DEVELOPING ECONOMIES AND THE STEADY STATE

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"There is no use trying," she said, "One can't believe impossible things." "I dare say you haven't had much practice," said the Queen, "When I was your age I always did it for half an hour a day. Why, sometimes I've believed in as many as six impossible things before breakfast." [Lewis Carroll]

IT IS absolutely a waste of time as well as morally backward to preach steady-state doctrines to underdeveloped countries before the overdeveloped countries have taken any measure to reduce their own population growth or the growth of their per capita resource consumption. Therefore, it is clear that the steady-state paradigm must first of all be adopted and applied in the overdeveloped countries. But that does not mean that the underdeveloped countries can be left out of consideration. For one thing, the underdeveloped countries are not ever going to develop unless the overdeveloped countries moderate their demands on world resources and absorption capacities. One of the major forces necessary to push the overdeveloped countries toward a steady state will be Third World outrage provoked by the overconsumption of the overdeveloped. Also the underdeveloped countries will have to revise their expectations downward regarding their own growth. Although their per capita consumption levels are still too low and must continue to grow for a time, population size need not grow and rates of population growth must be slowed down as a precondition for increasing the growth rate of per capita consumption. Investment can be used either to increase the standards of a given population, or to increase the population at given standards. Regardless of the actions of overdeveloped countries, the underdeveloped countries must reduce their population growth.

Most of the basic laws of science identify impossibilities. It is impossible to create or destroy matter or energy; it is impossible to have perpetual motion; it is impossible to travel faster than the speed of light; it is impossible for an organism to live in a medium consisting only of its own waste products. Mathematicians, before they invest much time in trying to solve a problem, first prove the existence or nonexistence of a solution. If it can be shown that a solution does not exist, then one saves an infinite amount of futile effort by not looking for it. Nothing reveals the astonishing shallowness of modern development economics more than the dawning realization that for the past several

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decades it has been attempting to achieve an impossible goal. I suggest that the starting point of development economics should be an impossibility theorem: that a U.S.-style, high mass consumption, growth dominated economy for a world of 4 billion people is impossible, and even if by some miracle it could be achieved, it would certainly be short-lived.

This "impossibility theorem" is arrived at by common-sense intuitive reasoning, and does not depend on opaque or "counter-intuitive" computer models. Models of the Club of Rome type are useful and informative, but the steady-state position is not dependent on them. I think we are wise to resist assurances of truth unless we can grasp the entirety of argument in intellectual intuition and see it illuminated as a whole by the natural light of reason, and not merely as a surprising result arrived at in a complex mechanical fashion. Many of us find the main conclusions of the *Limits to Growth* model intuitively obvious, though not the details of sequence and timing. But those who do not should not be asked to accept it against their common sense. Simple, intuitive arguments are available, as shown below.

If it requires roughly one-third of the world's annual production of non-renewable resources to support 6 per cent of the world's population residing in the United States in that "developed" state to which the world is thought to aspire, then it follows that present resource flows would allow the extension of the U.S. standard to a maximum of 18 per cent of the world's current population, with nothing left over for the other 82 per cent. And without the cheap services of the other 82 per cent the rich 18 per cent would have so much work to do that they would have no time left to enjoy their riches. Thus an upper middle class U.S. standard of consumption is currently possible for much less than 18 per cent, because it depends on having some poorer people for hire to do the dirty work, and a significant portion of total resource flows must be devoted to sustaining this hard-working majority, even at low consumption levels per capita.

It will be objected by some that the solution is simple to increase world resource flows by a factor of about six in order to bring 100 per cent of the world's population to U.S. standards.[1] This assumes that the rest of the world could immediately attain the level of capitalization and technical organization necessary to extract and process that increased flow of resources. The increased capital stock would in reality have to be accumulated out of a still larger flow and over a long period of time. But even granting this miracle, could the biosphere sustain the depletion and pollution generated by even a six-fold increase in its throughout of materials and energy? There is much evidence that our present rates of usage are irreversibly damaging biological life-support sys-

[1] If world resource use is R, and the U.S. uses $0.33R$, then for the world ratio of resources to people to equal the U.S. ratio requires that the world ratio be multiplied by a factor M, such that:

$$\frac{MR}{4\times10^9}=\frac{0.33R}{2.1\times10^8}\longrightarrow M=6.35$$

tems. Most importantly, a six-fold increase in resource flows implies a *much greater* than six-fold increase in environmental impact, due to the law of diminishing returns. To mine poorer grade and less accessible minerals, and to dispose safely of greater quantities and more exotic qualities of noxious wastes, will require exponential increases in energy and capital devoted to mining, refining, transportation, pollution control, and recycling. There is a limit to the process of throwing ever larger quantities of capital into the exploitation of ever poorer, more remote, and more dangerous sources of energy and materials. Witness the enormous capital costs of the Alaska pipeline, of nuclear power plants, of super tankers, etc. The cost of drilling for oil in the continental U.S. has increased exponentially with the depth of the well. To double food yields requires that fertilizer and insecticide use be much more than doubled. Between 1951 and 1966 world average food production increased by 34 per cent—but in the same period it was necessary to increase the tractors by 63 per cent, phosphates by 75 per cent, nitrates by 146 per cent, and pesticides by 300 per cent [1]. Much of our remaining resources are available in the sense that it is physically possible to extract them, but are non-accessible in that the extracted resources would yield less energy than it took to extract them.

Even the advent of unlimited sources of costless energy to devote to growth would not overthrow our impossibility theorem. Dr. Alvin Weinberg has noted that

> Man was increasing his production of energy by about 5% per year; within 200 years, at this rate, he would be producing as much energy as he receives from the sun. Obviously, long before that time man would have to come to terms with global, climatological limits imposed on his production of energy. Although it is difficult to estimate how soon we shall have to adjust the world's energy policies to take this limit into account, it might well be as little as 30 to 50 years. [9]

That would be the case even if energy were free. And far from energy being free we can be quite sure that its costs will rise. Indeed, in the present institutional context, costless energy would be an economic disaster in that it would facilitate our crashing into the global climatological limit cited by Weinberg—a much harsher limit that of rising energy prices. A similar observation was made long ago by Malthus: "It is not easy to conceive a more disastrous present—one more likely to plunge the human race in irrecoverable misery, than an unlimited facility of producing food in a limited space" [7, pp. 227–28]. Why? Because unlimited food would simply allow a larger population to run into the harsher limits of air and water scarcity and ecological disruption. Those who say that Malthus was aware of only one limit, food, have done the wise parson an injustice. With limits on population growth and economic growth (i.e., within a steady-state economy), free energy and free food would be a blessing—but in the current growth context they would be a curse. Perhaps this is another example of the "second best theorem"—that if all conditions for an optimum cannot be met, then satisfying one more condition may just make things worse.

In the light of our "impossibility theorem" world inflation is hardly a mystery. It is the predictable result of exponential increase in population and in per capita consumption pressing against a resource base which is both finite in total and of uneven concentration and accessibility. The richest and most accessible sources are exploited first, so as the volume of exploitation grows the "terms of trade" at the margin turn increasingly "against" the miner and "in favor" of the mine (i.e., it takes ever more energy, capital, and labor to extract a given quantity of mineral). Technical change has lifted the burden of worsening terms of trade of labor for minerals, but only by increasingly lavish use of energy and capital, whose prices were low because of the still available natural subsidy of rich and accessible sources. As this subsidy runs out, marginal exploitations will become uneconomic unless the price of the output rises to compensate for the reduced natural subsidy. Of course there will always be substitutions of abundant for scarce resources, but substitution comes about *after* an increase in the price of a particular resource, and if a number of resource prices are rising together the mitigating effect of substitution will be very limited.

The basic inflationary thrust of increasing real scarcity (rising resource prices and costs of waste disposal) is amplified by monopoly power in product and labor markets, by the wage-price spiral, and by expansionary monetary and fiscal policy to fight simultaneous unemployment. From this real cost perspective on inflation simultaneous unemployment is no paradox—it is to be expected when shortages of resources occur and disrupt habitual techniques and consumption patterns faster than price changes can induce adaptations. Also investment plans that are cancelled or delayed due to shortages or uncertainty about future costs, reduce aggregate demand and employment. As inflation reduces savings and raises interest rates, investment is further curtailed, and channeled into real estate and other safe but nonproductive holdings. Nor is it a mere coincidence that all industrial countries in the West should be suffering from inflation simultaneously, since resource markets are international and hitch all industrial nations to the same wagon. Traditional macroeconomic and monetary theories have a hard time both in reconciling inflation with simultaneous unemployment and in explaining the universality of inflation, because they fail to recognize the underlying phenomenon of the increasing real costs of resources. It is likely that we simply cannot afford to pay the real costs of all the resources necessary to maintain full employment in the context of current economic institutions.

The only mystery left is why inflation has come on so suddenly. After all, the relative price of most resources had been falling until fairly recently, and many economists had confused trend with destiny and expected resource prices to continue their relative decline indefinitely. Yet on April 8, 1974, the *New York Times* was proclaiming that, "The salient fact of the world economy today is the rapid shift in relationships between suppliers of raw materials, including much of the underdeveloped world, and the consumers—largely the industrialized

nations." Why did buyer's markets so quickly turn into seller's markets for resources? One explanation lies in the nature of exponential growth. Suppose a resource is sufficient to last for 300 years at a constant 7 per cent annual rate of growth in extraction. At this rate the amount extracted will double every decade. After 290 years it will only be half used up, but the remaining half is sufficient for only ten more years at the constant rate of growth. Thus the suddenness of the realization is partly inherent in the very arithmetic of exponential growth, in rounding the bend of the J-curve. That the realization of scarcity should occur in a number of resources at the same time is partly due to past substitutions which continually prevented any one resource from being depleted too far in advance of its close substitutes. Also the very rapid extraction of petroleum and the resulting large short run supplies tended to depress its price and induce substitutions of petrol energy for other sources and other factors. This led to excessive dependence on an artificially cheap resource. The dramatic success of OPEC in arbitrarily quadrupling the price of petroleum forced recognition of general resource dependence, and a considerable readjustment in market psychology and expectations. These factors seem sufficient to account for the suddenness with which buyer's markets in resources have turned into seller's markets, and thereby provided the basic push to world-wide inflation, accompanied by unemployment. If our financial institutions and plans insist on exponential growth in money values, but physical systems are unable to grow exponentially, then inflation is the result—it is a symptom of the basic error of attempting the impossible.

If it is impossible to extend the current U.S. standard of resource use to the current world population, then even less is it possible to extend an ever-rising U.S. standard to an ever-growing world population. People who devote their time to trying to accomplish this task (as I did myself until seven years ago) are simply not to be taken seriously. Serious students of development economics must begin by defining a goal that is possible of general attainment, or else explicitly say that development is not for all, but only for a minority, and tell us who are the chosen few and why. Once a feasible goal is chosen (but not before!) we can begin to seek the most efficient means of attaining it. Demographer Nathan Keyfitz has summed up the issue very well: "The raw materials in the earth's crust set a limit on the volume of development, on the number of people—or more exactly the number of person-years—that can exist in the developed condition, as that condition is understood today in the United States. How the volume of development will be apportioned among peoples, and over time, could well be the major question of national and international politics in the next generation" [5, p. 61]. Probably the capacity to absorb pollution will be a more stringent limit than the supply of raw materials, but that only reinforces Keyfitz's point.

This is indeed the major question, and the answer to it here proposed is the movement to a steady-state economy. The only other alternatives are a growing economy which will lead us indirectly to extinction via ecological ruin, or a con-

tinually declining economy which will take us directly to extinction. Of course, even a steady-state economy will eventually lead to extinction, but it will take much longer, and along the way it will provide more people with a better life. The more people will be in the form of more generations stretched out over time and mainly living off permanent solar income, not living simultaneously off of temporary geological capital. The better life will take the form of a less crowded, materialistic, and hectic existence, with less absolute poverty and less relative poverty, (i.e., less inequality in wealth and income). Moral and qualitative improvement will have to replace quantitative growth as our chief concern. Simple direct enjoyment of life in the present will have to replace grandiose plans for future "great societies" and material cornucopias, constructed on the sacrifices of the poor in the present generation.

To advocate any goal for development, whether a steady-state economy or a growth economy, involves a moral judgment. Economists habitually run to hide in thickets of algebra when confronted with a value judgment. Value judgments force self-definition and impose responsibility, while algebra merely requires that we follow a few logical rules. Yet there is no way to avoid the fundamental ethical question: To what extent is economic growth desirable? Here we confront a semantic problem. By "economic growth" we mean the conventional growth in real per capita GNP. One could define economic growth as "growth which is economic," (i.e., physical growth for which marginal social benefits are greater than marginal social costs). If we kept *separate accounts* of costs and benefits, then we would simply grow to the optimum point. The laws of increasing marginal cost and diminishing marginal utility would insure the intersection of marginal cost and benefit. If the curves shift, then we can move to the new intersection. But unfortunately we do not keep social accounts on the cost of growth. Even worse, we count real costs as benefits and add them to GNP and then treat GNP as if it measured the net benefits of growth. The costs of growth are assumed to be negligible, and all expenditures, even if incurred to defend ourselves from the unwanted side effects of growth, are counted as gain. With such accounting it is to be expected that so-called "economic" growth will at some point become uneconomic! It becomes uneconomic, of course, beyond the point where total net benefits, properly accounted, are a maximum. Ironically, many proponents of growth argue that because, on the whole or on the average, the benefits of existing GNP levels are so much greater than the apparent costs, it follows that further growth is justified. But, as all economists know, we must look at the margin, and marginal costs rise faster than average costs, while marginal benefits fall faster than average benefits. An obvious need is to develop separate accounts of costs and benefits, and to pay attention to margins, not averages.

One of the few development economists to have discussed seriously the issue of the desirability of economic growth is W. Arthur Lewis [6, pp. 420–36]. Lewis defends growth on the grounds that it permits an increasing range of choice. While this appears reasonable for low levels and simple technologies,

beyond some point growth might destroy old alternatives faster than it creates new ones. Take for example the current "advance" to nuclear power. Will this technology increase our range of choice? The safeguarding of plutonium will require social discipline and control to an extent that can only limit the freedom and range of choice of all citizens. And even if a disaster never occurs, the mere possibility causes a significant loss in psychic welfare. There are some alternatives that we are better off without. Once a commitment to fission power is made, and enormous capital invested, research on saner alternatives will be curtailed. If developing countries adopt fission power they will become more dependent on the developed countries, unless they use the reactor to make atomic bombs and increase their range of choice by nuclear blackmail. Maximizing the use of solar energy is the best alternative for all countries, and especially for the less developed tropical countries. Another alternative sacrificed on the altar of nuclear power is that of adequate liability insurance. Both the scale of a possible disaster and the novelty of the instruments preclude actuarially sound insurance. If our artifacts change qualitatively before we accumulate a record of past experience sufficient to calculate the objective probabilities of malfunction, then insurance is one of the sacrificed alternatives. We move from a world of small-scale activities with known risks to a world of larger-scale activities with pure uncertainty. Also with fission power the average citizen will become the patient of yet another priesthood of remote experts, and will exert even less control over the conditions that directly affect his life. *Whose* range of choice is being increased by this technology?

Fission power may be thought an extreme example, but it is the one that is most relevant at the margin of further growth in developed countries, and is also being vigorously exported to the developing world. A little reflection will show that even less drastic technical "advances," such as the private automobile, often destroy as many alternatives as they create. For example, with the private automobile high density urban residences become impossible, and public transport is neglected, bicycling becomes prohibitively dangerous, and walking impossible. In the words of E. J. Mishan, "As the carpet of increased choice is being unrolled before us by the foot, it is simultaneously being rolled up behind us by the yard" [8].

Lest I be misunderstood, let me say that I do not advocate a return to the Stone Age or an end to all technical progress. Rather I am calling for a more rigorous definition of progress, and a more rational accounting of the costs of growth. As the Sierra Club puts it, "Not blind opposition to progress, but opposition to blind progress."

But, returning to Arthur Lewis, it should be noted that he himself considered the "increased choice" argument to be a rather inconclusive one, and dismissed the whole question of the desirability of economic growth as academic. In the face of the population explosion and the revolution of rising expectations there is simply no choice. We must have economic growth. That seemed convincing to me in 1956, but today it seems a total non-sequitur. There is a choice and

the alternative is painfully obvious. We must stop the population explosion and temper rising expectations with a realistic assessment of plummetting prospects, at least as far as physical growth is concerned. Class conflicts can be met by reducing inequality rather than by increasing growth. We can reintroduce into economic thinking the ideas of enough and of sharing and of responsibility. Needless to say these ideas do not fit into a "positive, value-free" science, which is another way of saying that economics must revert to the style of classical political economy and deal with both normative and positive issues. I believe the first step in this direction should be to switch from the growth paradigm to the steady-state paradigm, for both positive and normative reasons. The positive reasons are those that led to the "impossibility theorem" for a world of 4 billion at a U.S. standard of consumption. The normative reasons are those just discussed which indicate that the properly accounted marginal costs of growth outweigh the properly accounted marginal benefits, long before growth becomes physically impossible or ecologically catastrophic.

What is the steady-state paradigm? A steady-state economy is characterized by a constant population and a constant stock of physical wealth (artifacts), each maintained at some desirable, chosen level by a low rate of throughput—(i.e., by low birth rates equal to low death rates and low physical production rates equal to low physical depreciation rates), so that longevity of people and durability of artifacts are both high. The throughput flow, beginning with depletion of the low entropy resources from the environment and ending with the pollution of the environment by high entropy wastes, is viewed as the real *cost* of maintaining the stocks of physical wealth and of skilled people, both of which yield want-satisfying services. Efficiency in the steady state consists in maximizing the services yielded by the constant stocks, and in minimizing the throughput necessary to maintain the constant stocks. The current fetish of maximizing the throughput flow (or its close relative, real GNP) is, from the steady-state perspective, grossly antieconomic in that it implies maximization of depletion and waste. In the steady-state economy, growth and throughput maximization must give way to stock maintenance and throughput minimization. Elsewhere I have argued that this can best be effected by aggregate quantitative limits on basic resource depletion, with all allocation by government auction of the limited depletion quotas that would be established for each basic resource according to ecological and ethical criteria.[2] The standard policy recommendation of orthodox economics is pollution taxes—an attempt to control the output end of the throughput by prices. The depletion quota recommendation seeks to control the input end of the throughput by aggregate quantitative limits. It treats the cause rather than the symptom, and intervenes at the point of lowest

[2] In addition to depletion quotas, two complementary institutions were proposed: maximum limits on personal wealth and income and minimum limits on income; and a transferable birth license plan for limiting population. Needless to say such proposals are not politically viable as yet, but may become less "politically unrealistic" as our economic system becomes ever more "biophysically unrealistic" in its pursuit of perpetual growth [4, pp. 157–73].

entropy where physical control is easiest.

The question most relevant for development economics is, at what levels of population and per capita wealth should the world, or any given country stabilize? This is a very difficult problem of ecology and ethics, but a few things can be said. First we must recognize the need for stability even if we do not know the optimum level at which to stabilize. Knowing the optimum without knowing how to be stable is like a paratrooper knowing his altitude, but not having a parachute. It is important to know how to be stable at existing levels even if we do not know in advance which level is optimal. After learning how to operate a steady state, we can always grow or decline to a different level of stocks as our knowledge and experience indicate that such is both desirable and possible. Second, we implicitly assume the answer to the question of optimal levels everytime we speak of "resource requirements." If we know what we are talking about we should be able to answer the question "requirements for what?" To define resource requirements we must answer four questions of purpose: (1) to maintain or achieve a population of what size; (2) living at a what standard of per capita resource use; (3) over what period of time; (4) using what kinds of technology? Moreover the four answers must be mutually consistent, and there are numerous trade-offs. For example, choice of a very large population at a very high level of per capita consumption is not consistent with a long life span for the system or with use of only soft, small-scale, and decentralized technology. Or if we choose a long life span for the system and the use of small-scale or "soft" technology, then we shall have to reduce either the size of our population, the level of per capita consumption, or both in various possible combinations.

The common way to try to escape these choices is to assume that technology is capable of resolving all conflicts among population size, standard of consumption and concern for the future, and does not create any difficulties of its own. Then the implicit goal becomes to support an ever-growing population at an ever-increasing standard of consumption, for however long we can using whatever technology is necessary. But, as already noted in our brief look at fission power, the social costs of modern technologies are great, and this escape is not valid. An important task for political economy is to find out what sets of answers to the four questions are feasible (i.e., to rule out impossible combinations). To do this we must learn something about ecology. The choice of the best combination from among the feasible set requires value judgments, and here we must learn something about ethics. But my point is that there is no escape from these questions. Everytime we speak of "resource requirements," which is increasingly often we are assuming some implicit set of answers to these questions, based on ecological and ethical assumptions that should be made explicit, but seldom are. Explicitness is made more necessary by the lack of agreement on where the global limits lie, and on how to allocate the burdens of scarcity these limits impose. Should the burden fall mainly on the present or the future? On the standard of per capita consumption, or on the numbers

of people, and mainly on what countries? Should we reduce the number of people simultaneously alive in order to increase the total number who will ever live?

Lest one think that these questions are unanswerable, it should be noted that varying answers have been proposed in recent United Nations' conferences in Stockholm, Bucharest, and Rome. The leaders of the developed countries seem to say that the increasing burden of scarcity should fall on numbers of people in Third World countries. Let the poor limit their population. The leaders of the developing countries seem to say that the burden should fall mainly on the high per capita consumption of the developed countries. Let the rich limit their consumption. Both seem willing to pass as much of the burden as possible on to the future. The solution is simple, if one heroically assumes goodwill on both parts—and without goodwill there probably is no solution. The overdeveloped should limit consumption growth (and population), and underdeveloped should limit population (and increase consumption only up to equality with developed countries). In principle it is so simple. Why can not the two sides agree? Partly because of lack of goodwill internationally, but also because of the internal class conflicts within each group. The overdeveloped countries will not want to limit their consumption because growing consumption is what buys off social conflict and keeps attention away from the disruptive issue of distribution of wealth and income. In the United States, growth is a substitute for redistribution. The elite leaders of underdeveloped countries are often not anxious to limit the population of their own lower class majority, because abundant cheap labor is a benefit to the ruling class, which of course limits its own progeny. Cheap labor means higher profits that can be reinvested for faster growth, and thus more rapid attainment of international power and prestige for the elite. Also the direct benefit of numerous personal servants is an enormous benefit to the upper and middle class. Foxes seldom advocate birth control for rabbits [2] [3]. Thus national class conflicts will make international agreement difficult, and will predispose both parties to accept the wishful thinking of technological optimists who advocate that we patiently wait for the Great Breakthrough and not give up on the Green Revolution, Nuclear Power, Space, and other so-far disappointing technological saviors. All that is needed, they say, are larger research and development budgets and greater offerings to the scientific priesthood, in return for which they will deliver the Great Breakthrough. All talk of "impossibility theorem" is labeled "doomsaying" and is dismissed from further consideration. The mythology of scientific omnipotence is by itself very strong, but when backed by class interests in avoiding the radical policies required by the steady state, it becomes a full-fledged idolatry.

The fact that the steady-state economy is anathema to both the capitalist and communist orthodoxies may, paradoxically, turn out to be a great advantage. Anything that angers both capitalists and communists cannot be all bad. This ideological split has produced an enormous waste of resources in the armaments race. Unless we can attain a steady state in our inventories of "bads" (armaments), then it is hard to imagine that we will have the will and ability to

impose a steady state on inventories of goods (people and artifacts). Yet if we recognize the need to limit stocks, then the obvious stocks to begin with are the overkill inventory of weapons. One of the good things about running out of butter is that it may force us to produce fewer guns. Or, less optimistically it could lead to yet more armaments for the purpose of appropriating remaining resources from the less strong. But hopefully the conflicting economic ideologies might merge into a common synthesis, incorporating what is valid in both camps.

When people discover that they have been the victims of a common error in the past, they find it easier to agree in the future. The common error of both capitalism and communism is the same as the error of development economics —the belief that material economic growth is both generalizable at present population levels and capable of indefinite continuance. In the past, capitalism and communism have competed for the commitment of the developing countries by racing to see which system could grow the fastest. From now on the more relevant contest will be to see which system can best achieve a steady-state equilibrium with the biosphere, with an optimal combination of individual freedom and social justice. In making this adjustment the best insights of both traditions must be combined. Elsewhere I have attempted to combine the Marxian and Malthusian views of poverty and development into a synthesis which I believe has some potential for uniting the two traditions, and perhaps reducing the fatal waste of resources that go into "defending" the communist and capitalist ideologies [2].

The world cannot stand another decade of positivistic economists who are unable to define either "entropy" or a "sacrament," and yet who behave as if growth were sacred, and as if there were no such thing as the entropy law. The greatest contribution that modern economists could make would be to return to the serious study of political economy with considerable secondary emphasis on ecology and moral philosophy. To aid and ease the transition to a steady state is probably the greatest challenge economists will face this century, and it cannot be resolved by playing "value-free" logical games. It would be tragic if we economists were to continue to amuse ourselves by flying abstract hyperplanes in limitless n-space, while leaving the concrete issues to be decided by the unrestrained play of class and national interest.

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