

Capitalism's Limits to Growth

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Under "normal" conditions of capitalist development political democracy and liberalism are the norms of politics and social thought. Liberal ideology insists (among other things) that the answer to social ills lies in continued economic expansion. Today this notion finds itself under vigorous attack.

Indeed at first glance it does appear, superficially, that "economic growth" has produced the hydra of slums, pollution, crowding, resource depletion — in short, the much publicized and all too real "ecology crisis." A closer look reveals that actual economic stagnation rather than purported growth produced the present grim prospects.

Although GNP and capitalist profits have continued to accumulate almost unabated, the U.S. industrial production index indicates that industrial output has stagnated for the last four years at the 1968 level. The capital goods production index, an even more sensitive indicator of real economic growth, is still below the 1967 level. (The qualification must be made here that these figures are merely a conservative reflection of the real depths of stagnation since they include wasteful production such as the military sector; furthermore no consideration is given here to actual production **requirements** created **merely** through depreciation with respect to advanced technology.) Meanwhile cancerous, speculative expansion of all forms of credit (the "growth") coincident with this stagnation of real productive output has created the conditions for a classic general breakdown crisis or depression.

The rise in corporate profits reported for the last quarter of 1971 indicates the success of government wage-gouging policies rather than any health of the capitalist economy. Likewise Hosannas recently heard around the Nixon administration praising improved unemployment and production rates merely reflect a desperate attempt to parlay short term results of massive inflationary credit extensions into political capital. This index rise of 6.2 per cent in the first quarter of this year compared to 1.7 per cent in the last quarter of 1971. Phase II, and similar austerity measures throughout the advanced capitalist sector, are required to stave off runaway bankruptcies or monetary panic, either of which could now rapidly lead to exacerbated depression conditions.

Austerity policies require for their implementation the breaking of organized labor's resistance. This requires

the breaking of the trade unions themselves. It is this reality which has changed the face of politics in the advanced capitalist countries. In the United States sector this change is manifested in the break-up of the Democratic Party-labor-minority-group alliance as the economic conditions permitting such "consensus" politics have eroded.

Naturally enough such "material" assaults on pluralist politics are beginning to expose liberal thought for the mere ideology that it actually is. The universities, chief center for the production of the most advanced ideology, are, obligingly, mounting attacks on the now stale and increasingly useless liberal wisdom. That old liberal humanism was mainly an abstract ethical notion, rather than an understanding of real material men in society, is now revealed by the failure of liberal science to effectively counter the proliferating outright fascist tendencies represented by the likes of Jensen, Herrnstein, Koestler, and Skinner.

But all of this is not without its own rhyme or reason. As we have indicated, ruling circles now require a policy of austerity so that the capitalist economy can be propped up through the transfer of former wage and social service expenditures to profits. No ruling class has ever justified its rule on the basis of its openly declared self-interest. The capitalist class is no exception. The bungling crisis-mongering of the capitalist class must somehow be represented as policy in the interest of society as a whole.

Bourgeois economics is increasingly unable to apply the necessary progressive veneer to the rotting capitalist hulk. Last year's monetary shakeup and the continuing runaway "stagflation" have strained the credibility of any Pollyannaish Keynesianism to the breaking point. The working class finds it increasingly hard to swallow the notion that wage increases are responsible for inflation, as the relative success of Nixon's Phase II wage-gouging is producing no let-up in both rising prices and unemployment.

More far sighted elements of the ruling class have been sloshing around in certain academic swamps, searching for a replacement for the failed economics professors. In this process the zero-growth ecologists have been fished out. This is not to suggest that ruling class propaganda requirements have automatically created the necessary innovations. The Zero Growth movement is a unique asset to present capitalist austerity policies, but it is

social and economic forces rather than capitalist propaganda needs per se which have given rise to it. Various embodiments of capitalist "enlightened" self-interest have merely financed and encouraged ideas which have sprung "spontaneously" from the alienated consciousness of the bourgeois scientist contemplating the decay of capitalist society.

The support of the MIT business school's "project on the predicament of mankind" by Italian industrialist Aurelio Peccei's "Club of Rome" and the Volkswagen Foundation is an instructive case in point. Dennis Meadows' *Limits to Growth*, the published initial results of the MIT "project," envisions a breakdown of the "world system" within one hundred years, caused by exponentially increasing rates of population, industrial output, and pollution on a world-wide scale.

To achieve this result, *Limits to Growth* extrapolates world population and industrial production rates since 1900 into the future. With the help of a computer program designed by their MIT business school colleague Jay W. Forrester, exponentially increasing population and industrialization are seen to run up against the supposedly finite store of world natural resources upon which industry depends, the capacity of the biosphere to absorb pollution, and the Malthusian spectre of mass starvation caused by the dwindling supply of arable land.

The MIT group's "solution" to this crisis is to halt economic and population growth. A policy which they call an "equilibrium state." Such a policy is seen as maintaining the population at a stable level through Zero Population Growth (ZPG) by limiting annual births to a level merely sufficient to offset annual deaths. At the same time, economic growth is halted by limiting capital investment to that level required to merely replace depreciated capital.

The question immediately arises, "what interest do prominent industrialists, the Volkswagen corporation, the OECD, and other capitalist interests represented in the Club of Rome, have in halting population and economic growth?" The answer is — none. Is Volkswagen interested in reducing its profits by cutbacks in economic growth; is it interested in losing prospective customers through a cutback in population growth? Obviously not.

The identity of interest between the Zero Growth movement and capitalist policymakers lies not in the latter's intentions to consciously adopt a zero-growth policy. The usefulness of Zero Growth ideology lies rather in the domain of propaganda, with which to break working class resistance to austerity measures, by clothing these measures in the sheepskin of "respectable" social theory.

The Zero Growth movement, seeing industrial production inevitably leading to pollution and ex-

haustion of what they consider to be finite natural resources, recommends halting population growth and **reducing consumption demand**, as a means to slow down industrial growth and thus "prevent" ecological breakdown. The ruling class (that is its more prescient members) has been quick to pick up the notion of reduced consumption demand as anti-pollution and conservation measures, in order to produce strike-breaking propaganda. Now the "greed" of striking workers is not only "fueling inflation," it is also "causing pollution and using up non-renewable resources."

We warned against this potential insidious use of the ecology movement two years ago when that "movement" was almost universally lauded as the new Savior (see "Ecology Crisis: Who's Polluting Whom?" (*Campaigner*, May-June, 1970.) The use of ZPG ideology as a cover for attacks on the working class has now moved out of the realm of speculation and into the front lines of class warfare. The *New York Times*, always in the vanguard where attacks on the working class are concerned, joined the fray with an Anthony Lewis column attacking the British coal strikers with arguments gleaned from the British *Blueprint for Survival* ecology tract, which the *Times* had just editorially endorsed on February 4 (*New York Times*, February 14).

More recently a *Times* editorial entitled "Energy Crisis Ahead" (*New York Times*, April 10) has called for either a "tax on all fuel and power to discourage frivolous (sic) energy consumption . . ." or "alternatively, the possibility has to be faced that eventually fuel and power may have to be rationed, perhaps by setting an upper limit per person on family electricity consumption." Thus the *Times*, teaming up with Secretary of Interior Rogers C.B. Morton who has asked Congress for power rate hikes, adds fuel to the Power Utilities' increasingly strident demands for rate price hikes. A *Times* article appearing several weeks earlier (see "We're Running Out of Gas," *New York Times Sunday Magazine*, March 19) had, by the way, shown convincingly that the case for dwindling known reserves of gas and oil has been cooked up by the depletion allowance-bloated oil industry itself.

We do not by any means intend to suggest that the "ecology crisis" does not exist; we do insist that the crisis be seen for what it actually is. We denounce the swinish ideological defense of capitalist economic and social relations that is the unifying element of the so-called "ecology movement," from the "moderate" anti-technology stand of Barry Commoner, to the rabid and hysterical anti-human approach of MIT's Meadows and Forrester.

The ecology crisis is actually subsumed by the general breakdown of capitalist economic relations and therefore only adequately comprehended in such connection. The question of ecological and developmental problems in

the Soviet Union as an apparent refutation of this position often arises immediately. To merely indicate the solution here, the Soviet Union and East European economies must be seen for what they actually are: worker state sub-sectors of the world capitalist economy trying to defend their limited existence in a profoundly economically hostile environment. Thus we are actually still dealing with problems of capitalism rather than of socialism (which does not exist in any real sense in the present "worker states.") We here refer readers to E. Preobrazhensky's *New Economics*, and the numerous works by Trotsky and Deutscher concerning this matter. The inherent capitalist tendency toward capital investment stagnation, as a means of self-protection against the devaluation of individual capital assets, mediated through declining consumer demand and apparent capital shortages, is especially exacerbated in the resulting present period of inflationary recession and monetary instability. The crisis is manifested as a general inability of the capitalist class to maintain its collective credit obligations (to itself) on the basis of declining income rates from stagnated real production.

In this situation, any income which can be shifted from actually necessary social reproductive costs to service capitalist debt can be accounted as profit, and thus as a short term "solution" to the immediate problem as it appears to the capitalist class. That this process is an essential feature of capitalism in general can be indicated by the fact that capitalist accounting does not even recognize the problem as it actually exists. To capitalist accounting as well as to its "theoretical" formulation — bourgeois economics — social reproductive costs are generally represented merely as immediate costs of production, the underpayment of same yielding the short term "optimum" result of increased profitability of the individual capital.

This systematic blindness — the "price-earnings" ratio optimizing criterion of capitalist investment — fails to recognize the role of expanded consumption and environmental maintenance as regular requirements of continuously expanding social productivity. Thus in addition to normal or real accumulation of capital a "fictitious accumulation" occurs in the form of wage-gouging, social service cutbacks, "savings" at the expense to mankind of industrial pollution, and the imperialist looting of natural and human resources of the underdeveloped world. Luxemburg properly identified such behavior as the continual "primitive accumulation" feature of capitalist development which acts to "resolve" the capitalist "realization crisis." This can otherwise be seen as the capitalist practice of attempting to resolve the discrepancies created by the necessity to maintain fictitious accumulation on the premise of stagnating real accumulation; through the intensification of the very

fictitious accumulation which is the cause of the problem.

Of course all this "cost-cutting" and fictitious growth actually reduces social productivity, artificially raising the price of all necessary social investments (including pollution control), thus limiting apparent "choice" to either "growth" with pollution or no growth at all. In part the Zero Growth argument for the notion of finite resources falls apart upon consideration of the question of the productivity of labor. As a careful examination of, for example, the Club of Rome's *Limits to Growth* reveals, the "finiteness" of depleted resources appears in their analysis as "unsupportably high costs" of bringing new resources into use (marginal land, low grade ores, etc.), rather than absolute exhaustion.

It is of course capitalist stagnation which makes such costs apparently untenable. By mislocating the problem in some kind of universalized, absolute cost barriers the "ecologists" hide from view the systematic historic untenability of capitalist development. We do not mean to imply, however, that development limited to an extension of a qualitatively unchanging technology will not ultimately exhaust the finite resources appropriate to such development. No computers are necessary to ad-duce such a result. However, it is precisely on this point that capitalism stands condemned.

Successful human evolution has been characterized by periodic "productive revolutions" where mere quantitative extensions of man's "energy capturing" capacities have led to qualitative transformations of established modes of life, and thus **repeatedly** saved mankind from apparently "inevitable crises." The revolution which produced the human species as such, the invention of agriculture, the steam engine, nuclear power, all have created the so-called natural resources from previously "useless" nature.

Under the reign of capitalism humanity has produced countless revolutions of productive technology. If this process could continue unabated there would be no real, material basis in need for socialism, but such is not the case. The pressing question of alternatives to the finite supply of fossil fuels, to supply the ever-expanding need of developing humanity for energy, reveals the incapacity of capitalist economy.

It is not surprising that Zero Growth advocates give short shrift to the possibilities for developing a practical plasma fusion reactor for the production of electrical energy. The fusion of the nuclei within a deuterium (or deuterium-tritium) plasma releases enormous energy but yields no dangerous radioactive waste products. The fuel, deuterium, a "heavy" isotope of hydrogen, is easily separable from sea water and would be virtually inexhaustible, thus virtually eliminating the finite resource problem with respect to fossil fuels and fissionable materials. The great heats generated would provide such

great efficiency in heat transfer methods of electricity generation that thermal pollution connected with energy production would cease being problematical. In addition, applications of the process such as the "fusion torch" might make the recycling of industrial materials cheap enough to be almost universal.

Is such a development possible? At present no theoretical obstacles remain to block the realization of this advance (for references on the matter of fusion power see the above cited "Ecology Crisis: Who's Polluting Whom" and "Zero Growth" in *New Solidarity*, April 10-14.) Leading researchers in the field of plasma physics, Eastlund and Gough, have stated that a practical prototype fusion reactor could be created within ten years **if such development were seen as a "national goal."**

Whereas in a rational world the "ecology movement" would jump on such a development and lend all its efforts toward propagandizing the need for development of fusion power, in the "real" world it is not merely that such a development would dissolve the case for Zero Growth that these warriors are mum on the subject. They cannot see the development of fusion power as a real possibility **because it is not on the immediate capitalist investment agenda.** Having limited themselves entirely to the outlook of actual **capitalist** future, **ZPGers can see no future that does not include stagnation of productive technology.**

While vast expenditures of productive resources will be required to develop fusion power as a practical source of energy, the utility industry, eating itself through government porkbarrels in the form of "welfare" measures, such as "oil depletion allowances" and enormous capital advances by the AEC in the development of fission power, is spending next to nothing on fusion research. The AEC itself has so far spent less than the cost of one Apollo moonshot on fusion power research and the fiscal 1971 budget for such research of \$30 million was \$3 million **less** than the 1960 budget!

Again, it is capitalism and the private property nature of capitalist capitals that is responsible for this stagnation in research development. Capitalist optimizing criteria demand not only that "full value" be milked out of the development of fission power before its replacement, but also that the ancient plant and equipment of the fossil fuel generating plants be maintained at "book value" so that the edifice of the debt structure built on such rotten foundations does not crumble.

The "equilibrium economy" recommended by ZPGers would of course mean that adequate funds required for the realization of fusion power could **never** be generated. Thus, Zero Growth is a well-argued case for the extinction of mankind.

Zero Growth unfortunately need no longer be studied from the standpoint of the future through the "creative" capitalist imagination of the ZPG ecologist. In many respects it has already descended upon us. Rather than the utopia predicted for it, it has turned out to be in different aspects both cause and effect of the economic crisis. We have already indicated that capitalist-induced stagnation of industrial output is a primary source of the current economic crisis. This industrial stagnation, rather than moderating existing rates of pollution, makes the serious task of repairing damage done to the environment and prevention of future pollution through the development of pollution control techniques economically impossible under capitalism.

Not only has industrial production stagnated. The population growth rates of the "advanced" industrial countries have been moderating for a considerable period under the influence of both increased productivity and accompanied "cost" of producing labor power. This translates into decreased desire for large families, due to increased costs of education and longer social maturation times. However, in addition to this moderate long-term trend (which ZPGers blithely ignore), analysis of the 1970 United States Census reveals a sharp downturn in U.S. fertility rates which could rapidly produce Zero Population Growth within a few years!

Doubting readers are invited to read an analysis of the latest U.S. census data by George Grier, titled *The Baby Bust* (Washington Center for Metropolitan Studies, 1971.) Entirely on the basis of published U.S. Census data, Grier shows that despite the fact that the generally fertile part of the population (15 to 34-year-olds) has grown by 29 per cent in the last ten years, due to the postwar baby boom (this increase was exceeded only in the 1870s and 80s, due to immigration), the under-5 population has **decreased** by 15.5 per cent in the same period (by far the largest of such decreases which have only previously occurred in 1920-29 and 1930-39). Thus as the postwar boom babies have matured to fertile age they have failed to produce the "population boom" that both most authoritative "sources" and ZPG crackpots alike have long been predicting.

Declining fertility rates are responsible for this drastic drop in the under-5 population since death rates have in fact been only slowly increasing. The recent decline in fertility rates (that is the number of children actually born per specified population unit) dates from the 57-58 recession, continuing in a long and sharp slide into the present economic crisis. The long slide into the Great Depression after World War I created a similar decline in fertility rates.

This decline has been so steep that if the rate of decline experienced since 1960 continues only **two more years** we could hit the population replacement level —

the famous ZPG (see *The Baby Bust*, p. 22). Far from ushering in an era of peace and light this threatening ZPG (and likely actual population **decline**) is a response to profound economic crisis. Families are increasingly, “voluntarily” limiting their size because of social instability, economic necessity, poor educational facilities, and so forth — due to a collapsing economy.

The rather consistent failures of “authoritative” demographers — including the U.S. Census Department — is a striking example of the dismal failure of empiricist method in the social sciences generally. Criticism of the rather naive statistical, computer program systems methods of the Club of Rome’s *Limits to Growth* from many scientific quarters should not prevent us from seeing that, in general, *Limits to Growth* is merely a caricature of the best of empiricist methods. Social science’s slavish commitment to “objective fact” and “objective trends” among those “facts” in the behaviorist schools, and to pure subjectivity in the “idealist” schools, prevents a real comprehension of the essential duality of all social processes. It is precisely a comprehension of this duality — the subjectivity of human deliberative processes and actions and the resulting objective consequences for social reproduction — that is required for making any sorts of predictions whatsoever. And the character of such predictions is, therefore, inevitably “political.”

The zero growth ecologists, however, are at least consistent with reality in their pessimism as long as they view **capitalist** social and economic relations as the only reality. But they are unwittingly (or not, as the particular case or morality is concerned) projecting **capitalist** relations of production into the future **to predict a crisis which is already upon us**. Not only are they doing that; they are embracing its negative aspects (stagnation of production and population) as a solution, while falsifying and hiding from criticism the actually crippling nature of capitalist “economic growth.”

Liberal critics of the “ecology” doomsayers criticize from the point of view of “progressive capitalism.” Those who claim that technology and continued “growth” will solve the problem in and of itself are probably more foolish (or deceitful) than their ZPG quack antagonists, in that they utterly fail to see the immediate political threat to human existence generated by impending economic collapse. (*The London Economist* and *Nature* attacks on *Limits to growth* must be seen as such.) Under such conditions (we must realize that we have in a sense already reached such conditions) no technological breakthroughs nor rapid real economic development necessary to avert crisis are going to take place.

The Nixon administration’s official attitude toward ZPG appears well calculated. While the ZPG movement will be an essential part of the propaganda attack on the working class, it uncomfortably indicates in an indirect way the present crisis of world capitalism. In addition, cretaceous layers of the capitalist class, not possessing much subtlety of thought, tend to take ZPG pronouncements seriously rather than as useful propaganda (“an end to accumulation, what kind of capitalism is that?!”) Thus a balancing act results. The President’s Commission on Population headed by John D. Rockefeller III gives ZPG Inc. rope by endorsing **eventual** ZPG, and Secretary of HEW Elliot Richardson has been running around the country attending ZPG forums and symposia decrying the undemocratic implications of ZPG while endorsing its “ultimate aims.”

The official attitude that no crisis actually exists is an echo of the “liberal progressive” view that no crisis exists **for capitalism as such**. The difference being that the former is a canny professional guise and the latter a true conviction.

Is there then any basis for optimism? If human productive forces remain constrained within the stranglehold of capitalism, there is not; however, if socialists use the present conjunctural crisis to wrest control of the economy from the capitalist class there is no reason why both economic and ecological crisis cannot be avoided and the vast unmet needs of mankind be satisfied.

Socialism, not having to maintain fictitious inflated value of past capital investments, will be able to carry out rapid industrialization of the underdeveloped world on the basis of re-industrialization of the stagnated “advanced” economies, and thus will be able to generate the required sufficient social surplus to rapidly improve worldwide living standards, while cleaning up the environment and maintaining it in a productive state. It will also be able to develop technical advances such as fusion power production which will create vast new (previously unexploitable) resources and give us capacities for recycling existing industrial materials.

Such investments will actually vastly increase the productivity of labor on a world scale, making real growth, without the negative aspects epitomized by capitalist accumulation, possible for the first time in human history. Such a transformation is definitely not of the pie-in-the-sky sort envisioned apocalyptically by both anarcho-“marxist” left sects and ZPGers alike. The tactical approximation of socialist investment policy and the social forces necessary to carry it out in this period, is the political strike-support policy of the NCLC. Both training in actual socialist economics and political organization are accomplished at the same time.

The "ecology movement" as it stands today is a deadly foe of such a policy, since it does not see the potential for human development in squandered capitalist speculative income and the unrealized social capital thus represented. By condemning expanded working class consumption (and thus production) the "ecology movement" becomes an ally of capitalist austerity regimes.

Socialist development will require the creative talents of every scientist to make creative contributions to theory and technology. The socialist movement now requires that Zero Growth **ideology** be exposed as such, so that it is not confused with actual science. Scientists and scientific socialists, both students and teachers alike, who recognize that advances in human knowledge can only be predicated upon the actual material advance of society, must locate their counter-attacks against Zero Growth ideology upon support for working class-for-itself political strike activity.

Ironically, the *Blueprint for Survival*, one of the more egregious ZPG tracts, calls for "a Copernican revolution of the mind" to deal with present-day world problems. We could not agree more with that sentiment, but we also recognize that such revolutions of the mind are not the autonomous result of the individual minds of isolated geniuses. To paraphrase Marx, human society only sets tasks for itself that it is capable of solving. Only a society based on continued, expanding material control over nature will produce the genius required to prevent our self-destruction. So-called "equilibrium economy" or "no-growth economy" only exists, or could exist, under present conditions of vast material deprivation, as disastrous stagnation. We have evidence enough of this fact as capitalist breakdown repeatedly produces "no-growth economy" for us in periodic depressions. The ZPG movement itself is evidence enough to show that such conditions make "Copernican revolutions" of the mind rare enough indeed.

Just as the question of the material expansion of society is inseparable from that of social relations, the production of human consciousness is also inseparable from the organization of human society. Empiricist method arises from the alienation of man in bourgeois society, which forces the individual to regard his limited domain of experience as the predicate for human knowledge in general.

The recent release of the Einstein papers refreshes our knowledge of how little scientific advance owes to empiricist "scientific method." That Einstein achieved his revolutionary breakthrough in the comprehension of the material universe on the basis of intuition of whole processes, rather than contemplation upon alienated "experimental conditions," is quite clear. To the call of the ecology freak of the academic or "communal" variety for "ecological conscience," we must counterpose

"ecological consciousness, which is nothing but **class-for-itself** consciousness. The political working class **for itself** as the self-conscious producer of human ecology as a whole has an inherent understanding of the necessities of development and the consequently increasing freedom of the human spirit as these forces really exist for man.

Man's relationship to nature is not that of some individual beast to his environment. Man's relationship to nature in general is a mediated connection, in which the individual significantly affects and is affected by his environment through the mediation of the totality of man's social relations. Therefore, the widespread conceit, that isolated man is in "communion" with "natural nature," is a self-deception. Man's self-consciousness, his willful development of himself as an individual **in and for** the totality of human society, is the only form of behavior and achievement which is in "harmony with nature" as nature exists, or could possibly exist, for man.

What distinguishes man from other animals generally, the mere beasts, is the principal fact of human existence. That is the fact, on the one hand, that lower animal species, such as rats, pigeons, and so forth, are governed by forms of behavior which are more or less narrowly fixed by their genetic inheritance and essentially inalterable forms of egg and uterine (and extra-uterine) gestation. Man is fundamentally distinguished from the lower animals by the fact of his historical existence, that he has shifted the focus of evolution of the dominant life-forms from the realm of genetic variations into the realm of more or less deliberately and successfully altering his basic modes of social organization and behavior, a fact which is merely epitomized by the accelerating progress of man's development of his technology from the early Pleistocene beginnings of a "baboon-like" existence. Whenever a group of individuals, deluded by the pathetic conceit that they are "scientists," takes extant modes of behavior and technology, such as those of present-day capitalist society, and projects future human development on the basis of a simple perpetuation of transient modes of individualized behaviors, such as technologies, that "scientist" has defined man, not as man, but as a mere hominid beast. Of course, consistency demands that such conceptions be applied to himself. Man is not a hominid beast, but the "scientist" who proceeds on such assumptions has thereby demonstrated the actuality of his own bestialized world-outlook.

It is not accidental that Zero Growth ideology, which is itself a product of persons permeated with the ideology of human bestialization, can propose only intensified bestialization. As long as alienation persists, there have been and will be terminal cases of this ideology as exemplified by Meadows et al. Ordinarily, such wretched persons are simply an endemic disorder of

capitalist society in particular. It is under conditions of great capitalist economic crisis, as in the crisis of Nazi Germany, or the onset of a new monetary breakdown today, that capitalism seizes upon these endemic, most-bestialized tendencies among its academics — Skinner,

Jensen, Herrnstein, Meadows, et al. — to thus provide a “scientific” rationale for programs such as the Nazi slave-labor/extermination-camp system, or the ultimately identical programmatic goals of Zero Growth, the *Blueprint for Survival*, or the *Limits to Growth*.