"Ecology and Capitalist Costs of Production: No Exit"

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Today, virtually everyone agrees that there has been a serious degradation of the natural environment in which we live, by comparison with 30 years ago, *a fortiori* by comparison with 100 years ago, not to speak of 500 years ago. And this is the case, despite the fact that there have been continuous significant technological inventions and an expansion of scientific knowledge that one might have expected would have led to the opposite consequence. As a result, today, unlike 30 or 100 or 500 years ago, ecology has become a serious political issue in many parts of the world. There are even reasonably significant political movements organized centrally around the theme of defending the environment against further degradation and reversing the situation to the extent possible.

Of course, the appreciation of the degree of seriousness of the contemporary problem ranges from those who consider doomsday as imminent to those who consider that the problem is one well within the possibility of an early technical solution. I believe the majority of persons hold a position somewhere in-between. I am in no position to argue the issue from a scientific viewpoint. I will take this in-between appreciation as plausible, and will engage in an analysis of the relevance of this issue to the political economy of the world-system.

The entire process of the universe is of course one of unceasing change, so the mere fact that things are not what they were previously is so banal that it merits no notice whatsoever. Furthermore, within this constant turbulence, there are patterns of structural renewal we call life. Living, or organic, phenomena have a beginning and an end to their individual existence, but in the process procreate, so that the species tends to continue. But this cyclical renewal is never perfect, and the overall ecology is therefore never static. In addition, all living phenomena ingest in some way products external to them, including most of the time other living phenomena, and predator/prey ratios are never perfect, so that the biological milieu is constantly evolving.

Furthermore, poisons are natural phenomena as well, and were playing a role in the ecological balance-sheets long before human beings got into the picture. To be sure, today we know so much more chemistry and biology than our ancestors did that we are perhaps more conscious of the toxins in our environment; although perhaps not, since we are also learning these days how sophisticated the pre-literate peoples were about toxins and antitoxins. We learn all these things in our primary and secondary school education, and from the simple observation of everyday living. Yet often we tend to neglect these obvious constraints when we discuss the politics of ecological issues.

The only reason it is worth discussing these issues at all is if we believe that something special or additional has been happening in recent years, a level of increased danger, and if at the same time we believe that it is possible to do something about this increased danger. The case that is generally made by the green and other ecology movements precisely comprises both these arguments: increased level of danger (for example, holes in the ozone layer, or greenhouse effects, or atomic meltdowns); and potential solutions.

As I said, I am willing to start on the assumption that there is a reasonable case for increased danger, one that requires some urgent reaction. However, in order to be intelligent about how to react to danger, we need to ask two questions: for whom does the danger exist? and what explains the increased danger? The "danger for whom" question has in turn two components: whom, amongst human beings; and whom, amongst living beings. The first question raises the comparison of North-South attitudes on ecological questions; the second is the issue of deep ecology. Both in fact involve issues about the nature of capitalist civilization and the functioning of the capitalist world-economy, which means that before we can address the issue of "for whom," we had better analyze the source of the increased danger.

The story begins with two elementary features of historical capitalism. One is well-known: capitalism is a system that has an imperative need to expand expand in terms of total production, expand geographically in order to sustain its prime objective, the endless accumulation of capital. The second feature is less often discussed. An essential element in the accumulation of capital is for capitalists, especially large capitalists, not to pay their bills. This is what I call the "dirty secret" of capitalism.

Let me elaborate these two points. The first, the constant expansion of the capitalist world-economy, is admitted by everyone. The defenders of capitalism tout it as one of its great virtues. Persons concerned with ecological problems point to it as one of its great vices, and in particular often discuss one of the ideological underpinnings of this expansion, which is the assertion of the right (indeed duty) of human beings "to conquer nature." Now, to be sure, neither expansion nor the conquest of nature was unknown before the onset of the capitalist world-economy in the sixteenth century. But, like many

other things that were social phenomena prior to this time, neither had existential priority in previous historical systems. What historical capitalism did was to push these two themes the actual expansion and its ideological justification to the forefront, and thus capitalists were able to override social objections to this terrible duo. This is the real difference between historical capitalism and previous historical systems. All the values of capitalist civilization are millennial, but so are other contradictory values. What we mean by historical capitalism is a system in which the institutions that were constructed made it possible for capitalist values to take priority, such that the world-economy was set upon the path of the commodification of everything in order that there be ceaseless accumulation of capital for its own sake.

Of course, the effect of this was not felt in a day or even a century. The expansion had a cumulative effect. It takes time to cut down trees. The trees of Ireland were all cut down in the seventeenth century. But there were other trees elsewhere. Today we talk about the Amazon rain forest as the last real expanse, and it seems to be going fast. It takes time to pour toxins into rivers or into the atmosphere. A mere fifty years ago, smog was a newly-invented word to describe the very unusual conditions of Los Angeles. It was thought to describe life in a locale that showed a heartless disregard for the quality of life and high culture. Today, smog is everywhere; it infests Athens and Paris. And the capitalist world-economy is still expanding at a reckless rate. Even in this Kondratieff-B downturn, we hear of remarkable growth ratios of east and southeast Asia. What may we expect in the next Kondratieff-A upturn?

Furthermore, the democratization of the world, and there has been a democratization, has meant that this expansion remains incredibly popular in most parts of the world. Indeed, it is probably more popular than ever. More people are demanding their rights, and this includes quite centrally their rights to a cut in the pie. But a cut in the pie for a large percentage of the world's population necessarily means more production, not to mention the fact that the absolute size of world population is still expanding as well. So it is not only capitalists but ordinary people who want this. This does not stop many of these same people from also wanting to slow down the degradation of the world environment. But that simply proves that we are involved in one more contradiction of this historical system. That is, many people want to enjoy both more trees and more material goods for themselves, and a lot of them simply segregate the two demands in their minds.

From the point of view of capitalists, as we know, the point of increasing production is to make profits. In a distinction that does not seem to me in the least outmoded, it involves production for exchange and not production for use. Profits on a single operation are the margin between the sales price and the total cost of production, that is, the cost of everything it takes to bring that product to the point of sale. Of course, the actual profits on the totality of a capitalist's operations are calculated by multiplying this

margin by the amount of total sales. That is to say, the "market" constrains the sales price, in that, at a certain point, the price becomes so high that the total sales profits is less than if the sales price were lower.

But what constrains total costs? The price of labor plays a very large role in this, and this of course includes the price of the labor that went into all of the inputs. The market price of labor is not merely, however, the result of the relationship of supply and demand of labor but also of the bargaining power of labor. This is a complicated subject, with many factors entering into the strength of this bargaining power. What can be said is that, over the history of the capitalist world-economy, this bargaining power has been increasing as a secular trend, whatever the ups and downs of its cyclical rhythms. Today, this strength is at the verge of a singular ratchet upward as we move into the twenty-first century because of the deruralization of the world.

Deruralization is crucial to the price of labor. Reserve armies of labor are of different kinds in terms of their bargaining power. The weakest group has always been those persons resident in rural areas who come to urban areas for the first time to engage in wage employment. Generally speaking, for such persons the urban wage, even if extremely low by world, or even local standards, represents an economic advantage over remaining in the rural area. It probably takes twenty to thirty years before such persons shift their economic frame of reference and become fully aware of their potential power in the urban work place, such that they begin to engage in syndical action of some kind to seek higher wages. Persons long resident in urban areas, even if they are unemployed in the formal economy and living in terrible slum conditions, generally demand higher wage levels before accepting wage employment. This is because they have learned how to obtain from alternative sources in the urban center a minimum level of income higher than that which is being offered to newly-arrived rural migrants.

Thus, even though there is still an enormous army of reserve labor throughout the world-system, the fact that the system is being rapidly deruralized means that the average price of labor worldwide is going up steadily. This means in turn that the average rate of profits must necessarily go down over time. This squeeze on the profits ratio makes all the more important the reduction of costs other than labor costs. But, of course, all inputs into production are suffering the same problem of rising labor costs. While technical innovations may continue to reduce the costs of some inputs, and governments may continue to institute and defend monopolistic positions of enterprises permitting higher sales prices, it is nonetheless absolutely crucial for capitalists to continue to have some important part of their costs paid by someone else.

This someone else is of course either the state or, if not the state directly, then the "society." Let us investigate how this is arranged, and how the bill is paid. The

arrangement for states to pay costs can be done in one of two ways. The governments can accept the role formally, which means subsidies of some kind. However, subsidies are increasingly visible and increasingly unpopular. They are met with loud protests by competitor enterprises and by similar protests by taxpayers. Subsidies pose political problems. There is another, more important, way, which has been politically less difficult for governments, because all it requires is non-action. Throughout the history of historical capitalism, governments have permitted enterprises not to internalize many of their costs, by failing to require them to do so. They do this in part by underwriting infrastructure and in part, probably in larger part, by not insisting that a production operation include the cost of restoring the environment in such a way that it is "preserved."

There are two different kinds of operations in preserving the environment. The first is the cleaning up of the negative effects of a production exercise (for example, combating chemical toxins that are a by-product of production, or removing non-biodegradable waste). The second is investment in the renewal of the natural resources that have been used (for example, replanting trees). Once again, the ecology movements have put forward a long series of specific proposals that would address these issues. In general, these proposals meet with considerable resistance on the part of the enterprises that would be affected by such proposals, on the grounds that these measures are far too costly, and would therefore lead to the curtailment of production.

The truth is that the enterprises are essentially right. These measures are indeed too costly, by and large, if we define the issue in terms of maintaining the present average worldwide rate of profit. They are too costly by far. Given the deruralization of the world and its already serious effect upon the accumulation of capital, the implementation of significant ecological measures, seriously carried out, could well serve as the coup de gr*f*ce to the viability of the capitalist world-economy. Therefore, whatever the public relations stance of individual enterprises on these questions, we can expect unremitting foot-dragging on the part of capitalists in general. We are in fact faced with three alternatives. One, governments can insist that all enterprises internalize all costs, and we would be faced with an immediate acute profits squeeze. Or, two, governments can pay the bill for ecological measures (clean-up and restoration plus prevention), and use taxes to pay for this. But if one increases taxes, one either increases the taxes on the enterprises, which would lead to the same profits squeeze, or one raises taxes on everyone else, which would probably lead to an acute tax revolt. Or, three, we can do virtually nothing, which will lead to the various ecological catastrophes of which the ecology movements warn. So far, the third alternative has been carrying the day. In any case, this is why I say that there is "no exit," meaning by that that there is no exit within the framework of the existing historical system.

Of course, if governments refuse the first alternative of requiring the internalization of

costs, they can try to buy time. That is, in fact, what many have been doing. One of the main ways to buy time is to try to shift the problem from the politically stronger to the backs of the politically weaker, that is, from North to South. There are two ways in turn to do this. One is to dump the waste in the South. While this buys a little time for the North, it doesn't affect global cumulation and its effects. The other is to try to impose upon the South a postponement of "development" by asking them to accept severe constraints on industrial production or the use of ecologically sounder but more expensive forms of production. This immediately raises the question of who is paying the price of global restraints, and whether in any case these partial restraints will work. If China were to agree, for example, to reduce the use of fossil fuels, what would this do to the prospects of China as an expanding part of the world market, and therefore the prospects for capital accumulation? We keep coming back to the same issue.

Frankly, it is probably fortunate that dumping on the South provides in fact no real long-term solution to the dilemmas. One might say that such dumping has been part of the procedure all along, for the past 500 years. But the expansion of the world-economy has been so great, and the consequent level of degradation so severe, that we no longer have the space to adjust significantly the situation by exporting it to the periphery. We are thus forced back to fundamentals. It is a matter of political economy first of all, and consequently a matter of moral and political choice.

The environmental dilemmas we face today are directly the result of the fact that we live in a capitalist world-economy. While all prior historical systems transformed the ecology, and some prior historical systems even destroyed the possibility of maintaining a viable balance in given areas that would have assured the survival of the locally-existing historical system, only historical capitalism, by the fact that it has been the first such system to englobe the earth and by the fact that it has expanded production (and population) at a previously unimaginable rate, has threatened the possibility of a viable future existence for mankind. It has done this essentially because capitalists in this system succeeded in rendering ineffective the ability of all other forces to impose constraints on their activity in the name of values other than that of the endless accumulation of capital. It is precisely Prometheus unbound that has been the problem.

But Prometheus unbound is not inherent in human society. The unbounding, of which the defenders of the present system boast, was itself a difficult achievement, whose middle-term advantages are now being overwhelmed by its long-term disadvantages. The political economy of the current situation is that historical capitalism is in fact in crisis precisely because it cannot find reasonable solutions to its current dilemmas, of which the inability to contain ecological destruction is a major one, if not the only one.

I draw from this analysis several conclusions. The first is that reformist legislation has built-in limits. If the measure of success is the degree to which such legislation is likely

to diminish considerably the rate of global environmental degradation in say the next 10-20 years, I would predict that the answer is, very little. This is because the political opposition can be expected to be ferocious, given the impact of such legislation of capital accumulation. It doesn't follow, however, that it is therefore pointless to pursue such efforts. Quite the contrary, probably. Political pressure in favor of such legislation can add to the dilemmas of the capitalist system. It can crystallize the real political issues that are at stake, provided, however, that these issues are posed correctly.

The entrepreneurs have argues essentially that the issue is one of jobs versus romanticism, or humans versus nature. To a large degree, many of those concerned with ecological issues have fallen into the trap, by responding in two different ways, both of which are, in my view, incorrect. The first is to argue that "a stitch in time saves nine." That is to say, some persons have suggested that, within the framework of the present system, it is formally rational for governments to expend x-amounts now in order not to spend greater amounts later. This is a line of argument that does make sense within the framework of a given system. But I have just argued that, from the point of view of capitalist strata, such "stitches in time," if they are sufficient to stem the damage, are not at all rational, in that they threaten in a fundamental way the possibility of continuing capital accumulation.

There is a second, quite different argument that is made, which I find equally politically impractical. It is the argument on the virtues of nature and the evils of science. This translates in practice into the defense of some obscure fauna of whom most people have never heard, and about which most people are indifferent, and thereby puts the onus of job destruction on flaky middle-class urban intellectuals. The issue becomes entirely displaced from the underlying ones, which are, and must remain, two. The first is that capitalists are not paying their bills. And the second is that the endless accumulation of capital is a substantively irrational objective, and that there does exist a basic alternative which is to weigh various benefits (including those of production) against each other in terms of collective substantive rationality.

There has been an unfortunate tendency to make science the enemy and technology the enemy whereas it is in fact capitalism that is the generic root of the problem. To be sure, capitalism has utilized the splendors of unending technological advance as one of its justifications. And it has endorsed a version of science - Newtonian, determinist science - as a cultural shroud, which permitted the political argument that humans could indeed "conquer" nature, should indeed do so, and that thereupon all negative effects of economic expansion would eventually be countered by inevitable scientific progress.

We know today that this vision of science and this version of science is of limited and universal applicability. This version of science is today under fundamental challenge from within the community of natural scientists themselves, from the now very large

group who pursue what they call "complexity studies." The sciences of complexity are very different from Newtonian science in various important ways: the rejection of the intrinsic possibility of predictability; the normality of systems moving far from equilibrium, with their inevitable bifurcations; the centrality of the arrow of time. But what is perhaps most relevant for our present discussion is the emphasis on the self-constituting creativity of natural processes, and the non-distinguishability of humans and nature, with a consequence assertion that science is of course an integral part of culture. Gone is the concept of the rootless intellectual activity, aspiring to an underlying eternal truth. In its place we have the vision of a discoverable world of reality, but one whose discoveries of the future cannot be made now because the future is yet to be created. The future is not inscribed in the present, even if it is circumscribed by the past.

The political implication of such a view of science seems to me quite clear. The present is always a matter of choice, but as someone once said, although we make our own history, we do not make it as we choose. Still, we do make it. The present if a matter of choice, but the range of choice is considerably expanded in the period immediately preceding a bifurcation, when the system is furthest from equilibrium, because at that point small inputs have large outputs (as opposed to moments of near equilibrium when large inputs have small outputs).

Let us return therefore to the issue of ecology. I placed the issue within the framework of the political economy of the world-system. I explained that the source of ecological destruction was the necessity of entrepreneurs to externalize costs, and the lack of incentive therefore to make ecologically-sensitive decisions. I explained also, however, that this problem is more serious than ever because of the systemic crisis into which we have entered. For this systemic crisis has narrowed in various ways the possibilities of capital accumulation, leaving as the one major crutch readily available the externalization of costs. Hence, I have argued it is less likely today than ever before in the history of this system to obtain the serious assent of entrepreneurial strata to measures fighting ecological degradation.

All this can be translated into the language of complexity quite readily. We are in the period immediately preceding a bifurcation. The present historical system is in fact in terminal crisis. The issue before us is what will replace it. This is the central political debate of the next 25-50 years. The issue of ecological degradation, but not of course only this issue, is a central locus of this debate. I think what we all have to say is that the debate is about substantive rationality, and that we are struggling for a solution or for a system that is substantively rational.

The concept of substantive rationality presumes that in all social decisions there are conflicts between different values as well as between different groups, often speaking in

the name of opposing values. It presumes that there is never any system that can realize fully all these sets of values simultaneously, even if we were to feel that each set of values is meritorious. To be substantively rational is to make choices that will provide an optimal mix. But what does optimal mean? In part, we could define it by using the old slogan of Jeremy Bentham, the greatest good for the greatest number. The problem is that this slogan, while it puts us on the right track (the outcome), has many loose strings.

Who, for example, are the greatest number? The ecological issue makes us very sensitive to this issue. For it is clear that, when we talk of ecological degradation, we cannot limit the issue to a single country. We cannot even limit it top the entire globe. There is also a generational issue. What may be the greatest good for the present generation may be very harmful to the interests of future generations. On the other hand, the present generation also has its rights. We are already in the midst of this debate concerning living persons: percentage of total social expenditures on children, working adults, and the aged. If we now add the unborn, it is not at all easy to arrive at a just allocation.

But this is precisely the kind of alternative social system we must aim at building, one that debates, weighs, and collectively decides on such fundamental issues. Production is important. We need to use trees as wood and as fuel, but we also need to use trees as shade and as esthetic beauty. And we need to continue to have trees available in the future for all these uses. The traditional argument of entrepreneurs is that such social decisions are best arrived at by the cumulation of individual decisions, on the grounds that there is no better mechanism by which to arrive at a collective judgment. However plausible such a line of reasoning may be, it does not justify a situation in which one person makes a decision that is profitable to him at the price of imposing costs on others, without any possibility for the others to intrude their views, preferences, or interests into the decision. But this is what the externalization of costs precisely does.

No exit? No exit within the framework of the existing historical system? But we are in the process of exit from this system. The real question before us is where we shall be going as a result. It is here and now that we must raise the banner of substantive rationality, around which we must rally. We need to be aware that once we accept the importance of going down the road of substantive rationality, this is a long and arduous road. It involves not only a new social system, but new structures of knowledge, in which philosophy and sciences will no longer be divorced, and we shall return to the singular epistemology within which knowledge was pursued everywhere prior to the creation of the capitalist world-economy. If we start down this road, in terms of both the social system in which we live and the structures of knowledge we use to interpret it, we need to be very aware that we are at a beginning, and not at all at an end. Beginnings are uncertain and adventurous and difficult, but they offer promise, which is the most we

can ever expect.

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