Capitalism, Nature, Socialism:
A Theoretical Introduction*

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"Those who insist that [environmental destruction] has nothing to do with Marxism merely ensure that what they choose to call Marxism will have nothing to do with what happens in the world."

-- Aiden Foster-Carter

Summary

This article expounds the traditional Marxist theory of the contradiction between forces and relations of production, over-production of capital and economic crisis, and the process of crisis-induced restructuring of productive forces and production relations into more transparently social, hence potentially socialist, forms. This exposition provides a point of departure for an "ecological Marxist" theory of the contradiction between capitalist production relations and forces and the conditions of production, under-production of capital and economic crisis, and the process of crisis-induced restructuring of production conditions and the social relations thereof also into more transparently social, hence potentially socialist, forms. In short, there may be not one but two paths to socialism in late capitalist society.
While the two processes of capital over-production and under-production are by no means mutually exclusive, they may offset or compensate for one another in ways which create the appearance of relatively stable processes of capitalist development. Study of the combination of the two processes in the contemporary world may throw light on the decline of traditional labor and socialist movements and the rise of "new social movements" as agencies of social transformation. In similar ways that traditional Marxism illuminates the practises of traditional labor movements, it may be that "ecological Marxism" throws light on the practices of new social movements. Although ecology and nature; the politics of the body, feminism, and the family; and urban movements and related topics are usually discussed in post-Marxist terms, the rhetoric deployed in this article is self-consciously Marxist and designed to appeal to Marxist theorists and fellow travelers whose work remains within a "scientific" discourse hence those who are least likely to be convinced by post-Marxist discussions of the problem of capital's use and abuse of nature (including human nature) in the modern world. However, the emphasis in this article on a political economic "scientific" discourse is tactical, not strategic. In reality, more or less autonomous social relationships, often non-capitalist or anti-capitalist, constitute "civil society," which needs to be addressed on its own practical and theoretical terms. In other words, social and collective action is not meant to be construed merely as derivative of systemic forces, as the last section of the article hopefully will make clear.

1. Introduction

In 1944, Karl Polanyi published his masterpiece, The Great Transformation, which discussed the ways in which the growth of the capitalist market impaired or destroyed its own social and environmental conditions.[1] Despite the fact that this book is alive with insights into the problem of economic development and the social and natural environment, it was widely forgotten. The subject of the ecological limits to economic growth and the interrelationships between development and environment was reintroduced into Western bourgeois thought in the late 1960s and early 1970s. The results have been mixed and highly dubious. Polanyi's work remains a shining light in a heaven filled with dying stars and black holes of bourgeois
naturalism, neo-Malthusianism, Club of Rome technocraticism, romantic deep ecologyism, and United Nations one-worldism.[2] Class exploitation, capitalist crisis, uneven and combined capitalist development, national independence struggles, and so on are missing from these kinds of accounts. The results of these and most other modern efforts to discuss the problem of capitalism, nature, and socialism wither on the vine because they fail to focus on the nature of specifically capitalist scarcity, that is, the process whereby capital is its own barrier or limit because of its self-destructive forms of proletarianization of human nature and appropriation of labor and capitalization of external nature.[3] The usual approaches to the problem -- the identification of "limits to growth" in terms of "resource scarcity," "ecological fragility," "harmful industrial technology," "destructive cultural values," "tragedy of the commons," "over-population," "wasteful consumption," "production treadmill," etc., either ignore or mangle Marx's theories of historically produced forms of nature and capitalist accumulation and development.

This should not be surprising since Marx wrote little pertaining to the ways that capital limits itself by impairing its own social and environmental conditions hence increasing the costs and expenses of capital, thereby threatening capitals' ability to produce profits, i.e., threatening economic crisis. More, he wrote little or nothing about the effects of social struggles organized around the provision of the conditions of production on the costs and expenses and variability of capital. Nor did he theorize the relationship between social and material dimensions of production conditions, excepting his extended discussion of ground rent (i.e., social relation between landed and industrial capital and material and economic relation between raw materials and industrial production). Marx was, however, convinced of at least three things. The first was that deficiencies of production conditions or "natural conditions" ("bad harvests") may take the form of economic crisis.[4] Second, he was convinced of the more general proposition that some barriers to production are truly external to the mode of production ("the productiveness of labour is fettered by physical conditions")[5] but that in capitalism these barriers assume the form of economic crisis.[6] Put another way, some barriers are "general" not "specific" to capitalism. What is specific is the way these barriers assume the form of crisis. Third, Marx believed that capitalist agriculture and silviculture are harmful to nature, as well as that capitalist exploitation is harmful to human laborpower.
In sum, Marx believed that capitalist farming (for example) ruined soil quality. He was also clear that bad harvests take the form of economic crisis. However, (although he did state that a rational agriculture is incompatible with capitalism)[7] he never considered the possibility that ecologically destructive methods of agriculture might raise the costs of the elements of capital, which, in turn, might threaten economic crisis of a particular type, namely, underproduction of capital.[8] Put another way, Marx never put two and two together to argue that "natural barriers" may be capitalistically produced barriers, i.e., a "second" capitalized nature.[9] In other words, there may exist a contradiction of capitalism which leads to an "ecological" theory of crisis and social transformation.

2. Two Kinds of Crisis Theory

The point of departure of the traditional Marxist theory of economic crisis and the transition to socialism is the contradiction between capitalist productive forces and production relations.[10] The specific form of this contradiction is between the production and realization of value and surplus value, or between the production and circulation of capital. The agency of socialist revolution is the working class. Capitalist production relations constitute the immediate object of social transformation. The site of transformation is politics and the state and the process of production and exchange. By contrast, the point of departure of an "ecological Marxist"[11] theory of economic crisis and transition to socialism is the contradiction between capitalist production relations (and productive forces) and the conditions of capitalist production, or "capitalist relations and forces of social reproduction."[12]

Marx defined three kinds of production conditions. The first is "external physical conditions"[13] or the natural elements entering into constant and variable capital. Second, the "laborpower" of workers was defined as the "personal conditions of production." Third, Marx referred to "the communal, general conditions of social production, e.g., "means of communication."[14]
Today "external physical conditions" are discussed in terms of the viability of eco-systems, the adequacy of atmospheric ozone levels, the stability of coastlines and watersheds; soil, air and water quality; and so on. "Laborpower" is discussed in terms of the physical and mental well-being of workers; the kind and degree of socialization; toxicity of work relations and the workers' ability to cope; and human beings as social productive forces and biological organisms generally. "Communal conditions" are discussed in terms of "social capital," "infrastructure," and so on. Implied in the concepts of "external physical conditions," "laborpower," and "communal conditions" are the concepts of space and "social environment." We include as a production condition, therefore, "urban space" ("urban capitalized nature") and other forms of space which structures and is structured by the relationship between people and "environment,"[15] which in turn helps to produce social environments. In short, production conditions include commodified or capitalized materiality and sociality excluding commodity production, distribution, and exchange themselves. The specific form of the contradiction between capitalist production relations (and forces) and production conditions is also between the production and realization of value and surplus value. The agency of social transformation is "new social movements" or new social struggles including struggles within production over workplace health and safety, toxic waste production and disposal, and so on. The social relationships of reproduction of the conditions of production (e.g., state and family as structures of social relations and also the relations of production themselves in so far as "new struggles" occur within capitalist production) constitute the immediate object of social transformation. The immediate site of transformation is the material process of reproduction of production conditions (e.g., division of labor within the family, land use patterns, education, etc.) and the production process itself, again in so far as new struggles occur within the capitalist workplace. In traditional Marxist theory, the contradiction between production and realization of value and economic crisis takes the form of a "realization crisis," or over-production of capital. In ecological Marxist theory, economic crisis assumes the form of a "liquidity crisis," or under-production of capital. In traditional theory, economic crisis is the cauldron in which capital restructures productive forces and production relations in ways which make both more transparently social in form and content, e.g., indicative planning, nationalization, profit-sharing, etc. In ecological Marxism, economic crisis is the cauldron in which capital restructures
the conditions of production also in ways which make them more transparently social in form and content, e.g., permanent yield forests, land reclamation, regional land use and/or resource planning, population policy, health policy, labor market regulation, toxic waste disposal planning, etc.

In traditional theory, the development of more social forms of productive forces and production relations is regarded as a necessary but not sufficient condition for the transition to socialism. In ecological Marxism, the development of more social forms of the provision of the conditions of production also may be regarded as a necessary but not sufficient condition for socialism. It should be quickly added that an "ecological socialism" would be different than that imagined by traditional Marxism, first, because from the perspective of the "conditions of production" most struggles have strong, particularistic "romantic anti-capitalist" dimensions, i.e., are "defensive" rather than "offensive," and, second, because it has become obvious that much capitalist technology, forms of work, etc., including the ideology of material progress, have become part of the problem not the solution. In sum, there may be not one but two paths to socialism, or, to be more accurate, two tendencies which together lead to increased (albeit historically reversible) socialization of productive forces, production relations, conditions of production and social relations of reproduction of these conditions.

3. The Traditional Marxist Account of Capitalism as a Crisis-Ridden System

In traditional Marxism, the contradiction between the production and circulation of capital is "internal" to capitalism because capitalist production is not only commodity production but also production of surplus value (i.e., exploitation of labor). It is a valorization process in which capitalists extract not only socially necessary labor (labor required to reproduce constant and variable capital) but also surplus labor from the working class. Everything else being the same,[16] any given amount of surplus value produced and/or any given rate of exploitation will have the effect of creating a particular shortfall of commodity demand at market prices. Or, put the opposite way, any particular shortage of commodity demand presupposes a given amount of surplus value produced and/or a given rate of exploitation. Further,
the greater the amount of surplus value produced and/or the higher the rate of exploitation, the greater the difficulty of realizing value and surplus value in the market. Thus, the basic problem of capitalism is, where does the extra commodity demand which is required to buy the product of surplus labor originate? Time honored answers include capitalist class consumption; capital investment which is made independently of changes in wage advances and consumer demand; markets created by these new investments; new investment, consumption, or government spending financed by expanded business, consumer or government credit; the theft of markets of other capitals and/or capitals in other countries; and so on. However, these "solutions" to the problem of value realization (that of maintaining a level of aggregate demand for commodities which is sufficient to maintain a given rate of profit without threatening economic crisis and the devaluation of fixed capital) turn into other kinds of potential "problems" of capitalism. Capitalist consumption constitutes an unproductive use of surplus value, as does the utilization of capital in the sphere of circulation with the aim of selling commodities faster. New capital investment may expand faster than, or independently of, new consumer demand with the result of increasing chances of a more severe realization crisis in the future. While a well-developed credit system can provide the wherewithal to expand commodity demand independent of increases in wages and salaries, the expansion of consumer demand based on increases in consumer or mortgage credit greater than increases in wages and salaries threatens to transform a potential crisis of capital over-production into a crisis of capital under-production. Moreover, any expansion of credit creates debt (as well as assets) and financial speculation, instabilities in financial structures, thus threatens a crisis in the financial system. The theft of markets from other capitals implies the concentration and/or centralization of capital hence a worsening of the problem of realization of value in the future and/or social unrest arising from the destruction of weaker capitals, political instability, bitter international rivalries, protectionism, even war. And so on. In sum, economic crisis can assume varied forms besides the traditional "realization crisis," including liquidity crisis, financial crisis or collapse, fiscal crisis of the state, and social and political crisis tendencies. However, whatever the specific forms of historical crises (the list above is meant to be suggestive not exhaustive), and whatever the specific course of their development and resolution, most if not all Marxists accept the premise based on the real
conditions of capitalist exploitation that capitalism is a crisis-ridden system.

4. The Traditional Marxist Account of Capitalism as a Crisis-Dependent System and the Transition to Socialism

In traditional Marxism, capitalism is not only crisis-ridden but also crisis-dependent. Capital accumulates through crisis, which functions as an economic disciplinary mechanism. Crisis is the occasion which capital seizes to restructure and rationalize itself in order to restore its capacity to exploit labor and accumulate. There are two general, interdependent ways in which capital changes itself to weather the crisis and resolve it in capital's own favor. One is changes in the productive forces, the second is changes in the production relations. Changes in either typically presuppose or require new forms of direct and indirect cooperation within and between individual capitals and/or within the state and/or between capital and the state. More cooperation or planning has the effect of making production more transparently social, meanwhile subverting commodity and capital fetishism, or the apparent "naturalness" of capitalist economy. The telos of crisis is thus to create the possibility of imagining a transition to socialism.

Crisis-induced changes in productive forces by capitals seeking to defend or restore profits (and exemplified by technological changes which lower unit costs, increase flexibility in production, and so on) have the systematic effect of lowering the costs of reproducing the work force; making raw materials available more cheaply or their utilization more efficient; reducing the period of production and/or circulation, etc. Whatever the immediate sources of the crisis, restructuring productive forces with the aim of raising profits is a foregone conclusion. More, crisis-induced changes in productive forces imply or presuppose more social forms of production relationships, e.g., more direct forms of cooperation within production.[17] Examples of changes in productive forces today, and associated changes in production relationships, include computerized, flexible manufacturing systems and robotics, which are associated with the development of "creative team play" and other forms of cooperation in the work place, profit sharing, etc. And, of course, the greatest productive force is human cooperation, and science or the social production of practical
knowledge has become an almost completely cooperative enterprise[18] partly as a result of cumulative historical economic, social and political crises.

The second way that capital restructures itself is crisis-induced changes in production relations within and between capital, within the state, and/or between the state and capital which are introduced with the aim of exercising more control of production, markets, and so on, i.e., more planning. Historically, planning has taken many forms, e.g., nationalization, fiscal policy, indicative planning, etc., including, at the political level, fascism, new dealism, and social democracy. Whatever the immediate sources of crisis, the restructuring of production relations with the aim of developing more control of labor, raw material supplies, etc. is a foregone conclusion. More, crisis-induced changes in production relations imply or presuppose more social forms of productive forces, e.g., more direct forms of cooperation. Examples of changes in production relations today are "strategic agreements" between high tech capitals; massive state intervention in financial markets; and centralization of capital via take-overs and mergers. These changes imply sharing or socialization of high tech secrets and technical personnel; new forms of financial controls; and restructuring of management and production systems, respectively.

To sum up, crisis forcibly causes capital to lower costs and increase flexibility and to exercise more control or planning over production and circulation. Crisis causes new forms of flexible planning and planned flexibility (even at the level of state-organized production), which increases the tensions between a more flexible capitalism (usually market-created) and a more planned capitalism (usually state-created). Crisis forcibly makes capital confront its own basic contradiction which is subsequently displaced to the spheres of the state, corporate management, etc. when there is introduced more social forms of productive forces and production relations, which imply or presuppose one another meanwhile developing independently of one another. In this way, capital itself creates some of the technical and social preconditions for the transition to socialism. However, whether we start from the productive force or production relation side, it is clear that technology and power embody one another hence that new forms of cooperation hold out only tenuous and ambiguous promises for the possibilities of socialism. For example, state capitalism, political capitalism, and so on contain within them socialist forms, but highly
distorted ones, which in the course of the class struggle may be politically appropriated to develop less distorted social forms of material and social life. But this is a highly charged political and ideological question. Only in a limited sense can it be said that socialism is imminent in crisis-induced changes in productive forces and production relations. Whether or not these new social forms are imminently socialist forms depends on the ideological and political terrain, degree of popular mobilization and organization, national traditions, etc., including and especially the particular world conjuncture. The same cautionary warning applies to the specific forms of cooperation in the workplace which emerge from the crisis, which may or may not preclude other forms which would lend themselves better to socialist practice, which cannot be regarded as some fixed trajectory but itself an object of struggle, and defined only through struggle.

Nothing can be said a priori about "socialist imminence" except at the highest levels of abstraction. The key point is that capitalism tends to self-destruct or subvert itself when it switches to more social forms of production relations and forces. The premise of this argument is that any given set of capitalist technologies, work relations, etc. is consistent with more than one set of production relations and that any given set of production relations is consistent with more than one set of technologies, etc. The "fit" between relations and forces is thus assumed to be quite loose and flexible. In the crisis, there is a kind of two-sided struggle to fit new productive forces into new production relations and vice versa in more social forms without, however, any "natural" tendency for capitalism to transform itself to socialism. Nationalization of industry, for example, may or may not be a step toward socialism. It is certainly a step toward more social forms of production and a more specifically political form of appropriation and utilization of surplus value. On the other side, quality circles, work teams, technology sharing, etc. may or may not be a step toward socialism. They are certainly steps toward more social forms of productive forces.

5. Toward an Ecological Marxist Account of Capitalism as a Crisis-Ridden System

The point of departure of "ecological Marxism" is the contradiction between capitalist production relations and productive forces and
conditions of production. Neither human laborpower nor external nature nor infrastructures including their space/time dimensions are produced capitalistically, although capital treats these conditions of production as if they are commodities or commodity capital. Precisely because they are not produced and reproduced capitalistically, yet are bought and sold and utilized as if they were commodities, the conditions of supply (quantity and quality, place and time) must be regulated by the state or capitals acting as if they are the state. Although the capitalization of nature implies the increased penetration of capital into the conditions of production (e.g., trees produced on plantations, genetically altered species, private postal services, voucher education, etc.), the state places itself between capital and nature, or mediates capital and nature, with the immediate result that the conditions of capitalist production are politicized. This means that whether or not raw materials and labor force and useful spatial and infrastructural configurations are available to capital in requisite quantities and qualities and at the right time and place depends on the political power of capital, the power of social movements which challenge particular capitalist forms of production conditions (e.g., struggles over land as means of production versus means of consumption), state structures which mediate or screen struggles over the definition and use of production conditions (e.g., zoning boards), and so on.[19] Excepting the branches of the state regulating money and certain aspects of foreign relations (those which do not have any obvious relation to accessing foreign sources of raw materials, laborpower, etc.), every state agency and political party agenda may be regarded as a kind of interface between capital and nature (including human beings and space). In sum, whether or not capital faces "external barriers" to accumulation, including external barriers in the form of new social struggles over the definition and use of production conditions (i.e., "social barriers" which mediate between internal or specific and external or general barriers);[20] whether or not these "external barriers" take the form of economic crisis; and whether or not economic crisis is resolved in favor of or against capital are political and ideological questions first and foremost, economic questions only secondarily. This is so because production conditions are by definition politicized (unlike production itself) and also because the whole corpus of Marx's work privileges laborpower as a production condition; access to nature is mediated by struggles while external nature has no subjectivity of its own.[21] Laborpower alone struggles around the
conditions of its own well-being and social environment broadly defined.

An ecological Marxist account of capitalism as a crisis-ridden system focuses on the way that the combined power of capitalist production relations and productive forces self-destruct by impairing or destroying rather than reproducing their own conditions ("conditions" defined in terms of both their social and material dimensions). Such an account stresses the process of exploitation of labor and self-expanding capital; state regulation of the provision of production conditions; and social struggles organized around capital's use and abuse of these conditions. The main question -- does capital create its own barriers or limits by destroying its own production conditions? -- needs to be asked in terms of specific use values, as well as exchange value. This is so because conditions of production are not produced as commodities, hence problems pertaining to them are "site specific," including the individual body as a unique "site." The question -- why does capital impair its own conditions? -- needs to be asked in terms of the theory of self-expanding capital, its universalizing tendencies which tend to negate principles of site specificity, its lack of ownership of laborpower, external nature, and space, hence (without state or monopolistic capitalist planning) capital's inability to prevent itself from impairing its own conditions. The question -- why do social struggles against the destruction of production conditions (which resist the capitalization of nature, for example, environmental, public health, occupational health and safety, urban, and other movements) potentially impair capital flexibility and variability? -- needs to be asked in terms of conflicts over conditions defined both as use values and exchange values.

Examples of capitalist accumulation impairing or destroying capital's own conditions hence threatening its own profits and capacity to produce and accumulate more capital are well-known. The warming of the atmosphere will inevitably destroy people, places, and profits, not to speak of other species life. Acid rain destroys forests and lakes and buildings and profits alike. Salinization of water tables, toxic wastes, soil erosion, etc. impair nature and profitability. The pesticide treadmill destroys profits as well as nature. Urban capital running on an "urban renewal treadmill" impairs its own conditions hence profits, e.g., congestion costs, high rents, etc.[22] The decrepit state of the physical infrastructure in this country may be mentioned in this connection. There is also an "education treadmill," "welfare treadmill,"
"technological fix treadmill" "health care treadmill," etc.[23] This line of thinking also applies to the "personal conditions of production . . . laborpower" in connection with capital's destruction of traditionalist family life as well as the introduction of work relations which impair coping skills, and the presently toxic social environment generally. In these ways, we can safely introduce "scarcity" into the theory of economic crisis in a Marxist, not neo-Malthusian, way. We can also introduce the possibility of capital underproduction once we add up the rising costs of reproducing the conditions of production. Examples include the health bill necessitated by capitalist work and family relations; the drug and drug rehabilitation bill; the vast sums expended as a result of the deterioration of the social environment (e.g., police and divorce bill); the enormous revenues expended to prevent further environmental destruction and clean-up or repair the legacy of ecological destruction from the past; monies required to invent and develop and produce synthetics and "natural" substitutes as means and objects of production and consumption; the huge sums required to pay off oil sheiks and energy companies, e.g., ground rent, monopoly profit, etc.; the garbage disposal bill; the extra costs of congested urban space; the costs falling on governments and peasants and workers in the Third World as a result of the twin crises of ecology and development. And so on. No one has estimated the total revenues required to compensate for impaired or lost production conditions and/or to restore these conditions and develop substitutes. It is conceivable that total revenues allocated to protecting or restoring production conditions may amount to one-half or more of the total social product -- all unproductive expenses from the standpoint of self-expanding capital. Is it possible to link these unproductive expenditures (and those anticipated in the future) to the vast credit and debt system in the world today? To the growth of fictitious capital? To the fiscal crisis of the state? To the internationalization of production? The traditional Marxist theory of crisis interprets credit/debt structures as the result of capital overproduction. Ecological Marxism would interpret the same phenomena as the result of capital underproduction and unproductive use of capital produced. Do these tendencies reinforce or offset one another? Without prejudging the answer, the question clearly needs to be on the agenda of Marxist theory.

6. Towards an Ecological Marxist Account of Capitalism as a Crisis-Ridden System and the Transition to Socialism
Neither Marx nor any Marxists have developed a theory of the relationship between crisis-induced changes in the conditions of production and the establishment of the conditions of socialism. In traditional Marxism, crisis-induced changes in productive forces and relations are determined by the need to cut costs, restructure capital, etc. Forces and relations are transformed into more transparently social forms. In ecological Marxism, like traditional Marxism, capitalism is also not only crisis-ridden but also crisis-dependent. Crisis-induced changes in production conditions (whether crisis itself originates in capital overproduction or underproduction) are also determined by the need to cut costs, reduce ground rent, increase flexibility, etc. and to restructure conditions themselves, e.g., expand preventive health, reforestation, reorganization of urban space, etc.

There are two general, interdependent ways in which capital (helped by the state) changes its own conditions to weather the crisis and to resolve it in capital's favor. One is changes in conditions defined as productive forces. The other is changes in the social relations of reproduction of conditions. Changes in either typically presuppose or require new forms of cooperation between and within capitals and/or between capital and the state and/or within the state, or more social forms of the "regulation of the metabolism between humankind and nature" as well as the "metabolism" between the individual and the physical and social environment. More cooperation has the effect of making production conditions (already politicized) more transparently political, thereby subverting further the apparent "naturalness" of capital existence. The telos of crisis is thus to create the possibility of imagining more clearly a transition to socialism. Crisis-induced changes in conditions as productive forces with the purpose of defending or restoring profit (exemplified by technological changes which lower congestion costs, increase flexibility in the utilization of raw materials, etc.) have the systemic effect of lowering the costs of reproducing the work force; making raw materials available more cheaply, etc. Whatever the immediate sources of the crisis, restructuring production conditions with the aim of raising profits is a foregone conclusion. More, crisis-induced changes in production conditions imply or presuppose more social forms of the social relations of reproduction of production conditions, e.g., more direct forms of cooperation within the sphere of production conditions. An example of a change in production conditions today, and the associated change in the social relations of
reproduction of production conditions, is integrated pest management which presupposes not only more coordination of farmers' efforts but also more coordination of training and education programs.[24] Another example is preventative health technology in relation to AIDS and associated changes in community relations in a more cooperative direction. The second form of restructuring is crisis-induced changes in the social relations of reproduction of production conditions introduced with the aim of exercising more control of production conditions, i.e., more planning. Historically, planning has taken many forms, e.g., urban and regional transportation and health planning, natural resource planning, etc.[25] Whatever the immediate sources of crisis, the restructuring of these social relations with the aim of developing more control of production conditions is also a foregone conclusion. More, crisis-induced changes in the social relations of reproduction of production condition imply or presuppose more social forms of production conditions defined as productive forces. An example of such a change today is "planning" to deal with urban smog which presupposes coalitions of associations and groups, i.e., political cooperation, to legitimate tough yet cooperative smog-reduction measures.[26] Another example is the proposed restructuring of the U.S. Bureau of Reclamation which new technical changes in water policy presuppose.[27] To sum up, crisis forcibly causes capital and state to exercise more control or planning over production conditions (as well as over production and circulation of capital itself). Crisis brings into being new forms of flexible planning and planned flexibility, which increases tensions between a more flexible capitalism and a more planned capitalism -- more so than in the traditional Marxist account of the restructuring of production and circulation because of the key role of the state bureaucracy in the provision of production conditions. Crisis forcibly makes capital and state confront their own basic contradictions which are subsequently displaced to the political and ideological spheres (twice removed from direct production and circulation) where there is introduced more social forms of production conditions defined both materially and socially, e.g., the dominance of political bipartisanship in relation to urban redevelopment, educational reform, environmental planning, and other forms of provision of production conditions which exemplify new and significant forms of class compromise. However, it is clear that technology and power embody one another at the level of conditions as well as production itself hence that new forms of political cooperation
hold out only tenuous promises of socialism. Again, nothing can be said a priori about "socialist imminence" excepting at a high level of abstraction. The key point is that capitalism tends to self-destruct or subvert itself when it switches to more social forms of the provision of production conditions via politics and ideology. The premise of this argument (like the argument of the present interpretation of traditional Marxism) is that any given set of production condition technologies, work relations, etc. is consistent with more than one set of social relations of reproduction of these conditions and that any given set of these social relations is consistent with more than one set of production condition technologies, work relations, etc. The "fit" between social relations and forces of reproduction of production conditions is thus assumed to be quite loose and flexible. In the crisis (in which the future is unknowable), there is a kind of two-sided struggle to fit new production conditions defined as forces into new production conditions defined as relations, and vice versa, into more social forms without, however, any "natural" tendency for capitalism to transform itself into socialism. Urban and regional planning mechanisms, for example, may or may not be a step toward socialism. They are certainly a step toward more social forms of the provision of production conditions hence making socialism at least more imaginable. On the other side, regional transportation networks and health care services and bioregional water distribution (for example) may or may not be a step towards socialism. They are certainly a step toward more social forms of the provision of production conditions. In the modern world, the list of new social and political forms of reproduction of production conditions is endless. It seems highly significant, and also theoretically understated within Marxism, that the world crisis today appears to result in more, and require many additional, social forms not only of productive forces and relations but also production conditions, although the institutional and ideological aspects of these forms are confusing and often contradictory, and although these forms should not be regarded as irreversible (e.g., reprivatization, deregulation, etc.). Yet it is conceivable that we are engaging in a long process in which there occurs different yet parallel paths to socialism, hence that Marx was not so much wrong as he was half-right. It may be that the traditional process of "socialist construction" is giving way to a new process of "socialist reconstruction," or the reconstruction of the relationship between human beings and production conditions including the social environment. It is at least plausible that in the "first world" socialist
reconstruction will be seen as, first, desirable, and second, necessary; in the "second world" as equally desirable and necessary; and in the "third world" as, first, necessary, and second, desirable. It is more plausible that atmospheric warming, acid rain, and pollution of the seas will make highly social forms of reconstruction of material and social life absolutely indispensable.

To elaborate somewhat, we know that the labor movement "pushed" capitalism into more social forms of productive forces and relations, e.g., collective bargaining. Perhaps we can surmise that feminism, environmental movements, etc. are "pushing" capital and state into more social forms of the reproduction of production conditions. As labor exploitation (the basis of Marxist crisis theory, traditionally defined) engendered a labor movement which during particular times and places turned itself into a "social barrier" to capital, nature exploitation (including exploitation of human biology) engenders an environmental movement (e.g., environmentalism, public health movement, occupational health and safety movements, women's movement organized around the politics of the body, etc.) which may also constitute a "social barrier" to capital. In a country such as Nicaragua, the combination of economic and ecological crisis and political dictatorship in the old regime has engendered a national liberation movement and eco-development planning.

Concrete analysis of concrete situations is required before anything sensible can be said about environmentalism defined in the broadest sense and capital's short- and long-term prospects. For example, acid rain causes ecological and economic damage. The environmental movement demands clean-up and restoration of environment and protection of nature. This may restore profits in the long run or reduce government clean-up expenses, which may or may not be congruent with short- and middle-term needs of capital. Implied in a systematic program of politically regulated social environment are kinds of planning which protect capital against its worst excesses, yet which may or may not be congruent with capital's needs in particular conjunctures. One scenario is that "the destruction of the environment can lead to vast new industries designed to restore it. Imagine, lake dredging equipment, forest cleaning machines, land revitalizers, air restorers, acid rain combatants."[28] These kinds of super-tech solutions would be a huge drain on surplus value, unless they lowered the reproduction cost of laborpower, yet at the same time help to
"solve" any realization problems arising from traditional capital overproduction. Vast sums of credit money would be required to restore or rebuild the social environment, however, which would displace the contradiction into the financial and fiscal spheres in more or less the same ways that the traditional contradiction between production and circulation of capital is displaced into the financial and fiscal spheres today.

This kind of technology-led restructuring of production conditions (including technique-led restructuring of the conditions of supply of laborpower) may or may not be functional for capital as a whole, individual capitals, in the short-or-long-run. The results would depend on other crisis prevention and resolution measures, their exact conjuncture, and the way in which they articulate with the crisis of nature broadly defined. In the last analysis, the results would depend on the degree of unity and diversity in labor movements, environmental movements, solidarity movements, etc. And this is a political, ideological, and organizational question.

In any event, crisis-induced changes in production conditions necessarily lead to more state controls, more planning within the bloc of large-scale capital, a more socially and politically administered or regulated capitalism, hence a less nature-like capitalism, one in which changes in production conditions would need to be legitimated because they would be more politicized, and one in which capitalist reification would be less opaque. The combination of crisis-stricken capitals externalizing more costs, the reckless use of technology and nature for value realization in the sphere of circulation, and the like, must sooner or later lead to a "rebellion of nature," i.e., powerful social movements demanding an end to ecological exploitation. Especially in today's crisis, whatever its source, capital attempts to reduce production and circulation time, which typically has the effect of making environmental practices, health and safety practices, etc. worse. Hence capital restructuring may deepen not resolve ecological problems. Just as capital ruins its own markets, i.e., realized profits, the greater is the production of surplus value, so does capital ruin its own produced profits, i.e., raise costs and reduce capital flexibility, the greater is the production of surplus value based on the destructive appropriation of nature broadly defined. And just as over-production crises imply a restructuring of both productive forces and relations, so do under-production crises imply a restructuring of production conditions. And
just as restructuring of productive forces imply more social forms of 
production relations and vice versa, so does restructuring of production 
conditions imply a twofold effect -- more social forms of production 
conditions defined as productive forces and more social forms of the 
social relationships in which production conditions are reproduced. In 
sum, more social forms of production relations, productive forces, and 
conditions of production together contain with them possibilities of 
socialist forms. These are, in effect, crisis-induced not only by the 
traditional contradiction between forces and relations, but also by the 
contradiction between forces/relations and their conditions. Two, not 
one, crises are thus inherent in capitalism; two, not one, sets of crisis-
induced reorganizations and restructurings in the direction of more 
social forms are also inherent in capitalism.

7. Conclusion

Some reference needs to be made to post-Marxist thought and its 
objects of study, "post-industrial society," "alternative movements" or 
"new social movements," and "radical democracy."[29] This is so 
because post-Marxism has practically monopolized discussions of what 
Marx called "conditions of production." No longer is the working class 
seen as the privileged agent of historical transformation nor is the 
struggle for socialism first on the historical agenda. Instead, there is the 
fight for "radical democracy" by "new social movements" in a "post-
industrial society."

These basic post-Marxist postulates deserve close scrutiny, especially 
given post-Marxist readings of Marx and Marxism, and the political 
implications therein.[30] So does the declaration by radical bourgeois 
feminists, eco-feminists, deep ecologists, libertarian ecologists, 
communitarians, etc. that Marxism is dead. In the present discussion, 
however, it is possible only to point out that in ecological Marxist 
theory, the struggle over production conditions has redefined and 
broadened the class struggle beyond any self-recognition as such, at 
least until now. This means that capitalist threats to the reproduction of 
production conditions are not only threats to profits and accumulation, 
but also to the viability of the social and "natural" environment as a 
means of life. The struggle between capital and "new social 
movements" in which the most basic concepts of "cost" and "efficiency" 
are contended, has two basic "moments." The first is the popular and
nearly universal struggle to protect the conditions of production, or means of life, from further destruction resulting from capital's own inherent recklessness and excesses. This includes needs and demands for the reduction of risks in all forms. This struggle pertains to the form in which "nature" is appropriated, as means of reproduction of capital versus means of reproduction of civil and human society. The second is the struggle over the programs and policies of capital and state to restructure the production conditions, i.e., struggles over the forms and contents of changes in conditions. Put another way, new social struggles are confronted with both the impairment and also crisis-induced restructuring of production conditions at the same time. Both "moments" of struggle occur both outside the state and also within and against the state, i.e., they pertain to "public administration" (in Carlo Carboni's words). Seen this way, the demand for radical democracy is the demand to democratize the provision and reconstruction of production conditions, which in the last analysis is the demand to democratize the state, i.e., the administration of the division of social labor.[31] In truth, in the absence of struggles to democratize the state, it is difficult to take the demand for "radical democracy" seriously. In post-Marxist thought, great stress is placed on "site specificity" and the "integrity" of the individual's body, a particular meadow or species life, a specific urban place, etc.[32] The word "difference" has become post-Marxism's mantra, which, it is thought, expels the word "unity," which in the post-Marxist mind is often another way to spell "totalitarian." In the well thought out versions of post-Marxist thought, the "site specificity" which new social movements base themselves on are considered to make any universal demands impossible,[33] at least any universal demand beyond the demand for the universal demand beyond the demand for the universal recognition of site specificity. This is contrasted with the bourgeois revolution which universalized the demand for rights against privilege and the old working-class struggle which universalized the demand for public property in the means of production against capitalist property. However, our discussion of production conditions and the contradictions therein reveals clearly that there is a universal demand implicit or latent in new social struggles, namely, the demand to democratize the state (which regulates the provision of production conditions), as well as the family, local community, etc. In fact, no way exists for diverse social struggles defending the integrity of particular sites to universalize themselves, hence win, and, at the same time, retain their diversity excepting
through struggles for the democratic state and also by uniting with the labor movement, recognizing what we have in common, cooperative labor, thereby theorizing the unity of social labor.[34]

Moreover, post-Marxism, influenced by the "free rider problem" and problems of "rational choice" and "social choice" (all problems which presuppose bourgeois individualism), states or implies that struggles over production conditions are different than traditional wage, hours, and working conditions struggles because conditions of production are to a large degree "commons," clean air being an obvious example, urban space and educational facilities being somewhat less obvious ones. The argument is that struggles against air pollution (or capitalist urban renewal or racist tracking in the schools) do not have an immediate "pay off" for the individual involved; hence (in Offe's account) the phenomenon of cycles of social passivity and outrage owing to the impossibility of combining individual and collective action around goals which "pay off" for both the individual and group. Again, this is not the place for a developed critique of this view, one which would begin with an account of how the process of social struggle itself changes self-definitions of "individuality." It needs to be said, however, that labor unions, if they are anything, are disciplinary mechanisms against "free riders" (e.g., individual workers who try to offer their laborpower at less than the union wage are the object of discipline and punishment by the union). Further, it should be said that the "free rider" problem exists in struggles to protect the "commons" only in so far as these struggles are only ends in and of themselves, not also means to the specifically political hence universal end of establishing a democratic state. Also in relation to the problem of the "commons," and beyond the problem of the relation between the individual and the group, there is the problem of the relationship between groups and classes. Specifically, the struggles of "new social movements" over conditions of production are generally regarded in the self-defined post-Marxist universe as non-class issues or multi-class issues. "Transformative processes that no doubt go on in our societies are very likely not class conflicts ... but non-class issues."[35] Especially in struggles over production conditions (compared with production itself), it is understandable that these appear as non-class issues, and that agents define themselves as non-class actors. This is to not only because the issues cut across class lines (e.g., urban renewal, clean air, etc.), but also because of the site specificity and "people" specificity of the struggles, i.e., because the fight is to determine what kind of use
values production conditions will in fact be. But, of course, there is a class dimension to all struggles over conditions, e.g., tracking in the schools, urban renewal as "people removal," toxic waste dumps in low income or poor districts and communities, the worker as the "canary" in the workplace, the inability of most unemployed and many workers to access "wilderness areas," etc. Most problems of the natural and social environments are bigger problems from the standpoint of the poor, including the working poor, than for the salariat and the well-to-do. In other words, issues pertaining to production conditions are class issues, even though they are also more than class issues, which becomes immediately obvious when we ask who opposes popular struggles around conditions? The answer is, typically, capital, which fights against massive public health programs, emancipatory education, controls on investments to protect nature, even adequate expenditures on child care, certainly demands for autonomy or substantive participation in the planning and organization of social life. What "new social movements" and their demands does capital support? Few, if any. What "new social movements" does labor oppose? Certainly, those which threaten ideologies of male supremacy and/or white race supremacy, in may instances, as well as those which threaten wages and jobs, even some which benefit labor, e.g., clean air. Hence, the struggle over conditions is not only a class struggle, but a struggle against such ideologies and their practices. This is why it can be said that struggles over conditions are not less but more than class issues. And that to the degree that this is true, the struggle for "radical democracy" is that much more a struggle to democratize the state, a struggle for democracy within state agencies charged with regulating the provision of production conditions. In the absence of the perspective and vision, "new social movements" will remain at the level of anarcho-communalist and related struggles which are bound to self-destruct themselves in the course of their attempts to "deconstruct" Marxism.
Notes

*I am grateful to Carlo Carboni, John Ely, Danny Faber, Bob Marotto, and David Peerla for their encouragement and helpful criticisms and comments.


[4] In the case of bad harvests, "the value of the raw material ... rises; its volume decreases....More must be expended on raw material, less remains for labour, and it is not possible to absorb the same quantity of labour as before. Firstly, this is physically impossible . . . . Secondly, it is impossible because a greater portion of the value of the product has to be converted into raw material.... Reproduction cannot be repeated on the same scale. A part of fixed capital stands idle and a part of the workers is thrown out into the streets. The rate of profit falls because the value of constant capital has risen as against that of variable capital. . . . The fixed charges -- interest, rent -- which were based on the anticipation of a constant rate of profit and exploitation of labour, remain the same and in part cannot be paid. Hence crisis . . . . More, although the rate of profit is decreasing, there is a rise in the price of the product. If this product enters into the other spheres of reproduction as a means of production, the rise in its price will result in the same disturbance in reproduction in these spheres" (Karl Marx, Theories of Surplus Value, Part Two, Moscow, 1968, 515-516).

[5] "Apart from the degree of development, greater or less, in the form of social production, the productiveness of labour is fettered by physical conditions" (Capital I). In Theories of Surplus Value (Part Three, 449), Marx states that the precondition for the existence of absolute surplus value is the "natural fertility of the land."

[6] Michael Lebowitz, "The General and the Specific in Marx's Theory of Crisis," Studies in Political Economy, 7, Winter, 1982. Lebowitz includes as "general" barriers the supply of labor and the availability of land and natural resources. However, he does not distinguish between the supply of labor per se and the supply of disciplined wage labor. As for natural resources, he does not distinguish between "natural" shortages and shortages capital creates for itself in the process of capitalizing nature nor those created politically by ecology movements.

[8] We can therefore distinguish two kinds of scarcity: first, scarcity arising from economic crisis based on traditional capital overproduction, i.e., a purely social scarcity; second, scarcity arising from economic crisis based on capitalistically produced scarcity of nature or production conditions generally. Both types of scarcity are ultimately attributable to capitalist production relations. The second type, however, is not due to "bad harvests," for example, but to capitalistically produced "bad harvests" as a result of mining, not farming, land; polluting water tables; etc.

[9] There are two reasons why Marx ran from any theory of capitalism and socialism which privileged any aspect of social reproduction besides the contradiction between production and circulation of capital. One is his opposition to any theory which might "naturalize" hence reify the economic contradictions of capital. His polemics against Malthus and especially his rejection of any and all naturalistic explanations of social phenomena led him away from "putting two and two together." Second, it would have been difficult in the third quarter of the 19th century to argue plausibly that the impairment of the conditions of production and social struggles therein are self-imposed barriers of capital because historical nature was not capitalized to the degree that it is today, i.e., the historical conditions of the reproduction of the conditions of production today make an "ecological Marxism" possible.


[11] Murray Bookchin deserves most credit for developing the theory of "social ecology" in the USA. The basic impulse of his method and theory is libertarian not Marxist, "social ecology" not "socialist ecology." To my knowledge, "ecological Marxism" was coined by Ben Agger (Western Marxism: An Introduction: Classical and Contemporary Sources, Santa Monica (Cal.), 1987, 316-339). Agger's focus is "consumption" not "production." His thesis is that ever-expanding consumption required to maintain economic and social stability impairs the environment, and that ecological crisis has replaced economic crisis as the main problem of capitalism. This article may be regarded as, among other things, a critique of Agger's often insightful views.

[12] According to Carlo Carboni, who also uses the expression "social reproductive conditions." I use "conditions of production" because I want to reconstruct the problem using Marx's own terminology and also because I want to limit my discussion mainly to crisis tendencies in the process of the production and circulation of capital, rather than to the process of social reproduction, i.e., reproduction of the social formation as a whole. This means that I will follow Marx's lead and interpret "production conditions" in "objectivist" terms, excepting in the last section which suggests that these conditions are increasingly grasped as "subjective" today.


[15] In a conversation with David Harvey, who pioneered the theory of the spatial configurations and barriers to capital (Limits to Capital, Basil Blackwell, 1982), tentative "permission" was granted the author to interpret urban and other forms of space as a "production condition."

[16] The following is a deliberate "Smithian" simplification of the traditionally defined economic contradiction of capitalism which altogether neglects Marx's critique of Smith, namely, that it is the rising organic composition of capital, not a falling rate of exploitation, which causes the profit rate to fall, even though capitalism "presents itself" otherwise. To be absolutely clear, the following account is not meant to review Marx's critique of capitalist fetishism or Adam Smith, et. al. I put the contradiction of capitalism in its simplest terms with the two-fold aim of (a) preparing a discussion of crisis-induced restructuring of the productive forces and production relations and (b) setting up a standard by which we can compare the "traditional" with the "non-traditional" or "second" contradiction of capitalism based on the process of capitalist-created scarcities of external and human nature.ú

[17] "Cooperation" (e.g., "work relations") is both a productive force and production relationships, i.e., ambiguously determined by both "technological necessity" and "power."


[19] This kind of formulation of the problem avoids the functionalism of the "state derivation school" of Marxism as well as political sociological or Weberian theories of the state which are not grounded in material existence.

[20] So-called external barriers may be interpreted as internal barriers, in fact, if we assume that (a) external nature being considered is commodified or capitalized nature and (b) new social struggles organized under the sign of "ecology" or "environmentalism" have their roots in the class structure and relations of modern capitalism, e.g., the rise of the new middle class or salariat, which is the backbone of environmentalism in the USA.

[21] "External and universal nature can be considered to be differences within a unity from the standpoint of capital accumulation and state actions necessary to assure that capital can accumulate. Yet the difference is no less significant than the unity from the standpoint of social and ecological action and political conflict. The
reason is that laborpower is a subject which struggles over health and the (natural) conditions of social health broadly defined, whereas the "natural elements entering into constant and variable capital" are objects of struggle (Robert Marotto, Correspondence).

[22] "Economists and business leaders say that urban areas in California are facing such serious traffic congestion that the state's economic vitality is in jeopardy" (The New York Times, April 5, 1988).

[23] "If schools cannot figure out how to do a better job of educating these growing populations and turn them into productive workers and citizens, then the stability of the economy could be threatened" (Edward B. Fiske, "US Business Turns Attention to Workers of the Future," International Herald Tribune, February 20-21, 1988). Fisk is referring to minorities which today make up 17 percent of the population, a figure expected to jump to one-third by 2020. In the USA, health care costs as a percentage of GNP were about six percent in 1965; in 2000 they are expected to be 15 percent. "Health care has become an economic cancer in this country," screams a San Francisco Chronicle headline writer (March 14, 1988).

[24] The well-known IPM program in Indonesia reportedly increases profits by reducing costs and also increasing yields. It depends on new training and education programs, coordination of farm planning, etc. (Sandra Postel, "Indonesia Steps Off the Pesticide Treadmill," World Watch, January-February, 1988, 4).

[25] For example, West German organized industry and industry-state coordination successfully internalizes many externalities or social costs. This occurs without serious harm to profits because the FRG produces such high quality and desirable goods for the world market that costs of protecting or restoring production conditions can be absorbed while industry remains competitive (Conversation, Claus Offe).


[27] The idea that crisis induced by inadequate conditions of production results in more social forms of production and productive relations is not new in non-Marxist circles. Schnaiberg linked rapid economic expansion to increased exploitation of resources and growing environmental problems, which in turn posed restrictions on economic growth, hence making some kind of planning of resource use, pollution levels, etc. essential. He interpreted environmental legislation and control policies of the 1970's as the start of environmental planning (The Environment, op. cit.). More, the idea that crisis induced by unfavorable production conditions results in more social productive forces, as well as production relationships (which is also Schnaiberg's thesis, since planning is a form of cooperation, hence both a force and relation of production), can be found in embryonic form in works such as: R.G. Wilkinson, Poverty and Progress: An Ecological Perspective on Economic Development (New York, 1973) which argues that epoch-making technological changes have often resulted from ecological
scarcities; O. Sunkel and J. Leal, "Economics and Environment in a Developmental Perspective" (International Social Science Journal, 109, 1986, 413) which argues that depletion of resources and scarcity increases the costs of economic growth because of declines in natural productivity of resources hence that new energy resources and technological subsidies (implying more planning) are needed.

[28] Correspondence, Saul Landau.


[30] For example, Laclau and Mouffe's discussion of what they call Marxist "essentialism" violates both the spirit and substance of Marx's theory of capital.

[31] James O'Connor, "The Democratic Movement in the United States," Kapitalistate, 7, 1978. It should be noted that in the entire post-Marxist literature it is impossible for me to find any reference to the division of social labor, so obsessed are the "theorists" with the division of industrial labor, division of labor within the family, etc. This absence or silence permits us to grasp post-Marxism as recycled anarchism, populist-anarchism, communitarianism, libertarianism, etc.

[32] Accordingly to Carboni, "the challenge of specificity is propelled by all new social actors in advanced capitalist societies. It is an outcome of the complex network of policies, planning, and so on which are implemented by both capital and the state in order to integrate people while changing production conditions. On the one hand, this specificity (difference) represents the breakage of collective and class solidarity. On the other hand, it reveals both new micro-webs of social solidarity and the universalistic network of solidarity based on social citizenship." (Communication with the author).

[33] This and the following point were made by Claus Offe in conversation with the author, who is grateful for the chance to discuss these issues with someone who gracefully and in a spirit of scientific collaboration presents a post-Marxist point of view.

[34] "The issue in dispute is the post-Marxist claim that we have multiple social identities against the present claim that there exists a theoretical unity in these identities in the unity of the conditions of production and capital production and realization. On the level of appearances, it is true that we have multiple identities, but in essence the unity of our identity stems from capitalism as a mode of production. The trick is to make the theoretical unity a reality. An environmental struggle may be an unintentional barrier to capital in the realm of accumulation while not being ideologically anti-capitalist. The question is how to make environmentalists conscious of the fact that they are making the reproduction of the conditions of production more social. The post-Marxists do not want to find a unity in the fragmented social identities we have. But even to build alliances between
social movements some unity must be constructed. In the absence of an agreed upon
telos of struggle, or any common definitions, dialogue cannot take place. If we are
unable to agree on any terms and objects of struggle in what sense can we say new
social movements are over what socialism means but in some sense we are required
to struggle for a common language which will necessarily obscure particular
differences. As capitalism abstracts out the social nature of labor in the exchange of
commodities, it obscures what we have in common, cooperative labor, thereby
fragmenting our identity. What is disturbing is the lack of any move on the part of
the post-Marxists to theorize the unity of social labor." Communication, David
Peerla.

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