in the nineteenth century has now evolved into multiple ecological rifts transgressing the boundaries between humanity and the planet. It is not just the *scale* of production but even more the *structure* of production that is at fault in today’s version of the capitalist *Raubbau*. “Such is the dialectic of historical process,” Baran wrote, “that *within the framework of monopoly capitalism* the most abominable, the most destructive features of the capitalist order become the very foundations of its continuing existence—just as slavery was the *conditio sine qua non* of its emergence.”⁴⁰

It is the historic need to combat the absolute destructiveness of the system of capital at this stage—replacing it, as Marx envisioned, with a society of substantive equality and ecological sustainability—which, I am convinced, constitutes the essential meaning of revolution in our time.

Notes

1. ⇐ Paul Hawken, Amory Lovins, and L. Hunter Lovins, *Natural Capitalism* (New York: Little, Brown, and Co., 1999); L. Hunter Lovins and Boyd Cohen, *Climate Capitalism* (New York: Hill and Wang, 2011).
2. ⇐ Marx and Engels, *Collected Works* (New York: International Publishers, 1975), vol. 1, 224–63; Franz Mehring, *Karl Marx* (Ann Arbor: University of Michigan Press, 1979), 41–42.
3. ⇐ Karl Marx, *Early Writings* (London: Penguin, 1974), 309–22; Karl Marx, *Capital*, vol. 3 (London: Penguin, 1981), 754.

4. ↪ James Maitland, Earl of Lauderdale, *An Inquiry into the Nature and Origin of Public Wealth and into the Means and Causes of its Increase* (Edinburgh: Archibald Constable and Co., 1819), 37–59; *Lauderdale's Notes on Adam Smith*, ed. Chuhei Sugiyama (New York: Routledge, 1996), 140–41.
5. ↪ Karl Marx, *The Poverty of Philosophy* (New York: International Publishers, 1964), 35–36.
6. ↪ Marx, *Capital*, vol. 3, 180.
7. ↪ Karl Marx and Frederick Engels, *Selected Works in One Volume* (New York: International Publishers, 1968), 90; Karl Marx, *Grundrisse* (London: Penguin, 1973), 408; Allan Schnaiberg, *The Environment: From Surplus to Scarcity* (New York: Oxford University Press, 1980), 220–34.
8. ↪ Ernest Mandel, *Marxist Economic Theory* (New York: Monthly Review Press, 1968), vol. 1, 295.
9. ↪ Karl Marx, *Capital*, vol. 1 (London: Penguin, 1976), 283, 290, 348, 636–39, 860; Marx, *Capital*, vol. 3, 911, 949, 959. On Marx and thermodynamics see Paul Burkett and John Bellamy Foster, “Metabolism, Energy, and Entropy in Marx’s Critique of Political Economy,” *Theory and Society*, 35, no. 1 (February 2006), 109–56.
10. ↪ On Marx’s specific ecological insights in these areas see John Bellamy Foster, *Marx’s Ecology* (New York: Monthly Review Press, 2000), 165–66, 169. Engels and Marx addressed the issue of local climate change primarily in relation to changes in temperature and precipitation resulting from deforestation. See Engels’ notes on Carl Fraas in Karl Marx and Frederick Engels, *MEGA IV*, 31 (Amsterdam: Akademie Verlag, 1999), 512–15; Paul Hampton, “Classical Marxism and Climate Impacts,” *Workers’ Liberty*, August 5, 2010, <http://workersliberty.org>; Clarence J. Glacken, “Changing Ideas of the Habitable World,” in Carl O. Sauer, Marston

- Bates, and William L. Thomas, Jr., eds., *Man’s Role in the Changing Face of the Earth* (Chicago: University of Chicago Press, 1956), 77–81.
11. ↪ On the relation of Marx’s ecology to later scientific developments see John Bellamy Foster, *The Ecological Revolution* (New York: Monthly Review Press, 2009), 153–60. The Liebig-Marx argument on ecological metabolism was influential in Marxian political economic discussions through the end of the nineteenth century—for example, in the work of August Bebel and Karl Kautsky—but it was lost sight of during most of the twentieth century (an exception being K. William Kapp in *The Social Costs of Private Enterprise* [Cambridge, Massachusetts: Harvard University Press, 1950], 35–36).
12. ↪ Thorstein Veblen, *Absentee Ownership and Business Enterprise in Recent Times* (New York: Augustus M. Kelley, 1964), 127, 168, 171–72, 190.
13. ↪ *Ibid*, 285–88, 299–300.
14. ↪ *Ibid*, 300.
15. ↪ *Ibid*, 300–301.
16. ↪ Thorstein Veblen, *The Theory of the Leisure Class* (New York: New American Library, 1953), 78–80; Veblen, *Absentee Ownership*, 309.
17. ↪ Marx and Engels, *Collected Works*, vol. 25, 463.
18. ↪ Paul M. Sweezy, “Cars and Cities,” *Monthly Review*, 24, no. 11 (April 1973), 1–3; Paul A. Baran and Paul M. Sweezy, *Monopoly Capital* (New York: Monthly Review Press, 1966), 131–32.
19. ↪ Baran and Sweezy, *Monopoly Capital*, 79.
20. ↪ On “The Decreasing Rate of Utilization Under Capitalism” see István Mészáros, *Beyond Capital* (New York: Monthly Review Press, 1995), 547–79.
21. ↪ Baran and Sweezy, *Monopoly Capital*, 114–15, 128. Baran and Sweezy’s concept of economic waste (based on Marx’s analysis of unproductive labor) was complex,

- taking into account both: (1) waste as perceived from the standpoint of capital in general (but not recognized as such by the individual capitalist), and (2) waste from the standpoint of a rational society, representing the viewpoint of society as a whole (equivalent to Veblen's definition). For a detailed discussion see John Bellamy Foster, *The Theory of Monopoly Capitalism* (New York: Monthly Review Press, 1986), 97–101.
22. ↪ For a thorough analysis of modern marketing see Michael Dawson, *The Consumer Trap* (Urbana: University of Illinois Press, 2003).
 23. ↪ Metrics 2.0 Business and Market Intelligence, "U.S. Marketing Spending Exceeded \$1 Trillion in 2005," June 26, 2006, <http://metrics2.com>; Dawson, *The Consumer Trap*, 1. The estimate by Blackfriars Communications is clearly a vast underestimate since they are not incorporating the full effects of product management, i.e., the penetration of the sales effort into the production process.
 24. ↪ Baran and Sweezy, *Monopoly Capital*, 131, 137–39. It might be argued that Baran and Sweezy's argument (like Veblen's) was directed at the critique of capitalism from the standpoint of a rational socialist society, in line with what they called "the confrontation of reality with reason" (*Monopoly Capital*, 134) and was not, therefore, an ecological argument per se. Yet, it is precisely this "confrontation of reality with reason" that today unites the arguments for ecology and socialism. See, for example, Paul M. Sweezy, "Capitalism and the Environment," *Monthly Review* 41, no. 2 (June 1989), 1–10.
 25. ↪ Michael Kidron, *Capitalism and Theory* (London: Pluto Press, 1974), 35–60.
 26. ↪ Henryk Szlajfer, "Waste, Marxian Theory, and Monopoly Capital," in John Bellamy Foster and Henryk Szlajfer, ed., *The Faltering Economy* (New York:

- Monthly Review Press, 1984), 302–04, 310–13; John Bellamy Foster, *The Theory of Monopoly Capitalism* (New York: Monthly Review Press, 1986), 39–42.
27. ↪ Paul A. Baran, *The Political Economy of Growth* (New York: Monthly Review Press, 1957), 42.
 28. ↪ Paul M. Sweezy, "Comment," in Assar Lindbeck, *The Political Economy of the New Left* (New York: Harper and Row, 1977), 144–46.
 29. ↪ John Kenneth Galbraith, *The Affluent Society* (New York: New American Library, 1984), 121–23; Joan Robinson, *Contributions to Modern Economics* (Oxford: Blackwell, 1978), 1–13; Barry Commoner, *The Closing Circle* (New York: Alfred A. Knopf, 1971).
 30. ↪ This was the famous "IPAT formula": Impact = Population x Affluence x Technology. On the history of the IPAT formula see Marian R. Chertow, "The IPAT Equation and Its Variants: Changing Views of Technology and Environmental Impact," *Journal of Industrial Ecology* 4, no. 4 (October 2000), 13–29.
 31. ↪ Schnaiberg, *The Environment*, 245–47; John Bellamy Foster, Brett Clark, and Richard York, *The Ecological Rift* (New York: Monthly Review Press, 2010), 193–206. Schnaiberg's analysis, while drawing heavily on Marxian political economy, never directly addressed the fundamental problem of the interpenetration of the sales effort and production raised by Veblen and Baran and Sweezy. In subsequent work, his model was de-historicized and reduced to a more reified, mechanical form, with the connection to the Marxian theory of monopoly capital, and even the critique of capitalism itself, systematically de-emphasized. Hence, in his last published book—Kenneth A. Gould, David N. Pellow, and Allan Schnaiberg, *The Treadmill of Production* (Boulder: Paradigm Publishers, 2008)—capitalism makes only a cameo appearance. Nevertheless, Schnaiberg never

- repudiated his earliest views and continued to treat *The Environment* as his classic, fundamental contribution.
32. ↪ Paul M. Sweezy, "Socialism and Ecology," *Monthly Review* 41, no. 4 (September 1989), 7.
 33. ↪ Dawson, *The Consumer Trap*, 88–92; Douglas Dowd, *The Waste of Nations* (Boulder: Westview Press, 1989), 65–66; Stephen Fox, *The Mirror Makers: A History of American Advertising and Its Creators* (New York: William Morrow, 1984), 173; "Car Mileage: 1908 Ford Model T-25 MPG 2008 EPA Average All Cars—21 MPG," <http://wanttoknow.info>; Research and Innovative Technology Administration, Bureau of Transportation Statistics, Table, 4-23, "Average Fuel Efficiency of U.S. Light Duty Vehicles," www.bts.gov. Baran and Sweezy referred in *Monopoly Capital*, 136–37, to the decline in gas mileage of U.S. automobiles from 1939–1961.
 34. ↪ The evolution of bread manufacture under monopoly capitalism, including the changing of wrappings for bread, was used by Baran to explain how the sales effort, waste, and unproductive expenditures are built into the production process of monopoly capital. See Baran, *The Political Economy of Growth*, xx.
 35. ↪ Susan Freinkel, *Plastics: A Toxic Love Story* (Boston: Houghton Mifflin, 2011), 145–46; Annie Leonard, *The Story of Stuff* (New York: Free Press, 2010), 68–71; Heather Rogers, "Garbage Capitalism's Green Commerce," in Leo Panitch and Colin Leys, eds., *The Socialist Register, 2007* (New York: Monthly Review Press, 2007), 231.
 36. ↪ Douglas Dowd, *The Waste of Nations* (Boulder: Westview Press, 1989), 65.
 37. ↪ William Morris, *News from Nowhere and Selected Writings and Designs* (London: Penguin, 1962), 121–22.

38. ↪ Commoner, *The Closing Circle*, 138–41; see also John Bellamy Foster, *The Vulnerable Planet* (New York: Monthly Review Press, 1994), 112–18.
39. ↪ Juliet Schor, *Plenitude* (New York: Penguin, 2010), 27, 40–41. See also Raymond Williams, *Problems in Materialism and Culture* (London; Verso, 1980), 185.
40. ↪ Baran, *The Political Economy of Growth*, xv.

MARX AND ECOLOGY³

Michael Malkin

What was Karl Marx's attitude to nature? At Communist University 2000, Jack Conrad gave us an opening devoted to this question. Among other things, the aim of the comrade's talk was to defend Marx against ignorant accusations levelled at him by greens, bourgeois liberals and others to the effect that Marx must in some sense be held responsible for the ecological catastrophes that befell the USSR and other Soviet bloc states.

Rather than taking issue with Marx's enemies on this particular question - that will come later - my aim in these articles is to contribute to the debate by setting out a

³ Communist Party of Great Britain,
<http://www.cpgb.org.uk/home/weekly-worker/349/marx-and-ecology>

theoretical framework for further discussion. In the first, I want to define my own view of the subject in broad terms, and place Marx's naturalistic materialism in its historical and intellectual context.

I shall examine what I consider to be the philosophical kernel of Marx's materialism: namely, the idea that understanding humanity means understanding the relationship between human beings and nature, a relationship mediated through purposeful, productive labour - exercising our natural powers in order to satisfy our physical, emotional and spiritual needs, we enter into productive association with one another and with the forces of nature. In the process, we transform not only nature, but also ourselves.

This notion of humanity as its own creator was by no means original. Marx derived some of his ideas about it from Fichte, and a good deal more from Hegel. But in Marx the concept takes on a new, richer and more concrete form. I shall argue that it brought about a revolution in the way we think about human beings and society, and that it pervades all of Marx's thought, from the *Economic and philosophical manuscripts*, through the *Grundrisse* to *Capital* and beyond.

One subject that was of consuming interest to Marx, a theme that was to occupy him in one way or another throughout his life, was the question: what does it mean to be a *human* being? Not a human being in relation to god, spirit or any other *supernatural* entity; nor a human being seen *sub specie aeternitatis*; nor an "abstract being squatting outside the world", but "man in the world of man, the state, society" (D McLellan (ed) *Karl Marx: Selected writings* London 1977, p63 - hereafter *KMSW*). Rejecting the teleological preoccupations of so much previous philosophy, Marx dismisses as "speculative distortion" any reading of history which assigns a special, preordained role or destiny to 'man' in the abstract. From beginning to end, Marx's view is anthropocentric, but it is rooted in the study of "real

individuals, their activity and the material conditions of their life, both those which they find already existing and those produced by their activity" (K Marx and F Engels *The German Ideology* Moscow 1976, p36f, hereafter *GI*).

His perspective is always both historical and social. In the *Economic and philosophical manuscripts* Marx calls his approach "consistent naturalism or humanism", and says that it can be distinguished from both idealism and materialism, constituting at the same time their "unifying truth" (*ihre beide vereinigende Wahrheit* - *KMSW* p104). On many occasions, he writes about "the materialistic basis" of his method. He refers to the "materialistic character" of the views behind his theory, describing them as having "a relation to *naturalistic materialism*" (*KMSW* p359). A new and fascinating view of the relation between humanity and nature permeates Marx's thought and is central to his theories about history and society. This philosophical core was never made explicit in terms of a formal doctrine, so we have to establish it by synthesis. Such conclusions as a new reading of the texts may produce will, of necessity, be tentative. The task is one of exploration rather than definitive formulation.

The best way to start is to make clear what Marx's materialism is *not*.

First, Marx's materialism is *not* concerned primarily with 'matter': ie, it is not a transcendental, metaphysical, doctrine about some primal substance or stuff out of which everything that exists is made. This kind of absolute materialism is summed up in Engels's aphorism that, "The real unity of the world consists in its materiality" (F Engels *Anti-Dühring*, Moscow 1978, p60, hereafter *AD*). It is not that Marx disagreed with this as such - he did not. For Marx, as for all materialists, it was self-evident, to use another phrase from Engels, that "the material, sensuously perceptible world to which we ourselves belong is the only reality" ('Ludwig Feuerbach' in *Marx and Engels on religion* Moscow 1972,

p205, hereafter *MEOR*). But what interested Marx was *not matter, but nature*.

Secondly, Marx's materialism is not a reductionist doctrine of causation: ie, it does not claim that all events, *including mental events*, can be reduced to the operation of immanent laws governing the forms and motion of 'matter'. Marx certainly believed, with all materialists, that the mind has no independent existence without matter, and that it is what Engels called "the highest product of matter" (*ibid* p 206). But to say that 'x is the product of y' is not the same as saying that 'x is nothing but y'. Reducing human thinking and consciousness to biochemistry is totally alien to Marx's naturalistic approach. Such reductionism, as we shall see, is a facet of that 'vulgar' materialism against which Marx battled consistently.

Thirdly, Marx's materialism is *not* an abstract theory of knowledge. It does not regard perception as the passive reception of sense impressions produced by external stimuli and held in the mind in the form of images, reflections or copies of external phenomena (what Engels called *Abbilder*). Marx's practical, naturalistic approach meant that he had no time for speculative, scholastic theorising about such classical epistemological problems as the relationship between 'pure' thinking and reality. For him, these were not meaningful questions at all. To imagine that we can abstract ourselves *from* ourselves and perceive the world 'as it really is' outside the framework of human perception is an absurdity. For Marx, thinking is "sensuous human activity" or "practice" and the focus of this "real sensuous activity" is always the interaction between humanity and nature, in which consciousness plays a *constitutive* part (cf 'Theses on Feuerbach', *KMSW* p156). In a sense, every act of cognition is an act of creation.

Finally, for those new to the subject, there is one misunderstanding that seems trivial but still needs to be cleared up. Marx's materialism has *nothing* to do with being

'materialistic' in the colloquial sense. Marxists are materialists, but this does not mean that they are obsessed with material *things*. His attitude to this kind of 'materialism' was always perfectly clear:

"Private property has made us so stupid and one-sided that an object is only *ours* when we have it ... when we directly possess it ... all the physical and intellectual senses have been replaced by the simple estrangement of all these senses - the sense of *having*" (K Marx *Early writings* London 1975, p351f, hereafter *EW*).

Marx was not a moralising ascetic and it would be a mistake to see this passage as preaching against the 'evils' of acquisitiveness. But for Marx there is something debasing and dehumanising in the sort of 'materialism' which makes having more important than being, which judges people not by who they are, but by what they own. It is one of the manifestations of that alienation which perverts relations between people into relations between things and is of central importance to Marx's ethics.

So what *is* Marx's materialism? What does "consistent naturalism or humanism" *mean*? Naturalism is based on the conviction that the natural world (including, of course, human beings) is all that there is. In more technical language, we could say that, for Marx, "the 'natural' - including the human, and hence such human products as images and ideas - exhausts the totality of actual and possible objects of action and discourse" (see N Lash *A matter of hope* London 1961, p136). This natural world is self-sufficient and self-regulating. It requires no *supernatural* being or agency to explain its existence, because it is by itself capable of providing all the knowledge we need in order to understand all phenomena within it.

Marx's naturalism is humanistic and anthropological because, "Nature taken abstractly, for itself - nature fixed in isolation from man - is nothing for him" (*EW* p161).

Obviously, "the priority of external nature remains unassailed" (*GI* p175). The natural world existed billions of years before any life forms came along, but this pre-human world is of little interest to Marx, who wastes no time speculating about how it came into being or what it was like. The point is that for us now to think of nature abstractly, as something that can be dissociated from human existence and human activity would be nonsense. Marx equates "consistent naturalism" with "humanism" precisely because nature has effectively been 'humanised' by the practical activity of humankind throughout our existence as a species. *Homo faber* - man the maker - has made the world what it now is through "his active species-life, through [which] nature appears as his work and his reality" (*KMSW* p82). To see nature as something 'out there', an eternal and unchanging datum, is, therefore, a profound mistake.

This is stating the obvious, you may think. But sometimes it is necessary to do so. And if we want to grasp the impact of ideas in their historical context, we also need to use our imagination. Take the example of our thinking about the 'creation' of the world. It is hard not to agree with Roger Garaudy's remark that, "To grasp the absurdity of this question, this senseless formulation of a 'creation' that would be a transition from nothingness to being, is the essential role of materialism" (R Garaudy *Karl Marx: the evolution of his thought* London 1967, p85). The notion of evolutionary development is now so deeply embedded in the consciousness of most of us that we are apt to forget how relatively new this kind of thinking is.

The idea of looking at nature historically, of seeing it as the product of an immensely long process of evolutionary change, was deeply shocking in Marx's day. Darwin's *On the origin of species* (1859) and more particularly his *The descent of man* (1871) stirred up an enormous and lengthy controversy. This was a time when the literal truth of the bible

commanded more or less complete acceptance. Many intelligent people were apparently prepared to believe, with the 17th century archbishop of Armagh, James Ussher, that god had created the universe and everything in it in the space of six days, starting on October 26 4004 BC (see *Annales veteris et novi testamenti*). Darwin's work was seen, reasonably enough, as a threat to the foundations of religious belief. As a scientific theory which dispenses with the need for a creator or designer, evolution effectively makes god redundant. And by exposing the falsehood of the creation narratives in the book of Genesis, it also raises doubts about the truthfulness of scripture as a whole.

It was also argued, less rationally, that Darwin's work, by demonstrating the falsehood of scripture, destroyed the basis for any system of morality. The reasoning behind this proposition rests on the exclusive identification of morality with religion and is familiar enough: if god does not exist, then there is no after-life, no heaven and hell and no punishment for sin. Freed from the threat of god's wrath, human beings will behave like beasts. Accepting this proposition necessarily entails accepting its corollary, that when civilised humanity was guided by organised religion over the last few thousand years, our history was one of unalloyed moral probity.

This kind of thinking can still be found in 'god's own country', where American politicians of the religious right use it to justify the suppression of evolution and the teaching of creationism in schools and colleges. They seriously ask us to believe that the criminality and barbarism afflicting the western world (nowhere more so than in the USA itself) are solely the result of a decline in religious belief and that the restoration of such belief is the only way of removing these social evils. Theologically, this argument presents us with a characteristically pessimistic, almost despairing view of the potential of human beings and human institutions.

1. The mechanistic trend

Marx's naturalism, with its reiterated emphasis on humanity's practical, creative activity in shaping the world, sets him apart from many aspects of classical materialism. In *The holy family* he had sketched two trends in the development of materialism: one was inaugurated by Descartes, who had "endowed matter with self-creative power and conceived mechanical motion as the act of its life" (*KMSW* p150). This school interpreted human consciousness and intellectual activity mechanistically as the outcome of exclusively physiological processes. Lamettrie (1709-1751), for example, had taken Cartesian ideas about how animal organisms work and applied them to human beings. In his *L'homme machine* (1748), "a treatise after the model of Descartes' beast-machine", Lamettrie had "affirmed that the soul is a modus of the body and ideas are mechanical motions". This way of looking at humanity was taken further by Cabanis (1757-1808), who "perfected Cartesian materialism" (*ibid*). He argued that consciousness could be reduced to a purely mechanical, physiological process, in which thought was secreted by the brain in the same way that bile was secreted by the liver. It is hardly surprising that this approach to materialism became effectively merged with natural science. It was not an approach with which Marx had any sympathy.

A brief digression is called for at this point. In recent years, the mind-body problem has once again come into vogue. The American philosopher Daniel C Dennett, a prominent advocate of the mechanistic solutions proposed by Lamettrie and Cabanis, assures us that human consciousness can be reduced to physiological, biochemical processes in the brain and central nervous system (see D C Dennett *Consciousness explained* London 1991; and *Kinds of minds*

London 1996). Some Marxists, particularly those who get their ideas about materialism from a crude reading of Engels, may find this approach attractive as a scientific way of disposing of mind-body dualism. They should resist such temptations.

There should be no doubt that the implications of such a reductionist approach to this intractable problem are almost incalculable. It entails, for example, a fundamental redefinition of human identity. If our thoughts and feelings are really nothing more than "molecular and chemical motion in the brain" (as Engels expresses it), then in what sense can we talk coherently about human individuality or a sense of self, of individual human freedom, agency or responsibility? Marx is often accused (ignorantly and incorrectly) of being a thorough-going determinist, but if people like Dennett are right, we are left with a biological determinism that robs humanity of most, if not all, of its meaning.

True, without a brain and nervous system, we would obviously have no minds at all. To suggest, however, that mind is purely and simply identical with the operations of the brain and central nervous system seems absurd. Suppose, for the sake of argument, that it were possible to take the brain and spinal chord from a fresh cadaver, supply them with the necessary blood and oxygen, and subject them to appropriate electrical stimuli, thus replicating sensory perception and generating something akin to 'thought'. In theory, this artificial reproduction of the physiological mechanisms of the brain would satisfy all the mechanists' requirements for the existence of a mind. But it would be risible to maintain such a position.

Although there can be no thought unaccompanied by mechanical and chemical processes in the brain, these processes alone cannot surely explain the specific nature of thinking, nor serve as anything approaching an adequate definition of mind. Yes, the mind is a "property" of

specifically organised matter - ie, a "property" of the human brain (Engels) - but this explanation, while necessary, is by no means sufficient. My crude example of the 'brain in the jar' points to the source of the mechanists' distortion of materialism: they look at material-physiological processes undialectically, in isolation from the totality. The brain exists not in a jar, but in the head of a human being, whose mind and consciousness are constituted out of complex, interactive social processes, not just self-contained, physiological ones.

Another example to illustrate the point: suppose we imitated the holy Roman emperor Frederick Barbarossa and took a normal, healthy, new-born child, supplied it with all the physical requirements for survival, but kept it for 10 years in total isolation, without language or any other form of contact with another human being. It might have a brain working in such a way as to comply with the mechanists' requirements, but could this poor creature really be said, in any meaningful sense, to have a mind at all? Surely not, or at least not a human mind. It must remain arguable that there is a distinct, objective and irreducible reality to the mind - something qualitatively different from the mere operations of the brain, and that the essence of this reality is to be found in social intercourse mediated through language and other forms of communication.

This is certainly what Marx appears to have thought, though he says relatively little about the subject. He repudiated the materialism of Lamettrie, just as he did the vulgar materialism of Lamettrie's disciples among his own contemporaries, such as Vogt, Büchner and Moleschott. The terms of this repudiation are significant: "In its further development materialism became one-sided ... sensuousness lost its bloom and became the abstract sensuousness of the geometrician. Physical motion was sacrificed to the mechanical or mathematical ... materialism *became hostile to humanity* (KMSW p152).

Marx's distaste for the excessive abstraction of the mechanists is interestingly foreshadowed in his doctoral dissertation on Democritus and Epicurus. Democritus concerned himself exclusively with the atom as a "pure and abstract category". His atomism was a hypothesis intended to explain the phenomena of physical nature in absolute terms. Epicurus, on the other hand, wanted to understand nature in order to set humanity free from fear and spiritual slavery. Marx described him as "the greatest Greek enlightener" and founder of "the natural science of man's self-consciousness". The "invigorating principle" which Marx seized on in Epicurus was his naturalism: ie, his notion that nature and human beings could be described and explained in the same terms, so that there is no gulf between the world of nature and the world of humankind (see *KMSW* pp11-16).

That Marx singled out hostility to humanity (*Menschenfeindlichkeit*) as the most objectionable facet of mechanistic materialism is entirely characteristic of his humanism. When we come to look at Marx's thinking about knowledge, human nature and human individuality, we shall find him emphasising time and again this same point. For Marx, all explanations of consciousness, including materialist ones, are useless if they fail to take into account the *social and practical nature of human existence*:

"Language is as old as consciousness; language is practical, real consciousness that exists for other men as well, and only therefore does it also exist for me; language, like consciousness, only arises from the need, the necessity of intercourse with other men. Consciousness is, therefore, from the very beginning a social product, and remains so as long as men exist at all" (*GI* p49).

2. The humanist trend

We can readily see how Marx's insistence on the social origin and nature of consciousness led him to find the second trend in the 'old materialism' - represented, among others, by Bacon, Locke and Helvétius - much more congenial. In *The holy family* Marx refers to the work of the encyclopaedist Condillac (1715-80), who "proved that the French had quite rightly rejected metaphysics as the mere bungling of fancy and theological prejudice ... he expounded Locke's ideas and proved that not only the soul, but the senses too - not only the art of creating ideas, but also the art of sensuous perception - are matters of experience and habit. The whole development of man therefore depends on education and environment" (*KMSW* p153).

Characteristically, what appealed to Marx about this second trend in French materialism was its practical concern with materialism's moral and political consequences, which lead directly to socialism and communism. In the work of Helvétius ideas about the importance of experience, habit, education and environment formed the basis of an optimistic, humanist doctrine. You recall the passage from *The holy family* in which Marx paraphrases this doctrine:

"If man draws all his knowledge, sensation, etc, from the world of the senses and experience gained in it, the empirical world must be arranged so that in it man experiences and gets used to what is *really human* and that he becomes aware of himself as a man. If correctly understood, interest is the principle of all morality: *man's private interest must be made to coincide with the interest of humanity* ... If man is shaped by his surroundings, his surroundings must be made human. If man is social by nature, he will develop his true nature only in society, and the power of his nature must be measured not by

the power of separate individuals, but by the power of society" (*KMSW* p154).

Marx saw Helvétius as the forerunner of men like Babeuf, Fourier and Owen in the socialist tradition. Insisting on "the original goodness and equal intellectual endowment of men", this trend of materialism was "necessarily connected with communism and socialism" (*ibid*). Another thing which must have appealed to Marx was the way this trend concentrated on "the real individual man", an approach refreshingly more concrete than that of the Young Hegelians, castigated in *The holy family* for their "spiritualism or speculative idealism" and their introspective, navel-gazing obsession with "self-consciousness". More than anything, Marx valued Helvétius's insistence on our social nature, and on the fact that human potential, including that of the individual, can only be fully developed in a social context. As we shall see presently, however, Helvétian materialism was marred by a flawed theory of knowledge from which only Marx's radically different approach to epistemology could rescue it.

3. Feuerbach

In August 1844, when he was living in Paris and composing the *Economic and philosophical manuscripts*, Marx wrote a letter to Feuerbach expressing not only his "exceptional respect", but also his "love" for the man whose works were "of more weight than the whole of German literature put together" (*KMSW* p113). What was it about Feuerbach that inspired Marx to write in such admiring terms? A significant pointer to an answer can be found in the preface to the *Economic and philosophical manuscripts*. Marx writes that Feuerbach's discoveries constituted the "true foundation" of post-Hegelian "positive criticism". Since Hegel's *Phenomenology* and *Logic*, Feuerbach's works had been the

only ones to "contain a real theoretical revolution", and it was Feuerbach who had produced "the first positive *humanist and naturalist criticism*" (*KMSW* p76). When we read Feuerbach's philosophical writings, we see that they are permeated by a profoundly sensuous feeling for humanity and nature and we find an identical sensuousness in many passages of the *Economic and philosophical manuscripts*.

The word 'sensuous' recurs frequently in the writings of both men and we need to understand it correctly. To English protestant ears, 'sensuous' may still have a vaguely distasteful ring about it. Sensuousness (colloquially cognate with sensuality) is suggestive of carnal indulgence or gratification - and, as we all know, such things are invariably sinful! In German, the corresponding adjective and noun, *sinnlich* and *Sinnlichkeit*, are less burdened by these connotations and can simply mean 'sensory' and 'sense-perception' respectively. The point is that, in whatever way we use the term, 'sensuousness' is inseparable from the body - and the body is something on which both Feuerbach and Marx place considerable emphasis.

It is no exaggeration to say that in the work of Feuerbach, and even more so in the work of Marx, the body is rehabilitated, reintegrated into a new, holistic account of what it means to be a human being. Both consciously turned their backs on a centuries-old religious and philosophical tradition of mind-body dualism. In christianity, for so long dominated by Pauline and Augustinian theology, the body was little more than a fleshly integument for the soul, a source of innumerable (especially sexual) temptations, something to be subdued and mortified as a potentially lethal obstacle to salvation. In philosophy, from Plato and Socrates onwards, the body, because it belonged to the transitory world of matter, was of inferior interest when compared with the soul and mind.

With Descartes, the dualistic division of soul and body, mind and matter was further formalised. They were assigned

to two entirely separate spheres of being: that of *res cogitans* (the realm of spirit or mind) and that of *res extensa* (the realm of matter). As we have seen, it was this Cartesian division which inaugurated the mechanistic trend in materialism. His *Cogito ergo sum* was also immensely influential: as a result, human identity, personality and self-consciousness were fixed firmly in the realm of the mind. Think about this, and you will realise that most of us are still primarily aware of ourselves as individual, isolated egos. The 'innermost' part of myself, what I think of as 'the real me', is literally a disembodied concept.

Dualism creates a fragmented picture of the human personality. One part of us, what some call the 'soul' and others the mind, is in some respects made to signify the whole, in other respects to represent the 'higher' part of our nature, whose role it is to control, through reason and will, the 'lower' part. For Feuerbach, the idea of a personality without a body was meaningless, and the idea of a body that is inferior to some other part of us was a lie against our humanity. We are an organism and must see and understand ourselves organically from the standpoint of sensuousness (*der Standpunkt der Sinnlichkeit*):

"Whereas the old philosophy started by saying, 'I am an abstract and merely a thinking being, to whose essence the body does not belong', the new philosophy, on the other hand, begins by saying, 'I am a real sensuous being and, indeed, the body in its totality is my ego, my essence itself'" (L Feuerbach *Principles of the philosophy of the future* London 1986, p54, hereafter *Principles*).

What religion calls the soul, notionally immortal, spiritual and implanted by god at the moment of conception, is in reality (like god himself) a creation of the human imagination, a projection or alienation of our self-consciousness. To split ourselves up into separate compartments in this way is a purely theoretical act, an illusion which is refuted by the experience of living. Every act

of our everyday lives shows us that we are organic, objective beings. Even at a later stage, when he was critical of the serious errors in Feuerbach's materialism, Marx pointed to Feuerbach's insistence that "man too is an object of the senses" as being that which elevated him above the "pure materialists" (*KMSW* p175).

Just as importantly, for Marx, Feuerbach had "founded true materialism and real science by making the social relationship of man to man the basic principle of his theory" (*KMSW* p97). Indeed, so far as Feuerbach (and Marx) were concerned, becoming aware of ourselves as human individuals is something we can only accomplish socially, "in the community of man with man" (*Principles* p71).

4. Humanity in the natural world

Feuerbach stressed that the starting point of his new philosophy had to be "the man who is and knows himself as the self-conscious being of *nature*" (*ibid*). Like all materialists, Feuerbach asserted the primacy of the external world: "Nature, matter, cannot be explained as a result of intelligence; on the contrary, it is the basis of intelligence, the basis of personality, without itself having any basis; spirit without nature is an unreal abstraction; consciousness develops only out of nature" (L Feuerbach *The essence of christianity* New York 1957, p270).

Outside the self-sufficient realm of nature, neither consciousness nor anything else can exist at all. In his essay on Feuerbach, Engels aptly paraphrased this idea as "nothing exists outside nature and man", and went on to define this naturalistic materialism, which he identified with the "new materialism" of Marx, as resting on the conviction that "the material, sensuously perceptible world to which we ourselves belong is the only reality ... our consciousness and thinking, however suprasensuous they may seem, are the product of a

material, bodily organ, the brain. Matter is not the product of mind, but mind itself is merely the highest product of matter" (*MEOR* p206).

Feuerbach's anthropocentrism and naturalism were combined in the conviction that, "The new philosophy makes man - with the inclusion of nature as the foundation of man - the unique, universal and highest object of philosophy. It thus makes anthropology, with the inclusion of physiology, the universal science" (*Principles* p70). Hence, though he calls his ideas "the new philosophy", he never suggests that philosophy, in the classical, Hegelian sense, should be assigned its traditional place of primacy. Philosophy, like science, must find its sole basis in nature:

"Philosophy must again unite with natural science and natural science with philosophy. This union, based upon a reciprocal need, an inner necessity, will be more fruitful than the *mésalliance* existing up to now between philosophy and theology" ('Preliminary theses', quoted in Z Jordan *The evolution of dialectical materialism* London 1967, p16).

When Marx praised Feuerbach for having "opposed sober philosophy to drunken speculation" (*KMSW* p149), the "sober philosophy" he had in mind was not really philosophy at all, or at least not in any conventional sense, but the expression of an embryonic naturalistic materialism. This new approach, with its emphasis on the necessity of seeing human existence *organically* and *naturalistically*, was to form the basis of Marx's materialism. Though much modified in some crucial respects, elements of Feuerbach's thinking constituted, as we shall see, a significant and lasting component of Marx's own thought.

Having explored the background to Marx's thinking on the relationship between human beings and nature, in my next article I shall turn to the principles that underlay his own approach to naturalistic materialism.

Marx and ecology

- part two

"Man is a directly natural being." With these words Marx introduces his brief exposition of naturalism in the *Economic and philosophical manuscripts*. It is a remarkable passage, a paean to the relationship between humanity and nature, combining philosophical complexity with an unmistakable lyricism. In what follows I shall use the main lines of Marx's exposition as a framework for commentary, citing passages from his other works to show the extent to which the presuppositions of this supposedly 'immature' work remain intrinsic to his later thought.

1. Principles of Marx's naturalistic materialism

In the self-contained, self-regulating system of nature, which comprises the totality of all that exists, the human is one organism among many, having no privileged position, no

special status in a preordained hierarchy of being, because such hierarchies do not exist outside the imagination of theologians and philosophers. Like all natural beings, we are equipped with certain "vital powers" (*Lebenskräfte*): "dispositions, capacities and instincts". A human is a "corporeal, sensuous, objective being", but, like all animals, is also a "suffering, dependent and limited being", because the objects towards which our natural instincts drive us are outside and independent of us. They are the objects of a human being's needs (*Bedürfnisse*), and are "essential objects ... indispensable for the exercise and confirmation of his faculties" (ibid).

The *interrelation of humanity's powers and needs* is a concept that has vital explanatory significance throughout Marx's thought. He uses hunger as an obvious example of a natural need, which requires "a natural object outside itself to satisfy and appease it", and he goes on to say that "hunger is the objective need of a body for an exterior object *in order to be complete and express its being*" (ibid - my emphasis). Think about these words. It would be quite wrong to dismiss them as merely banal. Terms like "completion" (*Integrierung*) and the "expression of one's being" (*Wesensäußerung*) are not airy phrases contrived to give a philosophical spin to everyday biological facts. Of course we need food. Without it we would cease to exist. The satisfaction of hunger, like that of all our basic needs, can be seen on one level simply as a biological prerequisite for existence and the reproduction of the species. But the point is that Marx is not just talking about existing, but about living. In the eyes of a starving child, for example, we see not just hunger for bread, but hunger for life.

A human being "can only express his being in real, sensuous objects," the objects of their need. "To be sentient is to suffer", because the need to give expression to one's being - ie, to live and to be human in the fullest sense - involves constant striving (ibid). It is this fact which makes a human "a

passionate being". To be passionate (*leidenschaftlich*) is to experience the suffering (*Leid*) which comes from needs and longings unfulfilled: "Passion is man's faculties energetically striving after their object." For Marx, the passions are not manifestations of a 'lower', 'animal' aspect of human nature to be suppressed. They are immanent in the definition of what it means to be a "directly natural being" (D McLellan (ed) *Karl Marx: selected writings*, London 1977, p105 - hereafter *KMSW*).

Any attempt, therefore, to depict Marx as the sort of vulgar materialist who regards human beings as just animals is unsustainable, and rests on a familiar logical fallacy: to say that 'x is y' is not equivalent to saying that 'x is nothing but y'. Of course we are animals, but animals whose capacities and needs set us apart in certain specific, definable ways from other organisms. We need to eat in order to live, but Marx would, I feel sure, have agreed with Jesus that, "Man shall not live by bread alone" (Matthew iv:4). Indeed, one of the achievements of Marx's naturalism is to broaden the scope of natural phenomena, so that all aspects of humanity's striving towards the expression of our being - spiritual as well as physical needs - are conceived as belonging to the natural order of things.

For Marx, however, the spiritual does not arise from our relationship with an autonomous power dwelling in a suprasensuous heavenly realm: it is a development of our natural powers, our capacity for creative, imaginative self-expression, our appreciation of beauty and so forth. Just as there is no hierarchy of being in which we occupy a supreme place, so there is no hierarchy of human powers. All our natural powers, from the 'lowest' to the 'highest' are, or should be, exercised in the process of living.

2. "A human natural being"

In his passage on naturalism, Marx defines such a being as "one that exists for himself, thus a species-being that must confirm and exercise himself as such in his being and knowledge". He derived the notion of species-being (*Gattungswesen*) from Feuerbach, but in Marx it attains a new richness and concreteness. Although Marx later abandoned the terminology of species-being, its content can be found at the centre of his thought, and concerns the answer to a question which Feuerbach had left unresolved: what is it about our sensuous engagement with nature that distinguishes us as a species-being?

Much of what we have said about humanity as a "*directly natural being*" applies equally to all animals. All are driven by the need to live in order to reproduce themselves; all try to satisfy this need by deploying their capacities in a way that makes the most of their specific natural habitat. As Engels points out, many of the capacities we regard as peculiar to the human animal are in fact derivative, more developed forms of the same behaviour practised by other animals (see *Dialectics of nature* Moscow 1953, pp228-247- hereafter *DN*). Marx had drawn attention to this fact many years before:

"Both with man and animals the species-life [*Gattungsleben*] consists physically in the fact that man (like animals) lives from inorganic nature, and the more universal man is than other animals, the more universal is the area of inorganic nature from which he lives ... The universality of man appears in practice precisely in the universality that makes the whole of nature into his inorganic body in that it is both (i) his immediate means of subsistence and also (ii) the material object and tool of his vital activity. That man lives from nature means that nature is his body with which he must

maintain a constant interchange so as not to die" (KMSW p81).

Note the stress which Marx places on "vital activity" [*Lebenstätigkeit*]. Humanity's relationship with nature, just like that of all animals, is first and foremost a matter of doing things in order to live. Our success in turning the whole of nature into our "inorganic body" already distinguishes us to an important extent from other species. It could, however, be argued that in this respect human beings are doing essentially the same things as other animals, only doing them rather better. We are still looking for something that makes humanity unique.

As Marx sees it, "The whole character of a species, its generic character [*Gattungscharakter*], is contained in its manner of vital activity, and *free conscious activity is the species-characteristic of man.*" It is this which constitutes the essential difference between human beings and other animals:

"The animal is immediately one with its vital activity. It is not distinct from it. They are identical. Man makes his vital activity itself into an object of his will and consciousness. He has a conscious vital activity. He is not immediately identical to any of his characterisations. Conscious vital activity differentiates man immediately from animal vital activity. *It is this and this alone that makes man a species-being.* He is only a conscious being - that is, his own life is an object to him - precisely because he is a species-being. This is the only reason for his activity being *free activity*" (ibid).

Using consciousness per se as a criterion for distinguishing us from other animals is not, of course, uncommon. It is often linked with intellectual powers of induction, deduction, analysis and synthesis to denote the sort of characteristically rational human activity supposedly absent in all other animals. The important thing about Marx's definition is the emphasis he places on "free conscious activity". Although need is still a primary, physical

determinant of humanity's sensuous activity, we exercise our powers with a freedom and diversity foreign to animals:

"The practical creation of an objective world, the working-over of inorganic nature, is the confirmation of man as a conscious species-being ... It is true that the animal, too, produces. It builds itself a nest, a dwelling, like the bee, the beaver, the ant, etc. But it only produces what it needs immediately for itself and its offspring; it produces one-sidedly whereas man produces universally; it produces only under pressure of immediate physical need, whereas man produces free from physical need and only truly produces when he is thus free; it produces only itself, whereas man reproduces the whole of nature. Its product belongs immediately to its physical body whereas man can freely separate himself from his product. The animal only fashions things according to the standards and needs of the species it belongs to, whereas man knows how to produce according to the measure of every species and knows everywhere how to apply its inherent standard to the object; thus man also fashions things according to the laws of beauty" (KMSW p82).

Free conscious activity is not just what makes us a distinctively human species-being: it is also what makes us a moral being. Central both to Marx's definition of what it means to be human is the fact that we are the only species with the capacity to make free and conscious choices about what we produce, how we produce it and what happens to the product.

The extent to which, in any particular social formation, people are given the scope to exercise this capacity is a moral as well as a socio-economic question. A social system which prevents us from using our capacity for free and conscious productive activity is literally dehumanising - it hinders us from doing (and thereby from being) that which makes us uniquely human.

3. "Natural history of men"

Marx's way of looking at what it means to be a human being was new to materialism. So was his emphasis on the importance of viewing humankind's relationship with nature historically. To grasp the novelty of Marx's insights, we need briefly to review the way his predecessors looked at nature. Obviously, Feuerbach's emphasis on sensuousness was an important step forward:

"The real in its reality, or taken as real, is the real as an object of the senses; it is the sensuous. Truth, reality and sensation are identical ... Only through the sense, and not through thought for itself, is an object given in a true sense. The object that is given in thought, or that is identical with thought, is only an idea" (L Feuerbach *Principles of the philosophy of the future* London 1986, p51 - hereafter *Principles*).

So far so good. All materialists share this conviction that sensation precedes thinking, that our ideas come from our sensuous experience of the natural world around us. But Feuerbach's naturalism was strangely illusive, abstract and theoretical. It remained 'one-sided', a half-truth, a necessary but not a sufficient step towards understanding our relationship with our natural environment. Why was this so? Because he still conceived it in passive, intuitive terms. His conception of the sensuous world was, in Marx's words, "confined on the one hand to mere contemplation of it, and on the other to mere feeling" (*KMSW* p174). Nature, for all the importance which Feuerbach attached to it, remained something 'out there', something dissociated from humanity, to which he related in essentially theoretical terms:

"The chief defect of all hitherto existing materialism [that of Feuerbach included] is that the thing, reality, sensuousness, is conceived only in the form of the object of contemplation,

but not as sensuous human activity, practice, not subjectively" (*KMSW* p156).

Marx's use of "sensuous human activity" (*sinnliche menschliche Tätigkeit*) in his *Theses on Feuerbach* is clearly identical to the "conscious vital activity" he refers to so often in the *Economic and philosophical manuscripts*. Human beings relate to their environment not primarily by observation or contemplation, but by action. The first priority of the species is to live; to do this it must satisfy its needs by using its powers. Sensuousness, we might say, is not about feeling, but about doing. This is what Marx is getting at when he says that "human objects are not natural objects as they immediately present themselves" (*KMSW* p105). A *natural object only becomes a really human object when it plays a role in practical human activity*. Flints became truly human objects when we began to use them as tools and weapons. An apple, qua natural object, is a receptacle for seeds. It becomes a human object when it is used as a source of food and drink.

Marx believed that Feuerbach's failure to see things this way came from his lack of an historical approach. He did not grasp that "the sensuous world around him is not a thing given direct from all eternity remaining ever the same" (*KMSW* p174). Both nature itself and human beings have a real history, and these histories are inextricably interconnected. Our physical environment may appear to be fixed and timeless, but in reality it is "the result of the activity of the whole succession of generations, each standing on the shoulders of the preceding one, developing its industry and its intercourse, modifying its social system according to the changed *needs*" (*ibid*).

This means, obviously, that our world is effectively human-made, shaped by the practical activity of the species. So "the nature that preceded human history ... is nature which today no longer exists anywhere (except perhaps on a few

Australian coral islands of recent origin) ..." (ibid p175). Engels makes a similar point in *The dialectics of nature*:

"There is devilishly little left of 'nature' as it was in Germany at the time when the Germanic peoples immigrated into it. The earth's surface, climate, vegetation, fauna, and the human beings themselves, have infinitely changed, and all this owing to human activity, while the changes in nature in Germany which have occurred in this period of time without human intervention are incalculably small" (*DN* p306).

Without labouring the point further, we need to keep in mind the innovative nature of Marx's thought against the background of pre-Darwinian thinking about humanity and nature. That the names of Marx and Darwin should have been linked is hardly surprising, and in his graveside tribute to Marx in 1883 Engels makes the parallel explicit:

"Just as Darwin discovered the law of evolution in organic nature, so Marx discovered the law of evolution in human history; he discovered the simple fact, hitherto concealed by an overgrowth of ideology, that mankind must first of all eat and drink, have shelter and clothing, before it can pursue politics, religion, science, art, etc" (K Marx and F Engels *Selected Works* Moscow 1951, vol 2, p153 - hereafter *MESW*).

In another passage in the *Economic and philosophical manuscripts* Marx draws together the ideas we have looked at so far and relates them to a proper historical and scientific understanding of the relationship between humanity and nature:

"Nature as it is formed in human history - the birth process of human society - is the real nature of man, and thus nature as fashioned by industry is true anthropological nature ... Sense experience (see Feuerbach) must be the basis of all science. Science is only real science when it starts from sense-experience in the dual form of sense-perception and sensuous need: in other words when it starts from nature. The whole of

history is a preparation for 'man' to become the object of sense-perception and for *needs* to be the *needs* of 'man as man'. Natural science will later comprise the science of man just as much as the science of man will embrace natural science; they will become one single science" (*KMSW* p94).

The problem with Feuerbach's attitude to science was that he consistently identified it with observation and description of natural phenomena, not realising that 'pure' physics, chemistry and biology are inadequate to account for our human species-being: "Feuerbach speaks in particular of the perception of natural science; he mentions secrets which are disclosed only for the eyes of the physicist and chemist; but where would natural science be without industry and commerce? Even this 'pure' natural science is provided with an aim, as with its material, only through trade and industry, through the sensuous activity of men ... This activity, this production [is] the basis of the whole sensuous world as it now exists" (*KMSW* p82).

The question unanswered by Marx's materialist predecessors was: what is it about our sensuous engagement with nature that distinguishes us as a species-being? Marx's answer to this question is now clear: we exercise our distinctively human, free and conscious activity in the working-over of the objective world: "This production is [man's] active species-life. Through it nature appears as his work and his reality" (*KMSW* p82). We have been doing this ever since our appearance on earth as a distinct, evolved species, so "the true natural history of man" as a "*directly* natural being but also a *human* natural being" is none other than the history of human production.

4. "The social animal"

In some respects, of course, human beings are by no means the only social animals. Many creatures live and work together in quite complex social formations. Once again, the crucial difference between these societies and our own arises from consciousness. Just as we are distinguished from other animals by our free, conscious activity, which becomes for us an object of will and consciousness, so we differ from them in the fact that we have what Marx in the *Economic and philosophical manuscripts* calls "species-consciousness" (*Gattungsbewußtsein*). This awareness of ourselves as members of a human community is not an intellectual construct, not something we have to be taught, but the natural outcome of our relationship to the natural world:

"Activity and enjoyment are social both in their content and in their mode of existence; they are social activity and social enjoyment. The human significance of nature is only available to social man; for only to social man is nature available as a bond with other men, as the basis of his own existence for others and theirs for him, and as the vital element in human reality; only to social man is nature the foundation of his own existence. Only as such has his natural existence become a human existence and nature itself become human. Thus society completes the essential unity of man and nature: it is the genuine resurrection of nature, the accomplished naturalism of man and the accomplished humanism of nature" (*KMSW* p90).

The logic of Marx's analysis is clear and is confirmed by experience. From the beginning, the existence of human beings as a species has demanded collaborative, socialised activity. Without it our survival as a species is simply inconceivable. But Marx's argument goes further. He maintains that the customary distinction made between the individual and society is rooted in an abstract, idealist view of our communal relationship with nature. The isolated,

'atomised' individual familiar to us in many kinds of social theory is not a product of nature, but of history. In nature, Marx insists, "The individual is the social being"; and "even when the manifestation of his life does not take the form of a communal manifestation performed in the company of other men, it is still a manifestation and confirmation of social life" (*KMSW* p91).

Why is this so? Because "even if my activity is ... [one] that I can seldom perform directly in company with other men, I am still acting socially since I am acting as a man. Not only the material of my activity - like language itself for the thinker - is given to me as a social product; my own existence is social activity; therefore what I individually produce, I produce individually for society, conscious of myself as a social being" (*ibid* p90).

Marx stresses that, "It is above all necessary to avoid restoring society as a fixed abstraction opposed to the individual" (*ibid* p91). He argues that what we conventionally call 'society' rests on a false understanding of the real basis of human association. In their different ways, both Hegel, with his 'civil society', and Feuerbach, with his 'community', had missed the point. The former was no more than an arena in which conflicting personal interests were fought out; the latter was too abstract and unreal, locked in the contemplation of a 'community' that was no more than the aggregate of individual human essences. Feuerbach had been right to insist that "only community constitutes humanity", but he had failed to realise that "the human essence is no abstraction inherent in each individual. In its reality it is the ensemble of social relationships" (*KMSW* p157).

This ensemble of social relations is not the result of human design or calculation, not something *superimposed* on nature, but a *product of nature itself*. We are social animals not because we happen to prefer it that way, but because our existence as a species demands it. Our awareness of this fact,

our species-consciousness, is what sets us apart from other animals who form similar communities in response to an identical natural imperative. You and I are particular individuals and we rejoice in the particularity that makes us such. But our consciousness of this particularity is inseparable from consciousness of the fact that we are members of a wider community. The natural bond between us, the thing which makes your existence a reality for me and my existence a reality for you, is the fact that we are part of the "totality of human manifestations of life". This is why the standpoint of the new materialism must be "human society, or social humanity" (ibid).

Throughout his work, Marx continued to stress that our sense of personal identity and our development as individuals are inseparable from and dependent upon our membership of a human society. Consciousness itself is "from the very beginning a social product, and remains so as long as men exist at all" (KMSW p167). In the *Grundrisse* our dependence on society for our development as individuals is made quite explicit: "Man is in the most literal sense a *zoon politikon*, not only a social animal, but an animal which can develop into an individual only in society" (KMSW p346), and in *Capital* he spells out what he means by this:

"Since he comes into the world neither with a looking glass in his hand, nor a Fichtean philosopher, to whom 'I am I' is sufficient, man first sees and recognises himself in other men. Peter only establishes his own identity as man by first comparing himself with Paul as being of like kind. And thereby Paul, just as he stands in his Pauline personality, becomes to Peter the type of genus homo" (K Marx *Capital* Vol 1, Moscow 1983, p59n - hereafter *Capital*).

Marx's thinking about humanity as a social animal is unquestionably holistic, if by holism we mean the proposition that the whole has characteristics which cannot be explained simply in terms of the properties and relationships to one

another of the parts which comprise it. But Marx's holism, unlike Hegel's, has no normative significance. In Hegel, a social entity like the state is always seen as superior to its individual components, because the 'spirit' always manifests itself in totality and wholeness.

In Marx's holism there is none of this. Human society is not superior in some way to the human beings who are its constituent members, but it is qualitatively different from a mere aggregation of its members. It is always in and through their shared humanity as human, natural and social beings that individuals discover and develop their potentialities. In this sense, society and groups within it are prior to the individual, who finds in them the conditions of personal existence and the scope for personal development.

The ethical implications of this *naturalistic* and holistic view of society are unambiguous: if our happiness, our fulfilment and even our sense of self-identity as individuals are contingent on society, then any social formation must be judged in terms of how effectively it provides the conditions in which we can flourish as truly human, natural and social beings.

5. Marx and Darwin

Facets of Darwin's theory have been perverted into a reactionary and dangerous social doctrine, which claims to provide a naturalistic and scientific account of human society. Marx was one of the first people to identify and criticise this tendency to abuse Darwinism for social and political ends.

There were, of course, aspects of Darwin which Marx found in some ways supportive of his own work. In a letter to Lassalle in 1861, Marx wrote that "Darwin's book [*The Origin of species*] is very important ... Despite all deficiencies, it not only deals the death-blow to 'teleology' in the natural sciences for the first time but also sets forth the rational meaning in an

empirical way ..." (K Marx and F Engels *Selected correspondence* Moscow 1982, p115 - hereafter *MESC*). In *Capital*, he suggests an affinity between his investigation of production and Darwin's enquiries into the natural world: "Darwin has interested us in the history of nature's technology: ie, in the formation of the organs of plants and animals, which organs serve as instruments of production for sustaining life. Does not the history of the productive organs of man, of organs that are the material basis of all social organisation, deserve equal attention?" (*Capital* p352n).

The materialist and anti-teleological dimension in Darwin's work understandably attracted Marx, as did the notion of cooperation as well as struggle in the biological world. In general he accepted the burden of Darwin's thesis and supported its judicious use, but there was a flaw in Darwin's approach which opened up the possibility for a great deal of mischief. Darwin himself had acknowledged in his *Life* that the work of the parson, Thomas Malthus, *An essay on the principle of population*, had inspired him in formulating his theory of evolution. In fact Darwin described his own concept of 'the struggle for life' as being the doctrine of Malthus applied to the whole of the animal kingdom. The notion that the 'struggle for life' was the key to Darwinism was propounded by men like the German neo-Kantian philosopher FA Lange, with whom Marx was in correspondence in the 1860s (see *MESC* p160).

Marx was content, in *Capital*, to use 'the struggle for life' as a *metaphor*: "The division of labour within society brings into contact individual commodity producers, who acknowledge no authority but that of competition, of the coercion exerted by pressure of their mutual interests; just as in the animal kingdom, the *bellum omnia contra omnes* [war of all against all] more or less preserves the conditions of existence of every species" (*Capital* p336).

But he resisted any attempt to build a social theory on Darwin's supposed Malthusianism. Marx regarded Malthus with the deepest suspicion because his theories about human population lacked a basis in historical fact and showed no insight into the impact of humanity's social, productive activity on the natural world: "In fact every special historic mode of production has its own special laws of population, historically valid within its limits alone. An abstract law of population exists for plants and animals only, and only in so far as man has not interfered with them" (*ibid* p592).

As early as 1862, this time in a letter to Engels, Marx had pointed out the weakness inherent in Darwin's application of Malthus to the natural world: "Darwin ... amuses me when he says he is applying the 'Malthusian' theory also to plants and animals, as if with Mr Malthus the whole point were not that he does not apply the theory to plants and animals, but only to human beings ... It is remarkable how Darwin recognises among beasts and plants his English society with its division of labour, competition, opening up of new markets, 'inventions', and the Malthusian 'struggle for existence'. It is Hobbes's *bellum omnium contra omnes* and one is reminded of Hegel's *Phänomenologie*, where civil society is described as a 'spiritual animal kingdom', while in Darwin the animal kingdom figures as civil society ." (*MESC* p120).

In other words, by "applying" Malthus's doctrine to animals and plants, Darwin had imported into his theory of evolution Malthus's very questionable propositions about the way human society works. A vicious circularity arises when people come along and claim to have 'discovered' in Darwin a 'proof' that their own way of looking at society has the force of a natural law. Engels sums up this legerdemain in a letter to Lavrov:

"The whole Darwinist teaching of the struggle for existence is simply a transference from society to living nature of Hobbes's doctrine of *bellum omnium contra omnes*

and of the bourgeois economic doctrine of competition together with Malthus's theory of population. When this conjurer's trick has been performed, the same theories are transferred back again from organic nature into history and it is now claimed that their validity as eternal laws of human society has been proved" (*MESC* p368).

This 'conjurer's trick' of projecting aspects of human society onto nature and then 'rediscovering' them as eternal laws is very familiar. The supposed existence of such eternal laws is very convenient for the apologists of capitalism because it allows them to claim that the unpleasant outcome of 'the struggle for life' which most people are condemned to endure, is a natural necessity. One such apologist was FA Lange, whose error is made clear in an important letter written by Marx to Ludwig Kugelmann in 1870:

"Mr Lange has made a great discovery. The whole of history can be brought under a single great natural law. This natural law is the *phrase* (in this application Darwin's expression becomes nothing but a phrase) 'struggle for life', and the content of this phrase is the Malthusian law of population or, rather, overpopulation. Thus, instead of analysing the 'struggle for life' as represented historically in various definite forms of society, all that has to be done is to translate every concrete struggle into the phrase 'struggle for life', and this phrase itself into the Malthusian 'population fantasy'. One must admit that this is a very impressive method - for swaggering, sham-scientific, bombastic ignorance and intellectual laziness" (*MESC* p225).

The horrific consequences of that 'social Darwinism' that posits 'the survival of the fittest' as a natural law - indeed the only natural law - are well known: Sobibor, Treblinka, Auschwitz. Of course, blaming Darwin for Hitler is ridiculous - just as ridiculous, in fact, as blaming Marx for Stalin.

The point to emphasise is that Marx's naturalistic materialism categorically repudiates any facile parallelism

between the world of animals and humanity that sets itself up as a social doctrine. For Marx, human beings have a number of things in common with animals, but there is no room for doubt that free conscious activity and species-consciousness make us qualitatively different from other animals. As a species, we are *sui generis*.

The "one single science" capable of comprehending the implications of this fact must, therefore, result from a fusion of natural science and that study of people as human, social, productive beings which Marx calls the "science of man" (*KMSW* p94). Its starting point must be the study of humanity's productive activity, because it is *industry* which is "the real historical relationship of nature, and therefore of natural science, to man" (*ibid* p93).

In my final article I will show that this focus on humankind's practical activity - the key to understanding our vital - metabolic interchange with nature, not only informs every aspect of Marx's treatment of human labour as a category, but also provides the dialectical basis for a new approach to the traditional antinomy between idealism and materialism.

Marx and ecology - part three

As we have seen, Marx emphasised the *symbiotic* relationship between humanity and nature. In order to live, we must "maintain a constant interchange with nature", our "inorganic body" (D McLellan (ed.) *Karl Marx: selected writings* London 1977, p81). The notion of *Stoffwechsel* (variously translated as 'material intercourse', 'material exchanges', 'exchange of matter' and so on) became a crucial concept in *Capital*: "So far therefore as labour is a creator of use-values ... it is a necessary condition, independent of all forms of society, for the existence of the human race; it is an eternal nature-imposed necessity, without which there can be *no material exchanges between man and nature, and*

therefore no life" (my emphasis, K Marx *Capital* Vol. 1, Moscow 1983, p50 - hereafter *Capital*).

Stoffwechsel becomes a powerful leitmotif; its organic, physical suggestiveness brings to mind the physiological process of *metabolism*.

For Marx, 'matter' is not a philosophical category, but "the stuff of *nature*", consumed and transformed through labour and ultimately returned to nature in the form of waste material. His use of the concept of metabolism is not a literary device, but is based on a sensuous understanding of the organic life-processes involved in all forms of production.

Implicit in this approach to metabolism is an *ecological* awareness of the effect on nature of changes in methods of production: "Capitalist production, by collecting the population in great centres ... disturbs the circulation of matter between man and the soil: i.e., prevents the return to the soil of its elements consumed by man in the form of food and clothing; it therefore violates the conditions necessary to lasting fertility of the soil" (*Capital* p474).

Central to the continuous metabolic interchange of material between humanity and nature is labour: "Labour is, in the first place, a process in which both man and nature participate, and in which man of his own accord starts, regulates and controls the material reactions between himself and nature. He opposes himself to nature as one of her own forces, setting in motion arms and legs, head and hands, the natural forces of his body, in order to appropriate nature's productions in a form adapted to his own wants. By thus acting on the external world and changing it, he at the same time changes his own nature. He develops his slumbering powers and compels them to act in obedience to his sway" (*ibid.* p173)

As Engels points out, our labour has literally changed the face of the earth in a way and on a scale that sets us apart as a

species: " ... the animal merely *uses* nature, and brings about changes in it simply by his presence; man by his changes makes it serve his ends, *masters* it" (*Dialectics of Nature* Moscow 1953, p241). In the 19th century the idea of employing the discoveries of science to extend man's 'mastery' of nature was the ground for boundless optimism, but this does *not* mean that Marx or Engels were blind to the consequences of humankind's overweening pride. The language of 'mastery' must *not* be taken to imply a reckless and wasteful *abuse* of nature, such as is characterised by capitalism and became a facet of Soviet and Soviet-bloc industrialisation.

Engels's enthusiasm for the possibilities opened up by scientific discoveries was tempered by a sober realisation that our attempts to control nature can have unforeseen consequences; that our 'control' always has a *limited, relative* character: "At every step we are reminded that we by no means rule over nature like a conqueror over a foreign people, like someone standing outside nature - but that we, with flesh and blood and brain, belong to nature, and exist in its midst, and that all our mastery of it consists in the fact that we have the advantage over all other creatures of being able to know and correctly apply its laws" (*ibid.* p242).

Underlying the whole dialectical process of our metabolic interrelation with nature is the free, conscious action of our *purposive will*, which leads us to conceive labour "in a form that stamps it as exclusively human":

"... a bee puts to shame many an architect in the construction of her cells. But what distinguishes the worst architect from the best of bees is this, that the architect first raises his structure in imagination before he erects it in reality. At the end of every labour-process, we get a result that already existed in the imagination of the labourer at its commencement" (*Capital* p174).

As Marx saw it, one of the most valuable aspects of Darwin's work was the insights it gives us into *natural technology* - all plants and animals adapt to their environment by developing organs which function like tools. Our human organs, especially our hands and feet, were our first tools. Nowhere is our imagination and purposive will more evident than in the way we devise tools, and Marx agreed with Hegel and the enlightenment materialists that, "The use and fabrication of instruments of labour, although existing in the germ among certain species of animals, is specifically characteristic of the human labour-process" (*ibid.* p175). A tool can be any "thing or complex of things, which the labourer interposes between himself and the subject of his labour, and which serves as the conductor of his activity" (*ibid.*).

A social process

Marx's view of labour is radically different from that of the classical political economists, whose thinking always focused on the role of the individual in production and his supposedly spontaneous, voluntary entry into a 'social contract' with other producers. For Marx, this was a perverse and unhistorical approach to naturalism, founded on a false romanticism that also served a political end: "The individual and isolated hunter or fisher who forms the starting-point with Smith and Ricardo belongs to the insipid illusions of the 18th century. They are Robinson Crusoe stories which do not by any means represent, as students of the history of civilisation imagine, a reaction against overrefinement and a return to a misunderstood natural life. They are no more based on such a naturalism than is Rousseau's *contrat social* which makes naturally independent individuals come in contact and have mutual intercourse by contract" ('Grundrisse' *KMSW* p345n).

The central figure in classical political economy is the free, competitive individual, who enters into productive association with other individuals not because it is in their

nature to do so, but because it serves their individual interests. Men like Smith and Ricardo sought to reinforce the political and economic basis of capitalism by projecting this prototype of the individual back into the past, thus 'proving' that humanity is not a product of history, but of nature, and that capitalism was, therefore, *the* natural system of production.

Marx exposed this flimsy rationalisation of the status quo for what it was: "The farther we go back into history, the more the individual and, therefore, the producing individual seems to depend on and belong to a larger whole: at first it is, quite naturally, the family and the clan, which is but an enlarged family; later on, it is the community growing up in its different forms out of the clash and amalgamation of clans. It is only in the 18th century, in 'civil society', that the different forms of social union confront the individual as a mere means to private ends, as an external necessity" (*ibid.* p346).

From the very beginning, precisely because humans are inherently social beings and conscious of this fact, the labour-process has always been a social activity: "All production is appropriation of *nature* by the individual *within and through a definite form of society*", and hence "production by isolated individuals outside society ... is as great an absurdity as the idea of the development of language without individuals living together and talking to one another" (my emphasis *ibid.* p349).

Because our working life is always a *collective* one, the labour-process involves not just the transformation of nature, but also the development of social forms of collaboration: "In production men not only act on nature but also on one another. They produce only by cooperating in a certain way and mutually exchanging their activities. In order to produce, they enter into definite connections and relations with one another and only within these social connections and relations does their action on nature, does production, take place" ('Wage labour and capital' *KMSW* p256).

From the beginning, society is nothing but the totality of these *natural* connections and relations, the totality of interacting human beings pursuing a communal existence shaped by their collective labour, their collective 'metabolic', symbiotic relationship with the natural world.

Dialectic labour

Marx's naturalism led him to a dialectical understanding of human labour which was to play a key part in his thought. Central to Hegel's conception of the dialectic - as Marx understood it - was the notion that, "Man's existence has its centre in his head - i.e., reason - under whose inspiration he builds up the world of reality." In the *Phenomenology*, Hegel set out to analyse the evolution of human consciousness from simple sensory perception, through self-consciousness, to the use of reason, which offered us the possibility of comprehending the real, and ultimately attaining absolute knowledge. Hegel viewed the evolution of consciousness in terms of a progressive series of 'supercessions' (*Aufhebungen*), in which elements of each successive stage in our development are assimilated and transformed in a process which combines suppression and conservation.

Hegel attached particular importance to 'negativity' - the idea of an ever-present tension between what a thing is and what it is becoming. His dialectic is often crudely portrayed as a series of triads - thesis, antithesis, synthesis - in terms which are entirely absent from and foreign to his thinking in the *Phenomenology*. Neither did Marx use such terms. In his *Poverty of philosophy* he ridicules Proudhon for employing them. Nonetheless, the theoretical framework of Hegel's dialectic is founded on the unfolding of the idea through the reciprocal interaction of categories in a logical progression.

The most important point to grasp is that, whereas Hegel's dialectic is a relationship between *concepts*, Marx's dialectic consists fundamentally of a relationship *between*

humanity and nature mediated through humanity's productive activity, our labour.

As we have seen, both trends in materialism before Marx were deficient because their passive and contemplative approach to natural phenomena constituted a chasm separating human beings from nature. How did Marx bridge this gulf? István Mészáros sums it up as follows: "The secret of Marx's success in radically transforming the limitations of dualistic, contemplative materialism is his unparalleled dialectical grasp of the category of mediation" (I Mészáros *Marx's theory of alienation* London 1975, p119). Labour is the catalyst of that dialectical, reciprocal interaction.

Marx wrote that "the greatness of Hegel's *Phenomenology* and its final product, the dialectic of negativity as the moving and creating principle ... the self-creation of man as a process ... means therefore that he grasps the nature of labour and understands objective man, true, because real, man as the result of his own labour" (KMSW p101).

Hegel conceived labour *abstractly* as "the self-confirming essence of man [*das sich bewährende Wesen des Menschen*]." As Marx points out, "the only labour that Hegel knows and recognises is abstract, mental labour" (*ibid.*). Furthermore, in Hegel the dialectic between humanity and nature is only a part of a much wider dialectic through which spirit progresses on its journey to self-realisation.

Marx's view of labour represents a radical change of direction. What he calls "thingness" (*Dingheit*) - the objectivity of the external world - becomes real not through *thinking*, but through *work*. A human being is not an abstract essence but a "real man of flesh and blood, standing on the solid round earth and breathing in and out all the powers of nature" (KMSW p103).

In Marx, our self-creation [*Selbsterzeugung*] is *not* a metaphor, but a literal truth. We reproduce ourselves through

sexual intercourse - the archetype of all social labour. We produce our means of subsistence through labour, using brain, nerves and muscles in an endless process of intercourse with nature. Labour is not only the essential precondition for our physical existence, but also for *every* sphere of our self-development. Without labour, we could not in any sense become human, either individually or socially, either in thought or in reality. And it is labour which sets up that *dialectical spiral of need and satisfaction, production and consumption* which constitutes the real history of humanity as a species.

Human nature

Human nature has been a problem in the Marxist tradition. Many Marxists argue that historical materialism has no room for this category. There is, however, abundant textual evidence - from all periods of Marx's work - to demonstrate that an authentically Marxian concept of human nature does exist and that it plays both an explanatory and a normative role in his thought. Marx evidently believed there were certain generic, constant and intrinsic attributes common to all human beings, regardless of whatever historical epoch or social formation they live in: human beings differ from all other animals in their free, conscious activity and in their species-consciousness.

In *Capital*, labour-power itself is defined as being "the aggregate of those mental and physical capabilities existing in the physical form, the living personality of the human being" (p164). The dialectical relationship between needs and powers gives rise to new techniques and modes of production, because "it is quite obvious from the start that there exists a materialist connection of men with one another, which is determined by their needs and their mode of production, and which is as old as men themselves" (K Marx and F Engels *The German ideology* Moscow 1976, p49).

Two examples, one from the notebooks which Marx compiled while writing the *Economic and philosophical manuscripts* and one from *Capital*, will suffice to demonstrate that Marx explicitly committed himself to a concept of human nature. Among his critical comments on James Mill (1773-1836) we find the following:

"Since human nature is the true communal nature of man, men create and produce their communal nature by their natural action; they produce their social being, which is no abstract, universal power over single individuals, but the nature of each individual, his own activity, his own life, his own enjoyment, his own wealth. Therefore this true communal nature does not originate in reflection: it takes shape through the need and egoism of individuals - i.e., it is produced directly by the effect of their being ... Men, not in the abstract, but as real, living, particular individuals, are this nature. It is, therefore, as they are" ('On James Mill' *KMSW* p115).

This passage reiterates Marx's holistic view of society: "The individual *is* the social being", but without depreciating the significance of every individual (*KMSW* p91). In stressing that human nature is no abstraction, but the product of *communal, natural action* by individuals, he distances himself simultaneously from the nature-humanity dualism of Feuerbach and from his abstract concept of human essence. In *Capital*, criticising the crude and superficial utilitarianism of Bentham, Marx once again commits himself to human nature as a concept:

"To know what is useful for a dog, one must study dog-nature. This nature itself is not to be deduced from the principle of utility. Applying this to man, he that would criticise all human acts, movements, relations, etc, by the principle of utility must first deal with human nature in general, and then with human nature as modified in each historical epoch" (*Capital* p571n).

To "deal with human nature in general" is to do exactly what Marx did. The concept of human nature, both explicitly and implicitly present in his naturalistic materialism, provides the explanatory framework on which he later built his theory of history, a theory which shows how "human nature in general" is "modified in each historical epoch".

If the case for a Marxian concept of human nature is so compelling, why has it met such stubborn resistance from within Marxism? There are a mixture of theoretical and ideological reasons.

First, there is an *apparent* contradiction in the notion, illustrated in my last extract from *Capital*, that human nature is "modified in each historical epoch" and yet remains "human nature in general." After all, history is "*nothing but a continuous transformation of human nature*" (my emphasis, 'The poverty of philosophy' *KMSW* p192). Logically and from the point of view of common sense and experience, there is no real contradiction here at all. Things can change radically, while retaining features that are permanently and universally present. There is a level of *biological determination* in the species which remains unaffected by social, economic and political changes.

For Marx, one of these eternal facts is labour itself, which he describes as "the *everlasting*, nature-imposed condition of human existence ... independent of every social phase of that existence, or, rather ... *common to every such phase*" (my emphasis *Capital* p179). Even in a future communist society men and women will have to work - though their labour will be much more productive and more personally fulfilling than under capitalism - so much so, that it will itself become a vital need.

Secondly, there is a more familiar Marxist objection that arises out of the ideological struggle against capitalism. Bourgeois ideologues tell us that socialism is 'all very well in theory, but human nature is just not like that'. We have to fight

such attempts to rubbish socialism on the grounds that selfishness, greed for power and property, ethnic and religious prejudice, and so forth, are permanent facets of human nature which make socialism inherently unrealisable. However, the fact that the concept of human nature is often hijacked by reactionaries for political purposes should *not* be grounds for rejecting the notion *per se*.

Thirdly, I would contend that there is a powerful normative dimension to Marx's understanding of human nature that was effectively suppressed in the doctrinaire formulations of 'orthodox' Marxism-Leninism. At the theoretical level, an unbridgeable gulf was said to exist between facts and values. This dilemma is more apparent than real and a correct understanding of praxis disposes of it. What is more, an ethical position founded on a specifically Marxian concept of human nature is not only logically possible and coherent: it is also, I would argue, essential.

As to its possibility, Norman Geras argues correctly that, "If one places a value upon life and human happiness and there exist universal needs that must be satisfied respectively to preserve and to promote these, then this furnishes - the value and the fact conjointly - a basis for normative judgement: such needs ought to be satisfied *ceteris paribus*" (N Geras *Marx and human nature: refutation of a legend* London 1983, p101).

Not to regard these needs as demanding satisfaction to the greatest possible extent is to emasculate Marxism as a political and moral force. The normative dimension in Marxism is essential precisely because, without it, we have no effective arguments for socialism as a desirable goal, something worth fighting and, if need be, dying for. We must argue for socialism not just because it is true, but because it creates the conditions in which all can live a life that is worthy of human beings.

The normative aspects of Marx's theory constitute not an embarrassment, as some Marxists seem to think, but an ideological weapon. If Marxists can show, as they can, that there are certain basic needs and aspirations common to all humankind and that, where these needs are not met, people are dehumanised, this is the basis for a powerful critique of existing conditions. It forms a coherent platform from which to launch demands for a revolutionary transformation of existing society.

Finally, some Marxists object that talking about human nature is idealist and unscientific. All concepts *can* be abused. Some of the central concepts of Marxism *have* been abused in ways which it is shameful to contemplate, and bourgeois ideology regularly uses human nature to legitimate pretty well every facet of existing society, even the most deplorable. But none of this should lead us to dismiss human nature out of hand. If a coherent, materialist concept of human nature exists and can be used to expose the lies and nonsense that commonly travesty it, then this must be done.

What most, if not all, 'Marxist' objections to the concept of human nature have in common is the groundless fear that it will somehow contaminate or compromise what they see as the scientific 'purity' of Marxist theory. This antipathy is the product of an exaggerated scientific positivism which took root in 'orthodox' Marxism after Marx's death, and which was given a new and modish twist by the likes of Althusser. For all his cleverness and his sonorous vocabulary of "problematics" and "theoretical anti-humanism", Althusser never seems to have grasped that Marx's naturalistic humanism, from which his concept of human nature arose, was the bedrock of his theory. Marxism is about human beings, and as a doctrine it is perfectly compatible with something we can rightly call human nature: "a totality of human properties, biological needs and social relations which can rightfully be termed immutable" (L Kolakowski *Marxism*

and beyond London 1971, p64). Preaching a scientific understanding of human society while denying the existence of such a human nature is an absurdity.

Idealism

Classical German philosophy inherited from Descartes and Kant a preoccupation with epistemology: i.e., with the problem of how we know things, and the conformity of our cognitive acts with reality. Idealists and materialists alike devoted much of their work to exploring the relationship between thought and reality, between the thinking subject and the object of thought. For Hegel and the idealists, as we have seen, "man's existence had its centre in his head" and reality was, in effect, a product of thought.

For the materialists, on the other hand, objective reality existed outside and independent of human consciousness; they accepted a Lockean, empirical model of cognition, according to which our knowledge of reality came about through a process of cause and effect, whereby the mind registers sense impressions (effects) imprinted on it by the action of external stimuli (causes).

The question arises at this point as to what extent Marx's naturalistic materialism was itself a theory of knowledge. He was not inclined to waste time debating what he thought were abstract problems: "The question whether objective truth can be attributed to human thinking is not a question of theory, but a *practical* question. Man must prove the truth - i.e., the reality and power, the this-sidedness [*Diesseitigkeit*] of his thinking in practice. The dispute over the reality or non-reality of thinking that is isolated from practice is a purely scholastic question" ('Theses on Feuerbach' *KMSW* p156). In fact, for Marx, the whole epistemological question was not a *real* question at all: the 'problem of knowledge' was in effect a "problem of knowledge *about* knowledge". It is futile to try

and separate "man, the cognitive being" from man as a totality.

In their different ways, the idealists and materialists were both wrong, but both points of view had some truth in them. Hegel and the idealists were *right* when they asserted that the individual subjective consciousness plays a *role* in *constituting* reality through acts of perception and the formation of knowledge. Lenin himself makes this point in his *Philosophical notebooks*, when he writes that "consciousness not only *reflects* the world. It also *creates* it ... Philosophical idealism is only nonsense from the standpoint of crude, simple, metaphysical materialism. From the standpoint of dialectical materialism, on the other hand, philosophical idealism is a one-sided, exaggerated development of one of the features, aspects, facets of knowledge into an absolute, divorced from matter, from *nature*, apotheosised" (my emphasis, VI Lenin *CW* Moscow 1961, Vol. 39, pp212, 363).

In this 'absolutised' form of idealism the *constitutive* function of consciousness was exaggerated to the point where the real world was reduced to a derivative status and became essentially the product of human thinking. *Idealism exalted subjectivity and suppressed objectivity*.

Feuerbach and the enlightenment materialists were *right* when they asserted that the natural world exists independently of human consciousness, that there is always what Marx called an objective "natural substratum" on which human consciousness works - *but* the old materialists' theory of knowledge was flawed by its passivity, which reduced human consciousness to the status of a receptor of sense impressions. *Materialism exalted objectivity and suppressed subjectivity*.

The consequence of this suppression of subjectivity was that "in contradistinction to materialism, the active side was developed abstractly by idealism - which, of course, does not know real, sensuous activity as such" ('Theses on Feuerbach' *KMSW* p156). The question which exercised Marx in his

Economic and philosophical manuscripts was how to bring together the correct aspects of idealism and materialism and eliminate their respective defects. In tackling this problem he created a new epistemological category which he called praxis.

Praxis

"It can be seen how subjectivism and objectivism, spiritualism and materialism, activity and passivity lose their opposition and thus their existence as opposites only in a social situation; it can be seen how the solution of theoretical opposition is only possible in a *practical* way, only through the practical energy of man, and their solution is thus by no means an exercise in epistemology, but a real problem of life that philosophy could not solve just because it conceived of it as a purely theoretical task" (KMSW p93).

By now we are familiar with the emphasis which Marx placed on practical activity (*praktische Tätigkeit*). He called it *praxis*, a term which means far more than just 'practical' as opposed to 'theoretical'. Praxis is Marx's word for the reciprocal relationship of action and reaction with nature, through which we shape the world and with it ourselves. Praxis is the kernel of Marx's naturalism, because, in a single concept, it specifically defines the way in which "consistent naturalism or humanism is distinguished from both idealism and materialism and constitutes at the same time their unifying truth". For Marx, 'practical' invariably implies 'social', and vice versa, because human social life is a manifestation of that collective, practical activity - *labour* - through which we satisfy our needs and in doing so expresses our uniquely human nature as a species-being.

Forgive me if I produce one more lengthy extract. It comes from some notes which Marx wrote, only a few years before his death, about a textbook of political economy published by professor Adolf Wagner of Berlin:

"Men do not begin by 'finding themselves in a theoretical relationship to the things of the external world'. Like every animal, they begin by *eating, drinking*, etc ... by behaving *actively*, gaining possession of certain things in the external world by their actions, thus satisfying their needs ... By repetition of this process, the property that those things have of 'satisfying their needs' is impressed on their brain; men, like animals, also learn to distinguish 'theoretically' the external things which, above all others, serve to satisfy their needs. At a certain point in their evolution, after the multiplication and development of their needs and of the activities to assuage them, men will baptise with the aid of words the whole category of these things that experience has enabled them to distinguish from the rest of the external world.

"This is an inevitable result; for, during the process of production (that is, the process of acquiring these things), *men continuously create active relationships with each other and with these things*, and soon they will have to struggle with each other for their possession ... this linguistic domination only expresses, in the form of a representation, what has become an acquired experience by constant repetition: that certain external things serve to satisfy the needs of men who live in given social relationships (which results necessarily from the existence of language). Men only give a name to these things because they already know that they serve to satisfy their needs and that they attempt to acquire them by frequently repeated acts and thus to keep them in their possession" ('Marginal notes on Adolf Wagner's *Textbook of political economy*' - my translation, original emphasis, K Marx and F Engels *Werke* Berlin 1956, Vol. 14, p355n).

This passage may be rather rambling - it was not prepared for publication - but it is important for two reasons: first, it presents us with a clear-headed and credible model of how cognition works in human beings. Practice comes *first* and involves separating by use and experiment those things

which satisfy our needs from those which do not. Giving names to useful, useless and harmful *things* comes before those things are conceptualised in terms of abstract ideas and categories. Secondly, in more discursive form, it confirms what Marx had written more than 35 years previously in his *Economic and philosophical manuscripts* and *Theses on Feuerbach*. With decades of theoretical labours and political struggle behind him, Marx still described the relationship between humanity and nature in essentially the same terms as he had used years before. Of course, this is not the whole picture by any means, but the continuity of Marx's thought is striking in conclusion of his study.

How, then, can we sum up the meaning and implications of Marx's notion of praxis in everyday language? It means that our intellectual faculties are shaped from the beginning by *action*. From the moment we leave the cradle (if not before), we are all 'sensual materialists': we relate to the objects and people around us not by abstract thinking, but by *contact*. This process can be seen at its clearest in our labour - using that word in its widest sense. When working, we are *both* materialists *and* idealists. We are materialists in that every act of physical contact with our environment convinces us that we are living in a world of real, natural *things*, not a world composed of bundles of thoughts and sensations.

Yet in our labour - again in the widest sense - we are all idealists: we develop thoughts, concepts, theories, *knowledge*, and we use this knowledge to subject objects (and other people) to our purposive will. We use knowledge to get what we want and to avoid what we do not want.

Praxis is not just a process of understanding reality, but of *changing* it according to our purposes. It is dialectical at several levels. At the *social* level, it involves a continuous process of interaction between humanity and environment and between humans; at the level of *individual consciousness*, it involves a continuous, reciprocal interaction between doing

and thinking, *a constant enrichment of thought through action and of action through thought*. It is simply not possible to take a kind of 'freeze-frame' of consciousness at any point and to separate out our sense-experience of the external world and our thinking about it.

The existence of 'autonomous' ideas divorced from practical activity is a myth; but so is the existence of sensuously 'concrete' knowledge isolated from ideas. Neither exists without the other, nor without changing and enriching the other. Praxis is an epistemological category, but not, I believe, a theory of knowledge. Theories of this kind *stand apart from* the reality they purport to explain, whereas the whole point about praxis is that it is an *organic fusion* of theory *and* practice. At its heart stands humanity's working relationship with nature, the true - indeed the only - source of our knowledge, a knowledge that cannot be separated from its social and historical context.