

The Hammond Lectures

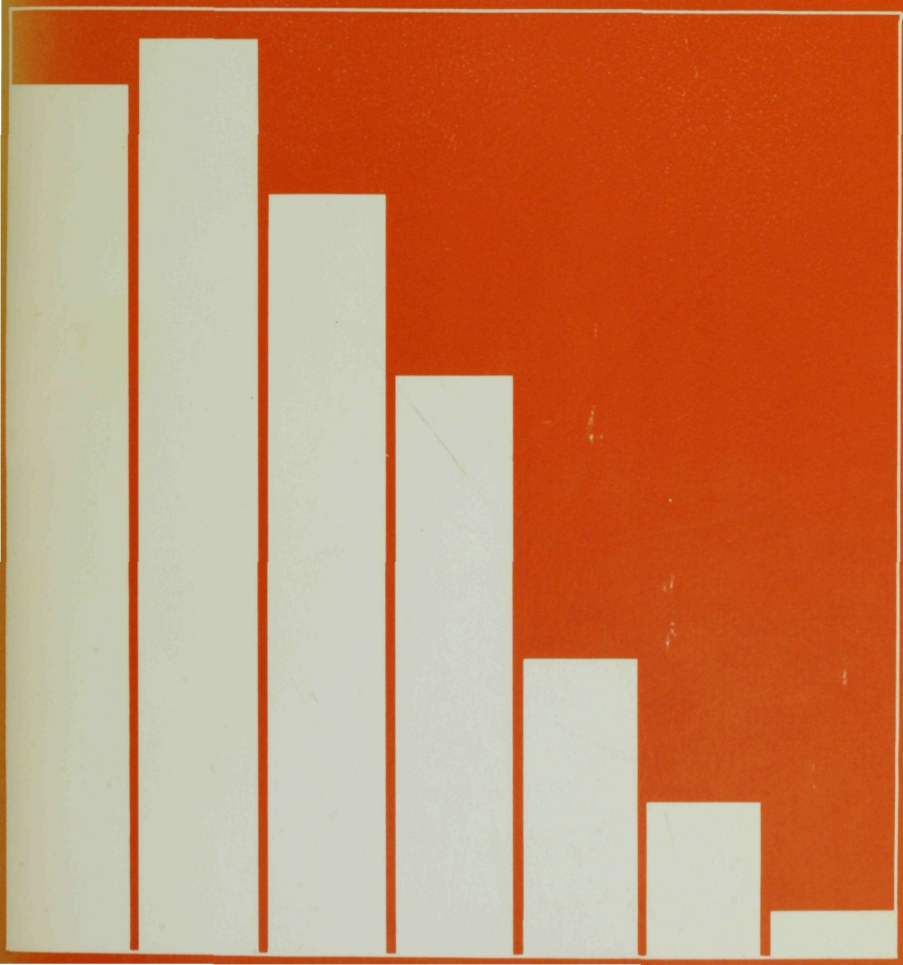
Number 1

**From Abundance to Scarcity
Implications
for the American Tradition**

Kenneth E. Boulding

Michael Kammen

Seymour Martin Lipset



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With an Introduction by Richard C. Snyder

THE HAMMOND LECTURES

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Introduction to the Hammond Lecture Series

I

The Graduate School of the Ohio State University is privileged to publish the first Hammond Lectures, which were given originally on the successive evenings of 18, 19, and 20 October 1976. This event is made possible by the thoughtful generosity of a deceased alumnus, Dr. William A. Hammond, M.A. 1917 and Ph.D. 1929, whose gift was intended to stimulate a series of presentations focused on the American Tradition.

A faculty committee¹ chose for the inaugural occasion the theme of "From Abundance to Scarcity: Implications for the American Tradition," and selected three distinguished scholars—Michael Kammen, Kenneth Boulding, and Seymour Martin Lipset—to address the theme from the vantage points of their respective disciplines.²

Thus it was expected that the campus-wide university community and (later) the readers of this publication would benefit from a kind of multidisciplinary triangulation on a very complex subject, i.e., the simultaneous interplay of three perspectives: that of the cultural historian (Kammen), that of the economist/social scientist (Boulding), and that of the political sociologist (Lipset). These scholars are noted

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not only for their outstanding reputations within single disciplines but for their unusual capacity and willingness to transcend the constraints of specialization in their writing and teaching.

II

As we all have come to realize, it is not easy to stimulate intelligent discourse on significant social and political problems even in a university setting. The barriers to purposeful, provocative, and penetrating exploration of alternative ideas and multiple realities that manages to combine depth and breadth, knowledge and action, theory-based research and policy concerns, are well known. Among the many inhibiting factors that wind Liliputian threads around our efforts to mount sustained public dialogues that might enrich and clarify thought and decision are, of course, such familiar ones as: the confusing effects of the use of diverse specialized vocabularies, recurrent confrontations of dogmatic arguments, the deliberate manipulation of empty or ambiguous symbols to shape attitudes or behaviors, the lack of widely shared societal memories of key past events relevant to contemporary issues, and stubborn technical puzzles that do not yield easily to solutions, much less to impatience.

In a very real sense, the 1976 Hammond Lecture theme has, as does the cluster of related conditions and sub-issues on which it exercises gravitational pull, a dual aspect: on the one hand, scarcity and abundance of certain prime resources have, as the three lecturers remind us, exerted a profound *shaping influence on the evolution of the American socio-political system*; on the other hand, the nature, extent, and consequences of different amounts—of the supply of any set of resources on hand as it were—is also a matter of conflicting perceptions and judgments and not necessarily of objec-

tively determined actuality. The implied real and perceived ramifications, then, suggest the usefulness of a prismatic approach that features emphasis on the multifaceted nature of the subject.

But, as noted above, the phenomena and problems embraced by the theme are not neatly differentiated and set off from other complexities, but rather must be addressed, if at all, in what amounts to a modern version of the Tower of Babel. Given the amount of "noise" in our communication system, conflicting estimates, predictions, and proposals are extremely difficult to sort out and evaluate. Volatile public moods play as large a role as technical analyses. Optimists and pessimists often present themselves, or at least appear, as the dogmatic opponents mentioned earlier. It is increasingly necessary, though it is a sometimes elusive exercise, to separate real events from pseudo events that may be created by the media, whether intentionally or not.

Side by side with the cacophony of voices and points of view is the sober recognition (and admission) of mounting errors in past calculations, and of grave actual or potential limitations on economic growth, on general progress, on critical resources, on the current stock of analytic tools, and on the effectiveness of policy processes. Moreover, it is increasingly suggested that a thoroughgoing redefinition of society is required, based on an acceptance of the limits of our power, individual and social, to deal with unlimited appetites and wants.

An added complication is that though the uncertainty and confusion concerning relevant factual and value judgments appears to be pervasive, the open admission of errors and limitations is not common to the community's present and future citizens and leaders, but appears to be confined to scattered groups of experts or to isolated public officials.

Finally, we might note the juxtaposition of two other related factors: first, the apparent lack of coherence in the

American tradition itself; second, the inadequacy of available theories and models intended to describe and to explain American society. With respect to the former, it is obvious that latent ambiguities and ambivalences in the American belief system once again have been forced to the surface because of the effects of great change (whether perceived or real) and intense pressure from successive crises. With respect to the latter, the existence and indefinite status of diverse theories illustrates the difficulty of empirically verifying or falsifying such theories in the social sciences, a circumstance that often throws discussion back to underlying assumptions, that are also difficult to test. Hence conflicts are often resolved by appeal to the ideological preferences of those who accept particular assumptions.

III

Even were it possible, it would be offensive to the three authors and to the reader to attempt to summarize the contents of these lectures. To anticipate too much would preempt the reader's privilege of discovery. To attempt to translate what has been said into other words would be unwarranted.

However, we have sketched in certain well-known background considerations as a way of signifying the urgency and usefulness of what the three writers are saying, a way of explaining why the pages that follow are worth serious attention.

In contrast to much that passes for analysis these days, the three essays each constitute a depth probe, a peeling back of several layers of that which is too frequently taken only at surface value, in order to reveal otherwise hidden elements. To the extent that the reader really becomes engaged by these exercises, he or she should suspend prior judgments and reject the notion that neat solutions and final answers with reference to the problems and challenges arising from

alternating patterns of abundance and scarcity interacting with the American tradition are possible.

Taken together, the three authors *do offer firm grounds* — empirical, logical, historical, pragmatic, and philosophical — *for prudent optimism*. Contemporary institutions and policies can cope effectively with both the opportunity and the threat inherent in unforeseen resource scarcities and shortages, in the dilemmas that apparently polarize around growth and stagnation, and in the age-old counter-pulls between wants or needs and the sum total of available means to satisfy them. A close examination of the three presentations will make it clear that this conclusion hardly rests simply on an arbitrary selection of optimism over pessimism as a socially acceptable posture. The word *prudent* rightly conveys the notion that the authors' judgment at this moment in time is based on critically important conditions that, they urge, must be met if viable adjustments or solutions are to be found.

One strong message from these pages is that there are some major pitfalls to be avoided at all costs, and that there is a great deal of hard work to be done by leaders, experts, and the general public.

Various kinds of “numbers games” are, of course, being played, and will continue to be played. Some are intentional efforts to persuade. Others are the result of faulty methods. All may be duly reported as news in the media. Opposing and noncomparable cases are made for technology as our salvation and for technology as primal cause for all our difficulties. Almost endless scenarios are composed for one future or another regarding the supplies of needed renewable and nonrenewable resources, and at the extremes, the portraits are totally inconsistent with each other.

Why have we been wrong so often in our calculations— estimates and forecasts? Why are our social and political theories so often wrong or irrelevant? Why is it easier for us

to explain *ex post facto* rather than forecast *a priori*? Why do we have so much trouble differentiating and plotting the separate paths and interconnections of secular and cyclical social change? Why and how do variations in national mood concerning economic well-being occur, and what effects do they have on institutional responses to crises?

It is not that such key questions are answered by the authors. Rather, it is the imposing justification that they offer for devoting much more systematic inquiry and study to these questions than we ever have before.

IV

Although it is only one way to characterize the three papers, it may be useful to underscore their prototypic contributions in the following manner:

First, all three emphasize, explicitly and implicitly, the inseparability of past-present-future in the analysis of, and adaptation to, change. Error, distortion, and unpleasant surprise arise when each of the three interconnected components is treated in isolation, usually by different experts and different methods, and informed by different underlying assumptions. Professor Kammen, as we would expect of a historian, reminds us that there was a period of scarcity before the "abundance" in the theme title came to predominate. He also reminds us that even during the abundance era, there were warnings of future scarcities and, indeed, even non-trivial current shortages. Professor Boulding is centrally concerned with evolutionary systems, particularly large-scale social systems, with special attention to the question of "does evolution have a direction up or down?" that in turn involves social entropy and the issue of how past, present, and future are functionally related to types of change in any system. Professor Lipset, while concentrating on the limits to futurology and social science analysis, also links persistent failures in forecasting to inadequacies of

theories that deal predominately with past events without, however, being particularly successful in telling the difference between what he calls underlying "structural relationships" and "surface events or conditions" that come and go.

Second, to select and integrate knowledge from various disciplines requires a careful delineation of a particular problem. Although brief characterizations do violence to the richness of the analysis provided, it can be said in general that for Professor Boulding the basic problem is: when is change progress? For Professor Kammen it is one of "concerned and responsive government" and of societal cohesion in the years ahead when the peace-order-abundance gestalt may be weakened or absent, and for Professor Lipset the problem is one of avoiding a premature and dysfunctional commitment to a "no-growth" policy. These are not incompatible definitions.

Third, in what larger contextuality is the problem embedded? Professor Lipset emphasizes, but not exclusively, (a) the relationship of inadequate analysis and theorizing to definitions and alternative solutions of the problem, and (b) the strong connection between the viability of democracy and abundance, between a no-growth condition and the intensification of social conflict. Professor Boulding locates the problem of progress in the context of the need for a theoretical measure of the direction of evolution (is it "up" or "down"), for an operational definition of progress that is susceptible to measurements and evaluations, and for a strategy of continual creation of new potential. Professor Kammen uses cultural history as a broad base from which to derive some rules for effective governmental adaptation to changing configurations of abundance and scarcity—for example, the significance of the interplay of several different American institutions at different times during our development, the desirability of thinking about alternative solutions free of ideological labels or preconceived

categories, and an explicit allusion to the fact that our forefathers were willing to reexamine and abandon conventional wisdom when it was necessary.

Fourth, given the technical difficulties inherent in resource estimation and protection, and given the very spotty record of theorizing and analysis applied to abundance and scarcity—especially forecasting—it would appear inevitable that a multimethod strategy will be required to bring the problem under intellectual and policy control. Each of the three authors, in his own way, bears witness to this important conclusion. Their respective thrusts are interdependent and hence constitute potential components of a comprehensive methodology.

Professor Boulding is proposing a highly demanding conceptualization of evolutionary systems and of progress, plus the design of procedures for evaluating the implementation and impact of policies and decisions bearing on the see-saw process of movement toward betterment of the human condition. Professor Kammen gives a demonstration of the kind of historical analysis that can provide some of the guidelines for constructing a developmental model of the U.S. case—a method of reconstruction of the past in terms of policy-relevant, comparative categories applied to both longitudinal and cross-sectional perspectives and to inter-institutional interaction. Professor Lipset, in offering detailed examples of failures in forecasting and of inadequate social research and theories, by strong implication calls for new, or at least at present relatively neglected, modes of inquiry that will improve our monitoring of “macroscopic system trends and tendencies” and provide a sound basis for the more accurate and continuous surveillance of those “basic structural tendencies” that have been the elusive target of our theorizing and that invariably turn out to be crucial in the balance between growth and no-growth factors and choices.

V

The 1976 Hammond Lectures underscore a very well-known and fundamental characteristic of the American experience but one which is apparently altogether too easy for the society in its collective capacity to forget: simply put, it is the interconnection between the positive abundance-scarcity balance that has prevailed throughout much of our history and the relative stability/viability of democratic government.

Regardless of whether the reader agrees or disagrees with these three scholars in their general orientations or in the particulars they present, and regardless of what the reader's value preferences are, the stakes involved in future developments of the pattern of abundance and scarcity, in the outcome of the growth-no growth debate, are far too consequential to be left either to inadequate knowledge or to our aggregated psychological dispositions.

The risks of the good or bad results of a self-fulfilling prophecy seem real enough after reading and rereading these provocative essays.

1. The committee was composed of Edward H. Bowman, dean, College of Administrative Science; Jon Cunyningham, professor, Department of Economics; Randall Ripley, chairman, Department of Political Science; Richard C. Snyder, director, Mershon Center for Education in National Security; and Marvin Zahniser, chairman, Department of History.

2. Kenneth E. Boulding, Institute of Behavioral Science, University of Colorado; Michael Kammen, Chairman, Department of History, Cornell University; Seymour Martin Lipset, Professor of Political Science and Sociology and Senior Fellow of the Hoover Institution, Stanford University.

The Limits to Progress In Evolutionary Systems

If there is one idea that has dominated the history of the United States, it is the idea of progress. Yet analyses of this idea are surprisingly rare. Furthermore, in spite of having been founded by a rather small revolution, the dominant dynamic of the United States has been evolutionary, through social mutation (invention), production, and selection. In this paper, therefore, I propose to look at the larger question of the nature of evolutionary change, and the conditions under which change can be identified as progress.

We start with the large view. Planet Earth, in striking contrast to the moon, which is an equilibrium system, has been an evolutionary system one suspects almost from its beginning. Even before the advent of life there were plate tectonics, orogeny, erosion, and atmosphere and ocean formation on the surface of this restless and uneasy planet. With the advent of DNA the process of biological evolution began, which has always been a disequilibrium process. I have defined evolution as ecological interaction under conditions of constantly changing parameters. The change in parameters is mutation; the ecological interaction is selection. Mutation involves genetic change and much more; changes for instance, in climate, land forms, atmospheric composition, and so on. Selection involves the rise of some populations and the decline of others as they interact, moving at any one time perhaps toward an ecological equilibrium that they never attain, for the parameters always change before it arrives. Selection, incidentally, in spite of Darwin's unfortunate phrase about the struggle for existence, does not involve very much struggle; it simply in-

volves the impact of the total environment on the birth rate and the death rate of each species. If there is some population of the species at which births and deaths are equal, it will have a "niche" and will survive. If the death rate exceeds the birth rate for a sufficient period of time, the species population will decline to zero and the species will become extinct.

With the arrival of Adam and Eve evolution on this planet went into a new gear. Because of the extraordinary capacity of *Homo* and *Mulier sapiens* for the creation of artifacts, human history (and social evolution, which is practically the same thing) is largely the record of the evolution of human artifacts. Human artifacts, again, form an ecological system, along with biological artifacts. Selection takes place through these ecological interactions, and mutations constantly develop new species through the increase in human ideas, knowledge, and know-how. Evolution, it should be noted, is fundamentally a process in know-how, that is, in the genosphere, the sphere of all genetic information that spreads round the surface layers of the planet. As Samuel Butler said, "A hen is only an egg's way of making another egg." The phenotype is just a genetic intermediary. In social evolution likewise the process is essentially one in the social genosphere, which is virtually identical with what Teilhard de Chardin called the "noosphere," that is, the sphere of all human knowledge and know-how and its prosthetic devices in the shape of books, plans, blueprints, photographs, computers, and so on.

The first critical question for this paper is whether evolution has a direction, that is, a "time's arrow" that can be measured on some kind of linear scale. This scale need only be ordinal, for all we need to know is direction, not magnitude. That is, is there any sense in which evolution can be said to go "up" or "down," or even right or left! We are familiar with the time's arrow involved in the second law of

thermodynamics, which says that entropy continually increases, or, as I prefer to put it, the potential of the universe continually diminishes. Is there a similar time's arrow in evolution?

The question is a difficult one, and it may have a number of answers. At the simplest level perhaps we can perceive evolution as the segregation of entropy, a process by which increasing order is created in a part of the universe at the cost of still more disorder elsewhere. A parallel, perhaps rather unfortunate, would be a society that is continually getting poorer, so that per capita real incomes are continually declining, but in which some people get richer at the cost of others getting poorer, at a rate even below the average rate of impoverishment.

The segregation of entropy should provide a theoretical measure of the direction of evolution. Unfortunately, it is virtually impossible to do this in practice because of the sheer difficulties of measuring entropy. We could suppose, however, even before biological evolution, that mountain-building or orogeny represented a local decline in entropy and erosion into flat plains a local increase. Mountain-building, however, must represent some kind of segregation of entropy due to the shrinkage of the earth, or whatever it is that produces it. Presumably some potential is always exhausted even in mountain-building, though it is not easy to see what particular kind of potential it is. Biological evolution clearly involves the segregation of entropy. Living organisms capture energy from the sun and store it chemically in the biomass. This clearly involves building structures of lower entropy on the earth at the cost, of course, of increasing entropy in the sun. The measurement of this change, however, is extremely difficult. In social evolution likewise we see processes of increasing entropy: the decay of organizations, the decay of empires, the erosion of cultures, and economic disvelopment. But we see also the constant

re-creation of evolutionary potential in new religions, new nations, new knowledge, new cultures, and so on. Social entropy, however, is extremely hard to measure, and one may well despair of finding an operational solution to this concept, important and suggestive though it is.

The entropy concept has a clear meaning in thermodynamics. As we move into other systems, even into biological systems, its meaning becomes more metaphorical and less clear even though it is frequently suggestive. It is more useful, I think, to think of it in a positive form as a potential, or "negentropy." Entropy is essentially negative potential. The second law then takes the form that if anything happens it is because it had a potential for happening, and after it has happened that potential is used up. Stating it in this way, however, opens up the evolutionary possibility that potential can be re-created, perhaps at the cost of some kind of ultimate potential elsewhere, although this is not totally clear. We see this, for instance, in the biosphere, where every fertilized egg has enormous biological potential for producing the organism of which it is a blueprint. As the organism grows and develops, it becomes more mature and eventually ages, so that this original biological potential is gradually used up, until by the time the organism dies it is all gone. In the course of their life, however, most organisms re-create potential in the form of new fertilized eggs, and the whole thing starts all over again.

The concept of evolutionary potential is much trickier. In some things—like DNA itself, the development of sex, the development of the vertebrate structure, and the development of the human brain—we seem to have enormous evolutionary potential for a vast variety of new forms. Just what this potential consists of, however, and whether it involves any diminution of potential elsewhere is extraordinarily hard to say. There is no doubt that evolution involves the segregation of thermodynamic entropy. Whether

it involves the segregation of potential in the larger sense we do not know; we do not really know whether even the second law of thermodynamics applies to the whole universe in all its four dimensions of space and time—the thermodynamic potential that existed at the beginning of the universe may well be re-created at its end, or even by the realization of improbable events along the way.

The next question is whether we could get any over-all measure of the direction of evolution through some measure of size of the field over which it was operating. Biological evolution on the earth might be measured by the over-all size or weight of the biomass. This would be “growth” in the simplest sense of the word. It is clearly not a very satisfactory measure, though not perhaps wholly meaningless. If the over-all weight of the biomass on the earth increases, this is at least some indication that something is happening. New species must be appearing that either utilize a larger proportion of the solar energy that falls on the earth or that have a greater capacity to store that energy. This is really a matter of the over-all niche of life. If, for instance, life colonized other planets so that the biomass of the universe increased, I suppose we might regard this as a positive direction of change, that is, “progress”; but it is certainly a very crude measure, and it is certainly not what we usually think of as the direction of evolution.

Something closer to a perceived direction of evolution would be an increase in the complexity of individuals, either of the most complex organism of the system or perhaps of the average organism. This, again, is closely related to the concept of a diminishing entropy, which in turn is closely related to, but not necessarily identical with, the concept of increasing order and complexity. The measurement of complexity, however, is no easier than the measure of entropy or potential. One suspects that they are not quite the same thing. It is certainly not impossible to imagine an evolutio-

nary development that would diminish the complexity of the present and yet increase the evolutionary potential of the future. Sometimes it may be the reduction of an overelaborate and useless complexity that creates evolutionary potential. Nonetheless, as we follow the course of evolution as it is recorded in the rocks we do seem to perceive a rather steady increase in complexity from the virus to the bacteria, to the amoeba, to the many-celled organism, to the fish, to the reptile, to the mammal, culminating, of course, from our own point of view in the human race. However, just why the evolutionary process on earth seems to produce increasing complexity is a puzzle. There certainly seems to be little in the general theory of mutation and selection to suggest why increase in complexity should be the result of the process rather than increasing simplicity. The only explanation I can think of is the principle that in any ecosystem there is more likely to be an empty niche at the upper levels of complexity than there is at the lower levels, which will mostly be filled anyway by previously developed species. A mutation that produces a more complex structure, therefore, has a slightly better chance of finding a niche than one that produces a more simple structure, and in evolution it is small probabilities of advantage that tip the balance. I am by no means sure that this is always true, and it certainly does not constitute any kind of formal proof of the necessity for increasing complexity.

It is not wholly impossible that the observed increase in complexity is an incident of the peculiar history of the structure of planet earth. Many people have speculated, for instance, as to whether the apparent recurrence of some kind of geological or climatic catastrophes in the course of erosion, plate tectonics, ice ages, and so on, has not stimulated the evolutionary pattern on earth. Each catastrophe, by eliminating large numbers of species, creates a whole set of new niches and so creates evolutionary potential. But, again,

it is not really clear as to why these new potentials have to be on the side of complexity rather than on the side of simplicity. If the evolution of human artifacts eventually produced a really deadly artificial virus that would eliminate all mammals on earth, the illusion of increasing complexity could hardly be sustained, although there would be nobody left to worry about it! This may indeed just be another anthropomorphic illusion, but it is only in the systems that happen to have produced an increase in complexity, even if this has been achieved by rather random processes, that anybody like ourselves is around to examine it. There may be other planets in the universe that have not earth's kind of development, but in that case there is probably nobody around to talk or think about it.

In the social systems too we seem to see increasing complexity, from the first eoliths to the elegant flint arrowheads, to metals, to the wheel, to agriculture, to machinery, to other scientific technology, and to the space lab. Not all societies have followed this pattern, and there are many examples of societies that have stagnated, or that have even decayed toward greater simplicity and lost previously acquired skill and know-how. There seems to be, however, certain irreversibility in the development of complexity, in the sense that societies with more complex artifacts seem to have a greater probability of survival over those with less complex artifacts, whether through superior threat, superior productivity, or superior organization. Mere survival value, however, it must be emphasized, is not sufficient to give a direction to the evolutionary process. The "survival of the fittest" is a meaningless metaphor, for it simply means the fittest to survive, that is, the survival of the surviving. To put meaning into it, we must know something about what qualities lead to survival, that is, a probability-of-survival function, and that is another matter altogether. The "survival of the fittest" tells us nothing about whether what survives is more

complex or bigger or better or in any direction different from what did not survive.

This brings us to the last, and from the social point of view the most significant, direction, which is a direction in the form of "goodness." Goodness is a value ordering imposed, by humans, on the state of the world or even the state of the universe. Goodness is what goes up when things get better and down when things get worse, always in terms of over-all human evaluation. Whether nature or the universe at large has over-all values we do not know, though we may surmise. The only values we certainly know about are human values. There is a curious myth abroad that there is something called "nature" in the absence of the human race that is all wise and all good, but this is clearly nonsense. If all life on earth were suddenly destroyed by the impact of a wandering heavenly body, there would be nothing "unnatural" in this. There is no sense outside of human values in which the 999 out of 1,000 past species that became extinct were "bad." The average life of a species indeed seems to be fairly short on the cosmic time scale, and the extinction of a species is just as natural as the death of an individual. Species are presumably not programmed for extinction in the way that individuals are programmed by their genetic structure for death; but the longer a species persists, presumably the greater the chance that it will become extinct, simply because there is a constantly increasing number of potential competitors as evolutionary potential is realized.

Furthermore, there is no sense in which human artifacts are unnatural. They have been produced by processes of evolution—the automobile is just as much a species of planet earth as is the horse, and it is just as natural. Every human artifact has been produced in the course of evolution. The fact that it is social evolution rather than biological evolution in no way makes it less natural. A value system that regards the natural as good and the unnatural as bad will

not stand up to examination. All things are natural, but some are good and some are bad from the point of view of human valuation.

Human valuation does tend to put a direction on the evolutionary process, especially, of course, on the process of social evolution. Even in regard to biological evolution one can test this by asking oneself, If I had a time machine, to what epoch of the evolutionary past would I go first? That might depend a little on one's specialized interests, but most humans would probably opt for visiting the dinosaurs rather than the first anaerobic soup, perhaps because we tend to value what is most like us, and this is why we see the process of evolution as, on the whole, a "progress" toward the human race, with the life forms getting more like us all the time. The old principle that ontogeny recapitulates phylogeny, meaning that the human being, for instance, from the fertilized egg on recapitulates the amoeba, the fish, the mammal, and the ape before achieving the splendid birth of a human baby, is not quite as fashionable as it used to be, but the principle that the human body embodies in itself evolutionary memories as it were of the amoeba, the fish, and the monkey can hardly be denied.

What we are talking about here, of course, is a nice, old-fashioned word, "progress," which simply means that the total state of the world, or of some subset of it in which we are interested, is going from bad to better rather than from bad to worse according to some human values or human valuations. It is more accurate to speak of valuation as a process rather than of values as things, though preference-orderings may exist in some corresponding structure of the brain. The valuation of large total systems is a difficult process. Agreeing about these valuations or orderings is even more difficult. Nevertheless, it cannot be impossible because we do it. And anything that exists must be possible.

If large systems are to be evaluated, they must first be

described. This involves first breaking them down into a number of subsets, each of which is reasonably homogeneous, so that "when you have seen one member of it, you have seen them all," in the deathless phrase of then Governor Reagan. Next we have to be able to assign to each unit of each subset a valuation coefficient, what economists sometimes call a "shadow price," that will reduce each of the subsets to some common measure of value. We are familiar with this process, of course, when the measure of value is money, as, for instance, when we evaluate the physical items on the balance sheet. The same principle, however, applies to all valuations even though in complex cases the measure of value itself may be almost subconscious and the valuation coefficients quite fuzzy. If we are to evaluate the large and complex systems, however, we must have some system of weighting by which the various parts are compared.

Finally, if we are to evaluate changes in the system, and especially changes in parts of it, we must have some image of the interrelationship of the parts. We may, for instance, have a positive evaluation of a rise in part A; but if a rise in part A necessitates a rise in part B (to which we give a negative evaluation) or a fall in part C (to which we give a positive evaluation), the net change in our evaluation may be very different from our evaluation of a simple change in part A. If the valuation coefficient for any part is positive, we can say that it is a "good"; if it is negative, we can say that it is "bad." In the over-all evaluation, a gross change or increase in a good may be offset, or even more than offset, by associated changes involving an increase in bads or a diminution in other goods. This is essentially the problem of "trade-offs," which constantly plagues evaluations of large systems.

A very common source of error in the evaluation of large systems (error in the sense that when it is called to people's attention they will sometimes admit it) is to take some single element or subset in the system and assume that any change

in this is an index of the value of the total. Thus, an economist might take the GNP or the GNP per capita as an index of the value of the system and assume that every time this went up things got better, and every time it went down things got worse. An imperialist might take the area of an empire as such an index, a Communist the amount of property in public ownership, a missionary the number of people who have converted or the proportion of people belonging to his particular faith, a corporation executive the profit of the corporation, a professor the length of his bibliography, and so on.

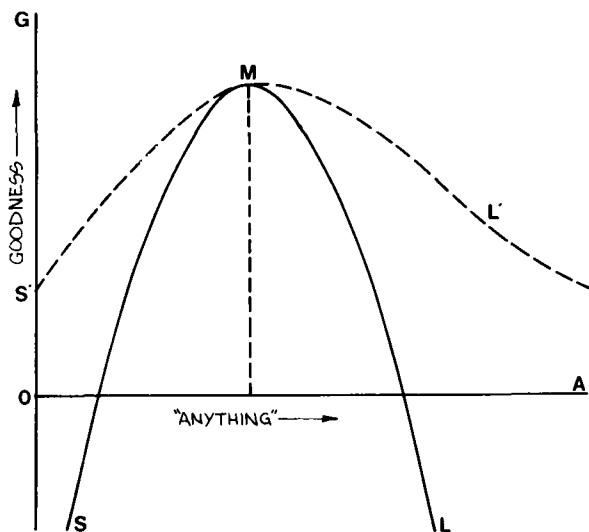


Fig. 1

This leads into several kinds of error. The first is a failure to recognize that the valuation coefficient attached to any particular item in a large system is itself usually a function of the number of these items. The "goodness curve" SML (fig. 1) shown along OG, how "good" is each quantity of some particular subset of the universe measured along OA ("any-

thing”), often tends to be a parabolic type of function. This follows the great principle of the law of diminishing marginal utility, with its corollary, the principle of the Aristotelian mean. Where there is a small amount of anything, as at S, the valuation coefficient will be high and an increase of it will be good. As the quantity of anything increases, however, the valuation coefficient tends to fall and the marginal valuation coefficient, that is, the increase in the total value of the whole system that results from a unit increase of the good in question, may fall to zero at the Aristotelian mean, that is, the point M at which the contribution of the particular “anything” in question to the total value is a maximum. Beyond this point, the valuation coefficient may become negative, so that an increase of the quantity of the item actually makes things worse rather than better, so that the thing becomes a bad rather than a good.¹ This seems to be an almost universal principle, and one of the major errors in the evaluation of large systems is the assumption of linearity in valuation coefficients. One is sometimes tempted to think that linear relationships are a figment of the mathematician’s imagination and that they are virtually unknown in the real world. I can hardly resist quoting a verse, which I wrote in a slightly different context, that illustrates the point:

One principle that is an ecological upsetter
 Is that if anything is good, then more of it is better.
 This particular relation gets us very, very wrong,
 For no relation in the world is linear for long.

The second source of error is the failure to recognize trade-offs, that is, changes in variables elsewhere in the system that result from an increase or decrease in what we might call the “index variable.” Thus, an increase in the GNP per capita may go along with increased pollution, environmental decay, social disorder, war preparations, and a decline in the capacity to enjoy life, producing what Sci-

ovsky has called a "joyless economy." Or it may be accompanied by greater inequalities of income and even a decline in the real income of the poor.

A particularly nagging and difficult problem is what might be called the "invisible trade-offs," the things that are not done or not produced as a result of sins of omission. It is extraordinarily hard to detect what people did not do that they should have done and, as Ogden Nash has pointed out in a classic poem, the sins of omission are remarkably little fun. Nevertheless, in total evaluation of the system they may be very important, because by getting rid of some bads we may at the same time get rid of some goods.

A third source of failure in the evaluation of the total system is the failure to look at it from a sufficiently dynamic point of view. Any total system exists in time as well as in space, and if it is to be evaluated properly, we must evaluate it in a time perspective. The system that we evaluate in a static sense, as it exists at the moment as good but getting worse, is very different from a system that we evaluate in the static sense as bad but getting better. Ideally, every system should be evaluated in its totality from its beginning to its end, but this is usually impossible. In the case of the individual human being there is the old adage that one should call no man happy until he is dead—nor any enterprise successful until it is liquidated.

This problem crops up, for instance, in evaluating the distribution of income. Most observers will probably have the usual parabolic evaluation or goodness function here, with perfect equality and high inequality rated "low" and some intermediate level of inequality as a maximum value. The distribution of income, however, looks very different if we look at it over the whole life cycle from the way it looked at a single point in time. We could, for instance, have a society in which all young people were poor and all old people rich; then everybody would have exactly equal in-

comes over their whole life, but at any one time there would be sharp inequality between the poor young and the rich old.

The evaluation of economic development raises the same kind of problem: To what extent are we justified in penalizing the present generation for the benefit of their great-grandchildren? What have the great-grandchildren done to deserve this? Similarly, if the present generation lives it up and dissipates natural resources to the detriment of the great-grandchildren, who, again, shall say who was most deserving? Perfect equality of human beings over time could only be achieved if there were no economic development at all and the human race existed forever in stagnant poverty. This question is very real in the evaluation even of present-day societies, as, for instance, in the trade-off between development and redistribution, which may be real, although with better management it might be avoided, or at least made less acute.

American agricultural policy of the last forty years is a good case in point. It has been justified politically mainly on the basis of redistribution and equity, on the grounds that farmers were poorer than the rest of the society and hence should be supported. The way in which the policy was carried out, however, through price supports and even the public support of agricultural research and education, has benefited the rich farmers much more than the poor and has driven most of the poor farmers out of agriculture altogether, with some of them, no doubt, better off and some of them worse off. It has also created a spectacular increase in agricultural productivity, at least in terms of labor, to the point where we can now produce all the food we need and a surplus for export with less than 4 percent of our labor force. On this ground our agricultural policy has made us all richer, or at least has greatly improved the chances of any individual in this society of getting richer.

The same problem of evaluation over time applies to what

might be called "temporary solutions," solutions to immediate problems that may improve things for a while but that may make things worse in the end. A possibly classic example of this was Prohibition in the United States. Alcoholism was recognized as a very serious social problem, and the consumption of alcohol was identified by many as a nutritional waste. The political solution was Prohibition, remarkable because the upper class certainly never wanted it and it was passed as a grass-roots, democratic impulse. In the twelve years of Prohibition, alcoholism certainly diminished, as evidenced by the statistics of deaths from cirrhosis of the liver; but it also increased the amount of crime, at least of a specialized kind, and it undoubtedly destroyed a lot of simple pleasure in the moderate consumption of alcoholic beverages by nonalcoholics, which seems to do very little harm indeed. At any rate, the ultimate decision was made to abandon the "noble experiment," and now alcoholism is probably worse than it ever was and creates an enormous amount of human misery. This is a good example of the way in which the value weights that are attached to different parts of the system can shift over the course of time. And this, of course, introduces another complication into the measurement of the change in over-all values of the system, somewhat comparable to the problem we face in economics in measuring the price level or the GNP, where the commodity mix and the relative price structure constantly shifts and constantly changes as new commodities are added and old commodities disappear from sight. It is very hard to know how to allow for the price or output of a color television set in 1900.

Progress is what happens when the total system that we regard as relevant to the human race is getting better over time rather than getting worse, according to some process of human valuation, whether this is in the mind of a single individual or a collective valuation reached through some

political process or process of consensus. The measurement of over-all progress is extremely difficult because of the complexity of the system and the large number of valuation coefficients that have to be estimated; but the concept is clearly meaningful, and under some circumstances reasonable consensus can be obtained, at least about the direction of progress if not as to its exact magnitude. We do have at least imperfect measures for part of the system, like the gross national product or the measure of economic welfare (MEW) devised by Professors Tobin and Nordhaus². Everybody recognizes that these measures are imperfect even within the narrow framework of economics, and of course they are extremely imperfect in regard to the larger system.

Progress in the development of better measures of progress, however, is by no means impossible. We can improve the definition of the larger system. Then we can get increased knowledge about the trade-offs that are involved. Techniques are developing, such as Kenneth Hammond's computer graphics techniques,³ by which the value weight of persons can be estimated, even where they are not explicit to the persons themselves, simply by analyzing their actual choices. It is much harder to measure political progress than it is economic progress. It is still more difficult to measure religious or moral progress, or progress in justice, particularly when we try to apply these concepts to large systems as a whole. It is fairly easy to rank the societies of the world in the order of their GNP per capita, whatever that may mean. It would be difficult to rank them in the order of the justice of the society.

The Rawls criterion is of great interest here. We ask ourselves the question, Which society would you rather live in if you did not know who you were going to be in it? This is at least an interesting intellectual experiment, and it offers perhaps some hope of elucidating the tantalizing trade-off between per capita real income on the one hand and its

distribution on the other. Would you rather live in a perfectly egalitarian society in which there is no chance of being rich but also no chance of being desperately poor, or would you rather live in a society in which there is some chance of being rich and in which there is variety? One suspects that an inegalitarian society with a social minimum income guaranteed by public grants, in which there was some chance of being rich but no chance of being really poor, would win the ballot. Movement toward this would then be measured as progress.

Violence and conflict are another interesting dimension of society for which we certainly have some over-all values. My belief in progress in this regard was greatly reinforced when I happened to see *Macbeth* in the middle of the Watergate episode. It occurred to me that *Macbeth* was Watergate a thousand years earlier and a thousand years bloodier and that there really had been political progress in that thousand years, in terms of our capacity to resolve conflict peacefully. In the twentieth century war certainly does not seem to be worth what it costs, and most people would agree that Lebanon has gone from bad to worse in the last three years and that a movement toward peace would be progress. Lewis Richardson's *Statistics of Deadly Quarrels*⁴ was a first step toward the quantification of this cluster in the over-all total system. The movement toward peace however, is much more difficult than the measure of it.

The movement to develop social indicators, which has achieved some momentum in the United States in the last few years, is in part an attempt to widen the measurement of progress. Many of the separate indicators, for instance, of crime, fear in the streets, divorce, health, discrimination, and so on, are useful and illuminating. In the absence of any agreed system of valuation weights, however, we have not come up with any general over-all measure of progress outside the narrowly economic sphere. I am convinced, how-

ever, that this is one area where progress can still be made.

Even when the problem of the measure of progress has been solved, however, the problem of why things so often seem to go from bad to worse rather than from bad to better still remains. Even without an exact measure of progress, processes that produce "perverse dynamics," that make things go from bad to worse in spite of the fact that individual decisions are always thought to be for the best at the time, can be identified. Such are prisoners' dilemmas, tragedies of the commons, externalities in economics, population explosions, arms races, tyrannies, mental disease, and so on. These can be recognized, and occasionally cured, without accurate measures of progress. But the more accurate the measure, the better chance we have, one hopes, of identifying these perverse dynamic processes and perhaps of developing social cybernetic mechanisms that will catch them and reverse them before they do all the harm of which they are capable.

Our attitude toward progress itself can follow a "goodness curve." On the one hand is a snarling cynicism that denies all validity to progress; on the other is a Pollyannaish optimism that sees all cities turning inevitably into tearless alabaster. Somewhere between these extremes is a sober but cheerful realism that sees betterment as both perceivable and attainable, even if only very roughly measurable. Whether there are ultimate limits to progress we cannot say, any more than we can predict the future of evolution. All potential for betterment is exhausted as progress is realized, but new potential can continually be created. Human history is a constant seesaw of exhaustion and creation of potential, and the creation cannot be predicted.

The history of the United States can be written in terms of the realization of a certain potential, and perhaps a failure to realize others. On the whole, however, realization has dominated. The filling-up of a large new niche of developed

society; the proclamation of ideals of "liberty and justice for all" that begin with hypocrisy ("liberty and justice for some") but constantly come under pressure for realization. Even the original potential is by no means realized; we have a long way still to go, but it would be self-depreciation beyond the call of duty to deny that some of it has been realized. I am a naturalized American, perhaps with some of the naive enthusiasm of the convert, and I felt when I accepted citizenship that I took on a real burden of collective guilt—for the arrogance, militarism, racism, carelessness of this big and bouncy society. But I also felt the potential, both the realized and the yet-to-be realized, with which I wanted to be identified, and I have never regretted becoming an American, even though my deepest loyalty is to the human race and beyond. That potential is still there to be realized, and what is more, new potential is waiting to be created. In some ways we are reaching the end of some of the old potential. The continent is full, we are not going to get much richer, we are moving toward a more integrated society with fewer people excluded from its benefits and responsibilities. Our next step is to create a new potential, a vision of our mission in the larger world. In our rush toward being a world power, indeed the world power, we have lost sight of the "goodness" that alone justifies power, and we do not really know how to use that power. Our relative power is diminishing, and will continue to diminish, though in absolute terms our power will continue to be large. Unless we "stand for" something in the world, however, that power will lose legitimacy and will eventually disappear.

1. This seems to be a better distinction between "goods" and "bads" than the distinction between positions below the line OA and positions above OA in figure 1. Below OA absolute goodness is negative; this would suggest

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suicide rather than a mere "bad." Most goodness curves probably start at a positive level, like $S'ML'$. They likewise may never reach absolute negative goodness, again like $S'ML'$.

2. James Tobin and William Nordhaus, *Economic Growth* (New York: Columbia University Press, for the National Bureau of Economic Research, 1972).

3. Kenneth R. Hammond, "Computer Graphics as an Aid to Learning," *Science* 172 (1972): 902-8.

4. Lewis F. Richardson, *Statistics of Deadly Quarrels* (Chicago: Quadrangle Books, 1960).

From Scarcity to Abundance—to Scarcity? Some Implications for the American Tradition From the Perspective of a Cultural Historian

American folk culture has often provided us with some interesting responses and clues to the national mood. Whether it has consistently provided us with an accurate reflection of national realities, however, is another matter. Therefore, within the framework of our mutual theme—abundance, scarcity, and the American tradition—I want to explore some aspects of this peculiar relationship between perception and reality. It may very well be, for example, that our course has really not run from abundance to scarcity, but more nearly the other way around. Equally plausible, perhaps our path has been from scarcity to abundance, and now back to scarcity once again (at least in some respects). More on these alternatives anon.¹

One classic artifact of American folk culture is the woolen coverlet. Those pioneers who spilled into the Ohio Valley during the 1820s and 1830s brought their coverlets from older homesteads, and then wove new ones as the heirlooms wore out. One of the favorite designs for these coverlets was called the “Peace and Plenty” pattern, popular because it expressed so well the settlers’ aspirations.² That theme of peace and plenty was a dominant one in American culture from the time of Thomas Jefferson until the age of Lincoln.³ Alexis de Tocqueville, for example, recognized that Washington’s “Farewell Address” of 1797 set the tone in so

many ways for American thought during the nineteenth century; and Tocqueville selected this particular sentence for emphasis in his discussion of the "Farewell Address." Washington had asked, "Why, by interweaving our destiny with that of any part of Europe, entangle our peace and prosperity in the toils of European ambition, rivalry, interest, humor, or caprice?"⁴

Tocqueville went on to develop, as a major motif in his book, the social and political implications of prosperity for the American tradition. He argued with strong conviction that "general prosperity favors stability in all governments, but particularly in a democratic one, for it [democratic government] depends on the moods of the greatest number, and especially on the moods of those most exposed to want." He believed that the physical sources of abundance conducive to prosperity were "more numerous in America than in any other country at any other time in history." Therefore, he contended, "one must go to America to understand the power of material prosperity over political behavior." Tocqueville then concluded that "the American has always seen order and public prosperity linked together and marching in step; it never strikes him that they could be separate."⁵

For the most part, Tocqueville seems to have regarded prosperity as being both beneficial and a major source of cohesion in American society. As he remarked in a chapter entitled "Spirit of the Township in New England," "With profound peace and material prosperity prevailing in America, there are few storms in municipal life."⁶ Only on occasion did he look upon the darker side, as when he observed that "the greatest danger threatening the United States springs from its very prosperity," because in some of the states "it brings the intoxication which goes with sudden access of fortune, and in others it brings the envy, distrust, and regrets which most often follow where it is lost." Subsequently he remarked that after 1800 prosperity "made men

forget the cause that had produced it, and with the danger passed, the Americans could no longer summon the energy or the patriotism which had enabled them to get rid of it [i.e., British hegemony]." Consequently, he concluded, "The peace and order brought about by the federal government led to its own decline."⁷ That last, needless to say, is a perception circumscribed by the particular circumstances of the early 1830s.

For the most part, however, Tocqueville and his contemporaries—native as well as foreign—were impressed by our abundance and therefore considered its proper distribution to be one of the normative and primary responsibilities of government. (Commenting upon the American diet in 1817, William Cobbett quipped that "you are not much pressed to eat and drink, but such an abundance is spread before you that you instantly lose all restraint."⁸ Twenty years later, in writing his famous decision on the Charles River Bridge case, Chief Justice Roger B. Taney declared that "the object and end of all government is to promote the happiness and prosperity of the community by which it is established."⁹ Only in a society where freedom and security might be taken for granted could the ranking judicial spokesman insist that government existed to facilitate the achievement of happiness and wealth! The populace, moreover, agreed with him. Samuel G. Goodrich scored a stunning popular success with his children's books, such as *Peter Parley's Common School History*. And in the 1845 edition, for example, millions of Americans nodded their approval to the following:

If you are fond of travelling, cross Lake Erie in a steamboat, and proceed to Ohio. See there a country that has not been settled fifty years, now studded over with thriving towns and villages. Consider the great valley through which the Mississippi flows; the millions of people that are already there; the rapid increase of wealth, the progress of refinement, and the multiplication of the inhabitants.¹⁰

And yet, even while Justice Taney wrote his decision, and before Peter Parley told the children that their land flowed with milk and honey, a few voices offered warnings that Nature's abundance might not always be the handmaiden of Civilization's advance. Henry David Thoreau is perhaps the best known among those early prophets of scarcity; but there was also Thomas Cole, the popular and romantic artist, whose series of paintings entitled "The Course of Empire" sounded an allegorical alarm wherever they were exhibited during the later 1830s. And there were social critics like the author of a review in the *Literary World* for 1847, who complained that

the axe of civilization is busy with our old forests, and artisan ingenuity is fast sweeping away the relics of our national infancy. . . . Our inland lakes, once sheltered and secluded in the midst of noble forests, are now laid bare and covered with busy craft; and even the primordial hills, once bristling with shaggy pine . . . are being shorn of their locks, and left to blister in cold nakedness in the sun.

Although saddened by the speed with which we consumed our natural resources, these authors were half a century ahead of their time; and more than a century would pass before popular opinion could be aroused to the genuine risks inherent in our rapacious growth. The *Knickerbocker* magazine put it quite simply in 1838: "Nature has been penetrated in her wildest recesses, and made to yield her hidden stores."¹¹

Only in the 1880s and 1890s, however, did a significant number of Americans begin to realize that, as Willard Hurst has stated, "exhaustion or scarcity was not impossible, even in the midst of our opportunities." For much of the nineteenth century, in fact, the underlying assumptions held by many had been quite the opposite, namely, that their capital, technology, and especially their labor supply were barely adequate to the abundant challenges of the North

American environment. They suffered, as Professor Hurst has written, from a "scarcity of means relative to opportunities."¹²

By the close of the nineteenth century there were articulate critics who wondered whether our prosperity inevitably had to be accompanied by the growth of poverty. "This association of poverty with progress," said Henry George, "is the great enigma of our times. . . . So long as all the increased wealth which modern progress brings goes but to build up great fortunes, to increase luxury and make sharper the contrast between the House of Have and the House of Want, progress is not real and cannot be permanent."¹³

During the 1890s many Americans became especially aware that land, which for centuries had been our most abundant resource, was getting to be in comparatively short supply. Hence the stimulus and occasion for Frederick Jackson Turner's famous essay "The Significance of the Frontier in American History" (1893). Hence the origins of our extraordinary conservation movement, which blossomed under Theodore Roosevelt's influential leadership. Hence the withdrawal of certain public lands from access to commercial development early in this century. And hence the search by some to replenish our resources by means of new frontiers overseas.

At the turn of the nineteenth century into the twentieth, a brilliant cluster of critics emerged who offered a variety of penetrating responses to the problem of scarcity amidst abundance. I have already mentioned one of them, Henry George; but his voice was joined by those of Henry Demarest Lloyd, Edward Bellamy, Thorstein Veblen, Richard Ely, Algie M. Simons, and Simon Patten. It was Patten, for instance, who observed, in 1907, that an economy of scarcity offered one sort of role for the ordinary man, whereas an economy characterized by abundance offered him quite a different one.¹⁴

What these economists and social theorists began to discuss at that time, we in turn must expand upon now: namely, the realization that critical commodities once abundant become scarce, and *vice versa*! Our labor force, which was so sparse in the colonial period, now seems to be considerably larger than our capacity to deploy judiciously. Our agricultural productivity has gone from basic self-sufficiency three-hundred years ago to being a breadbasket for the world. Our knowledge and mastery of the environment have undergone an extraordinary inversion since the perilous, groping explorations of Lewis and Clark. Our technological skills and the related service industries have proliferated since 1850. Our business corporations and educational institutions have progressed from being negligible in the age of Jefferson to being vast in this age of aggregation. Our communication capacity has been utterly transformed from sluggish to instantaneous because of airplanes, highways, television, and space satellites. We now have a surfeit of information where once it was scarce. And finally, our search for security—in the broadest sense—has resulted in a marked transformation, from minimal to almost stultifying: on account of fire, accident, and life insurance; health care; social security benefits; police protection; and welfare payments. Over the centuries we have progressed from a pronounced absence of security for our persons and property to an incredible panoply of programs and policies designed to minimize risk or uncertainty in our lives. Abundance has helped to make that transformation possible.

If in recent years we have moved from abundance to scarcity in some respects (e.g., steel, aluminum, copper, glass, fiberboard for boxes, tinplate for cans, soda ash for bleach, paper for newsprint, sugar, both non-petroleum and petrochemicals), and if we have had progress accompanied by poverty in others, the full story is still more complicated because, in terms of our broadest contours (going all the way

back to 1607), we have really moved from profound scarcities to abundance; and just recently, with regard to energy, food, and economic growth, to apparent shortages once again. I want to provide some specificity here because the nature and extent of scarcity during the first half of American history tends to be too readily overlooked. If we really wish to appreciate the implications for American tradition of our contemporary shift from abundance to scarcity, then we must look at the impact in earlier times of the transition from scarcity to abundance.¹⁵

David M. Potter, for example, in the most profound book ever written about American abundance and its attitudinal consequences, noted that abundance exacted a heavy psychological penalty for the physical gains that it conferred. What did Potter have in mind? He was thinking about the workman's identification with his work and the satisfactions he derived from it.

However humble his position, the craftsman knew that his community, with its economy of scarcity, needed his work, and, since it was his own work in the craft sense, he could regard his product as an extension of himself. The age of abundance, however, requiring a greater volume of processed goods, utilized machinery to meet the demand and made the former craftsman a more productive but less creative and less essential attendant upon the machine.¹⁶

Let us at least mention, therefore, some of the most basic patterns of scarcity during the first three centuries of American experience—the three centuries prior to our own—in order to deepen our perspective upon ways in which resources (or the perception of inadequate resources) have shaped our national traditions. The most fundamental insufficiencies, cited roughly in the order of their chronological emergence, were labor, capital, manufactured goods, land in the older sections of the country (such as New England), water in the plains and western portions, bullion for specie, and, most recently, energy.

Labor was in very short supply during the seventeenth century and well into the eighteenth, so much so that English mercantilists studied the situation in Ireland for clues to figuring out the colonial economy in North America. Thus William Temple's discussion of Ireland in 1673, "where, by the largeness and plenty of the Soil, and scarcity of People, all things necessary to Life are so cheap, that an industrious Man, by two days labour, may gain enough to feed him the rest of the week."¹⁷ Thus the view propounded by advocates of colonization: that transporting more laborers to the New World would increase its productivity many times over, whereas the surfeit of labor in England only augmented poverty for so many persons there. Here is a characteristic statement from *Reasons for Establishing the Colony of Georgia*, a promotional tract printed in 1733. Its claims are more visionary than descriptive. The author urged the hypothetical "man of benevolence" to

think himself in a visit to Georgia. Let him see those, who are now a prey to all the calamities of want living under a sober and orderly government, settled in towns, which are arising at distances along navigable rivers . . . the whole face of the country changed by agriculture, and plenty in every part of it. Let him see the people all in employment of various kinds, women and children feeding and nursing the silk worms, winding off the silk, or gathering the olives; the men ploughing and planting their lands, tending their cattle, or felling the forest.¹⁸

Scarcity of labor in early America had all sorts of profound implications for the American tradition: encouragement of immigration (including even political and religious dissenters, not to mention convicts); rapid physical and social mobility whereby indentured servants soon became masters, or ambitious artisan masters became merchants; and, eventually, the application of technological ingenuity unleashed by the search for labor-saving devices. As H. J. Habakkuk has observed,

Americans from early times were often faced with a situation

where a job had to be done—a house built or a river bridged—with the labour available on the spot, because the place was isolated and it was impossible to attract more labour. This gave them an enormous incentive to use their labour to most advantage, to make use of mechanical aids where this was possible, but in any case to organise the labour most effectively The shortage of labour led generally to longer hours of work, to a general emphasis on the saving of time and a sense of urgency about getting the job done.¹⁹

During the troubled prelude to our Revolution, one tactic used by the patriots to pressure Parliament into reversing invidious policies was the non-importation movement, or boycott of British products. Doing so caused the colonists to consider the whole matter of their achieving self-sufficiency, and therefore to reflect upon the vast potential of America's abundant resources. Whig writers declared that the colonies comprised "the American Canaan," where men could "eat Bread without Scarceness, and . . . lack nothing." In fact, the inhabitants of such a land should be "ashamed to be dependent on other Countries for Manufactures."²⁰

During the Revolutionary period, problems of scarcity became very serious for many American communities, especially in New England. A classic town such as Concord, Massachusetts, had begun to suffer privation even before the historic shots rang out in April of 1775. A new (and sophisticated) town history of Concord tells us that "on the eve of the Revolution, Concord was a declining town facing a grim future of increasing poverty, economic stagnation, and even depopulation, a future that jeopardized the heretofore peaceful relations between social classes." Land had been subdivided so often that some farms were really too small to be economically efficient as units of production. In the absence of scientific agriculture, moreover, the land was wearing out and property values were declining. Crop yields dropped off and forced farmers to plough up their marginal

lands. For a time it became more profitable simply to clear woodlands and sell lumber for shipbuilding or firewood, even as charcoal or potash (the major ingredient in soapmaking) at the Boston market. Imprisonment for debt became common in 1774 and 1775. As purchasing capacity dwindled, shopkeepers found that they had overstocked inventories. Vagabonds tramped through the town, and young people left to seek their livelihoods elsewhere.²¹

When some of these folks returned following the War for Independence, by the way, they had to exercise their ingenuity in order to cope with changing patterns of scarcity and availability. If you visit the famous Old Manse in Concord, for example, where Ralph Waldo Emerson and Nathaniel Hawthorne later lived, you will find in the dining room a charming chest-on-chest which seems a bit peculiar in the color and texture of its wood. Joseph Hosmer, a local cabinetmaker, made the top from cherry wood in 1775. Then he departed to serve in the War; and when he returned in 1780, there were no cherry trees left in the locale. So he completed the piece by making the bottom half from rock maple!

The pattern of depletion in Revolutionary Concord was repeated many times over in rural America during the nineteenth century. One classic memoir, written about the 1830s and 1840s in upstate New York, recalls that the Conklin family farm

was in a narrow valley running east and west perhaps thirty or forty rods wide. This was good rich tillable land and partly cleared. . . . On the south side of the valley was a very steep hill covered with forest growth running the whole length of the farm. This too was good land but a terrible place to get crops off of. On the north side of the valley was a sloping side hill . . . and here was our coasting ground in winter with our hand sleds. But this side hill was very poor land. The soil was a sort of clay and it was mostly barren with the exceptions of a few second growth pine, oak bushes, sweet ferns and huckleberry bushes, and up in here were the rattlesnakes.

This family lived close to nature and even closer to the margin of subsistence, As Henry Conklin recalled in 1891, "How we enjoyed the dried fruit in the cold winters when other luxuries were scarce."²²

Precisely because of these scarcities in New England and upstate New York, settlers moved on rapidly to the Old Northwest, where they found and fostered the good earth. In Indiana, Rachel Peden writes,

we have at least nine seasons in an average year, built around an average annual growing season of 188 days. To move away from this abundance to a place that has only four seasons is like moving out of the big, rambling farmhouse you were born in to a small city apartment.²³

Mrs. Peden has been a wise farmwife for almost half a century, and some of her insights into rural life penetrate to the very core of our American experience with scarcity and abundance. "What makes the vinegar bee like humans," she notes, "is that the individual adapts itself to the environment and, where the living is easy, makes no effort to develop its own resourcefulness."²⁴ That homely wisdom echoes what critics said constantly about American farming for almost two centuries after the time of Robert Beverley's *History and Present State of Virginia* in 1705; namely, that our productive promise was not matched by our accomplishments, and that we suffered from scarcity and deprivation despite our rich resources. Here is just one illustration, drawn from the *American Magazine and Monthly Chronicle* for February 1758:

The inhabitants [i.e., immigrants] who were confined to narrow farms in their native country, are many of them, insatiable in their desires after lands, and rather waste and impoverish, than improve them. Many have acquired a roving unsettled temper, and are grown impatient of labor and frugal industry; and having abused their farms, sell them, and move back to purchase new lands on the borders of the Indian nations.²⁵

There has been a great transformation in this regard dur-

ing the twentieth century, of course, due especially to phenomenal success with fertilizers. Between 1949 and 1968, for example, our harvested acreage declined by 16 percent, but our yield per acre increased by 77 percent.²⁶ As agriculture becomes increasingly mechanized, fewer and fewer people are required to grow and harvest more and more produce. One consequence is that the official definition of what constitutes a farm was changed in 1975. For years government statisticians had classified as a farm "any place under 10 acres with annual sales of \$250 or more of agricultural goods, or any place of 10 acres or more selling \$50 or more." Hereafter the Agriculture Department will only count as farms those places that normally sell \$1,000 or more worth of farm products per year—a reclassification that will simply eliminate some 16 to 20 percent of the 2.8 million farms listed in 1975 government records as being operational. By deleting smallness and recognizing only bigness and high productivity, we will artificially alter our perception of the average American farm. With hundreds of thousands of low-income farms eliminated from the statistics, an *apparent* increase in per-farm productivity will be recorded.²⁷

Even more serious, in terms of its implications for American tradition, is the fact that our genuine growth in productivity has occurred at the cost of terrible ecological damage. As Barry Commoner has pointed out, for example, between 1949 and 1968 our crop production increased 6 percent *per capita*, while the annual use of fertilizer nitrogen grew by 648 percent. The danger from such an abundance of nitrite in our soil is quite simply that it poisons our water supply.²⁸

What is to be done about dilemmas such as these? What are the implications for American tradition of our historically changing configurations of scarcity and abundance? One major answer, I believe, however much it may run contrary to our present mood,²⁹ is to bring the power of

government to bear in a positive way upon our problems. We have, in fact, a long-standing tradition of governmental regulation in response to issues of scarcity and abundance. During the early nineteenth century, as David Potter observed,

The major form in which abundance presented itself was the fertility of unsettled land. For a people of whom 90 percent followed agricultural pursuits, access to abundance meant opportunity to settle the new lands. The government responded by a series of land laws, beginning with the ordinance of 1785 and extending far past the Homestead Act of 1862, which made land progressively easier for settlers to attain, until at last they could acquire title to 160 acres absolutely free.³⁰

The point that I wish to make most emphatically is that if the government could actively intervene to help distribute our abundance during the nineteenth century, then it ought to intervene in order to help control scarcities in the late twentieth century (by taxing wealth, for example, rather than strictly income). During the first half of this republic's history we suffered from a genuine scarcity of capital for economic development; and so, as Willard Hurst discovered from examining the laws passed by our state legislatures in the nineteenth century, "a lively and pervasive sense of capital scarcity, relative to our opportunities, supplied the dynamic of public policy." Acquiring the privilege of limited liability was sought as a positive aid by law to the recruitment of capital.³¹

Law responded to the pervasive sense of capital scarcity chiefly by affecting the allocation of economic resources. Law guaranteed and protected individuals and groups in their private planning and execution, and where it brought its force to bear it was to extend the reach of private will by lending it legal power to enforce its decisions and fulfill its expectations.

We also used the compulsion of law directly to affect the allocation of resources; government took the responsibility of channelling the flow of assets in some key areas of the economy and employed a variety of compulsions to this end.³²

So it was that public policy responded to our abundance of land, timber, minerals, and waterpower. So it happened that legislation and the rise of banking helped to provide means of exchange, facilities for the mobilization of capital, opportunities for long-term investment and accommodations for the short-term needs of trade and seasonal agriculture. Similarly, when specie or bullion was found to be in short supply, our colonial legislatures intervened to produce paper money; and later the federal government turned to a bimetallic currency basis in order to relieve the shortage of gold.³³

At the beginning of this century, it became apparent to many Americans that our natural resources were seriously in jeopardy. They had been gobbled with particular voracity during the period 1870-1900, and they were being seized by special interests of all sorts. So Theodore Roosevelt brought his leadership and influence to the assistance of the conservation movement. More concretely, he used his presidential powers to triple the areas set aside as national forests and transferred them to the Department of Agriculture, where they were safe from commercial developers. He also withdrew large areas of mineral lands from availability to the private sector, kept water power sites under federal control, and required livestockmen to pay fees for use of the range and to provide funds for the protection and improvement of the public ranges. He prevailed upon Congress, moreover, to provide for the sale of mature stumpage as well as to use the income obtained for better forest management.³⁴

Teddy Roosevelt's success three-quarters of a century ago contains an object lesson for our present problem with diminishing resources. The lesson lies, in my opinion, not so much in choosing between weak government or big government, but in having concerned government—concerned and responsive government—willing to protect that national interest against the inevitable aggressions of private and commercial groups. The role of government must

change in response to our best-informed perception of national needs. As Paul Wallace Gates has pointed out,

The public lands have come to have different levels of interest for society as society has matured. At one time the government was concerned only with revenue and the public mainly with surface rights to good land for farms. Later it became important first to develop, then to conserve, the natural resources of the land in timber, minerals, oil, and water. Nowadays the land as living space and play space has taken on new values.³⁵

Americans have had a distinctive (and rather inconsistent) tradition of wanting federal help without federal regulation.³⁶ We have shown a certain parochialism, if not naïvete, about the relationship between ideological rhetoric and the realities of political economy. Perhaps there is a smidgeon of insight in that sardonic folk lexicon which attempts to define the spectrum of “isms” in these homely terms:

Socialism is when you have two cows, you give one to your neighbor.

Capitalism is when you have two cows, you sell one and buy a bull.

Communism is when you have two cows, the government takes both and gives you the milk.

Fascism is when you have two cows, the government takes both and sells you the milk.

Nazism is when you have two cows, the government takes both and shoots you.

New Dealism is when you have two cows, the government takes both, shoots one, milks the other, and then throws the milk away!

Ideological labels and “isms” make Americans uneasy because we have been conditioned for too long to think in terms of inflexible, doctrinaire stereotypes.

What complicates matters, for our purposes here, is that scarcity and abundance both have been blamed for giving

rise to identical problems and undesirable traditions. To Karl Marx, for example, the real source of evil in this world is scarcity because scarcity causes the competitive pursuit of private advantage.³⁷ Yet Tocqueville attributed the very same consequences to excessive prosperity, as I mentioned quite early in this essay.³⁸ For whatever it may be worth, I should also point out that we have in American thought no significant body of literature dealing with scarcity; yet we do have a persistent tradition of talking about the “perils of prosperity,” or, as one clergyman put it in 1785, *The Dangers of Our National Prosperity*.³⁹ We have understandably been more willing to cope with the corrosive effects of affluence upon our moral fiber than we have been to endure the strengthening asceticism of scarcity. Thus Sam Adams’s vision of the republic as a Christian Sparta following the American Revolution came to nought.

It has been extremely fashionable in this Bicentennial year to talk and write about the contradictions of capitalism; and that trend is all the more striking because the audible voices of criticism belong not only to liberals and moderates but to the so-called new conservatives as well as American Marxists and socialists.⁴⁰ So long as their analyses of our system are valid and perceptive, we can only benefit from such searching probes. It is important to maintain a bit of perspective, however, and keep in mind the massive contradictions that also beset the Soviet system and the Chinese, as well as the planned economies of such diverse nations as Peru, Yugoslavia, and Iraq.⁴¹

I find it more fruitful to think about solutions—and about their implications for the American tradition—in terms of proposals and remedies free from ideological labels and preconceived categories. Is the notion of a negative income tax un-American? Is it “left-wing” or “right-wing”? I do not know; but both John Kenneth Galbraith and Milton Friedman are for it, so it must not be *all* bad.⁴² We really ought to

be *at least* as willing to defy the prevailing conventional wisdom as our forefathers were. Back in the seventeenth and eighteenth centuries, when labor was scarce and land was abundant, they used land creatively in order to attract labor and to compensate for its shortage (by means of mingled livestock grazing on a commons, for example). In the eighteenth century, when unanticipated mobility defied the accepted notions of social status and order, they adjusted their sense of structure and, in the process, inadvertently became more egalitarian. During the nineteenth century Americans found still other ways to compensate for troublesome deficiencies. Raising corn, for instance, was a labor-saving, land-intensive form of agriculture. In industry, too, as H. J. Habakkuk has pointed out,

the lower rents for sites enabled New Englanders to economise in labour and capital in the construction of cotton-textile mills and also to build mills which enabled more effective use to be made of the textile workers and textile machines by allowing them more space. Similarly the American railways were built in ways which, in effect, substituted land for capital as contrasted with the English railways which were built with a disregard for natural obstacles, a disregard which increased their engineering cost.⁴³

Today our productive capacity seems to have raced ahead of commercial needs and consumer demands. Are we sufficiently flexible and resilient to envision new applications of our productive capacity for the public good?

I share President Enarson's belief in the art of planning, and I too prefer what he has called the Lewis and Clark model, "with its sense of adventure as it explores new frontiers."⁴⁴ I also believe in the necessity for greater cooperation: between business and government to some degree, but even more between various levels of government and between agencies of government at the same level. Samuel Hays has demonstrated the extent to which interdepartmental squabbling undercut the Progressive conservation

movement. The Ballinger-Pinchot controversy of 1909 was merely the most famous of those dangerous rivalries.⁴⁵ Given the fearful pollution of our environment, which Barry Commoner has described in his chapters on “Illinois Earth” and “Lake Erie Water,” we clearly need much closer cooperation between the Departments of Agriculture and Interior plus other pertinent agencies such as the National Science Foundation. Or, given the crisis of our inner cities, we must have greater co-operation and trust between the Departments of Health, Education, and Welfare, Housing and Urban Development, plus the National League of Cities.

Then there is the question of technology: how should it be utilized to minimize our scarcities, and how can it be used without adding to our environmental problems or undercutting the best in our social traditions? We have learned that

the first American conservation movement experimented with the application of the new technology to resource management. Requiring centralized and coordinated decisions, however, this procedure conflicted with American political institutions which drew their vitality from filling local needs. This conflict between the centralizing tendencies of effective economic organization and the decentralizing forces inherent in a multitude of geographical interests presented problems to challenge even the wisest statesman.⁴⁶

The scientists and conservationists of our Progressive Era admired technology and were eager to apply it to all the environmental problems they confronted. By contrast, Barry Commoner holds uncontrolled technology responsible for many of our most serious ecological dilemmas of the past thirty years. “The crucial link between pollution and profits,” he contends, “appears to be modern technology, which is both the main source of recent increases in productivity . . . and of recent assaults on the environment.”⁴⁷ Does this mean that the new conservation movement of the coming generation will inevitably have to be anti-technological? No, at least not entirely. Even Commoner, for instance, envi-

sions a massive pipeline that would return natural wastes from our cities to our farms rather than dumping them into lakes, rivers, and oceans. The solution to that important problem is going to require some very sophisticated but carefully controlled technology.⁴⁸

The whole issue of what to do with various kinds of so-called waste products now engages the attention of growing numbers of American scientists. Each year, for example, our cities dispose of 125 million tons in solid wastes that, according to the Ford Foundation's "Energy Conservation Papers," contain, in part, 800,000 tons of aluminum, 10.6 million tons of ferrous metals, and 400,000 tons of nonferrous metals such as copper. Research scientists are now developing the technology that may enable us to turn readable cellulose (i.e., your daily newspaper) into food and fuel; turn fish sawdust as well as the bones and flesh from fish fillets into processed food for human consumption; and turn the chitin from shrimp, lobster, and crab shells into a polymer that will bind and strengthen other chemical structures.⁴⁹

If technology can help us convert waste products into useful ones, then we will have reshaped the American tradition in a most important way. Winston Churchill, one of the most popular American novelists during the decades before World War I, published a best-seller in 1899 entitled *Richard Carvel*. It is all about a young man from Maryland, the coming of the Revolution and the character of John Paul Jones. In 1771 the hero, Richard Carvel, makes his first visit to Scotland, where he proclaims, "Here waste was sin: with us part and parcel of a creed." I think that Churchill was correct in saying that wastefulness has been an American way of life. That must change if we are to cope with the scarcities of our time. I believe that it is, very slowly, beginning to change.

Rachel Peden, the wise Midwestern farmwife whom I mentioned earlier, has written that "a farm is a place of

opportunity simultaneous with obligation.”⁵⁰ It seems to me that this is true of the nation as well, except that for most of our history we have thought much more in terms of our opportunities than of our obligations. We are going to have to restore a better balance or sense of proportion between the two.⁵¹

Insofar as we may need to adjust our accustomed standard of living by scaling it down somewhat, perhaps the geographical mobility that has been so characteristic of the American style may provide us with an opportunity to meet one of our new obligations. “It’s not easy to change your standard of living where you are,” said Alfred A. Knopf thirty years ago, “but if you have any inner resources, it’s a simple matter to adopt a different standard in entirely different surroundings.”⁵² It would be rather disorderly, I think, if we all upped and moved simultaneously; but it would be interesting—and probably a terrific boost for the economy!

One might assert that the most serious scarcity in our time—and one at the very core of that contemporary malaise so frequently mentioned—is a *scarcity of satisfactions*. We seem to be a dissatisfied society, and because that is a psychic grievance, it may very well be the most difficult of our current needs to remedy.⁵³ I feel certain that it has something to do with the increased amounts of leisure that most Americans now have, because we really do not have a tradition of using leisure either wisely or gracefully. Not in a society built upon the work ethic. In fact, the very idea of leisure was simply anathema to most Americans in the nineteenth century.⁵⁴

With increased life-spans, a 35-hour week, and remarkably long, paid vacations, many Americans now have an abundance of leisure. But I would not say that they *enjoy* an abundance of leisure because that is not yet demonstrably true. As we come to explore the impact of leisure upon the American tradition, however, we may very well want to

redefine what we mean when we allude to "the pursuit of happiness." Mrs. Peden points out that

time is something people take for granted, wish they had more of, complain they never have any of for themselves, and waste as if they had flowing wells of it in their back yards. Actually what makes time scarce or abundant is not so much the hour, as what the hour is leading into.⁵⁵

Well, the hour is growing late—both for us and, according to our leading environmentalists, for a nation that soils its own nest. The fulfillment of utopian visions in the United States has long been dependent upon the abundant availability of special resources. For Roger Williams and William Penn that meant new space in the wilderness to provide refuge for communitarian settlements. For the Founding Fathers in 1776, 1787, or 1800 the special resources were political creativity and physical isolation. Seeking to preserve the Union, Abraham Lincoln had industrial and demographic advantages. In the twentieth century T. R. and Wilson and F. D. R. had economic leverage and military power.

What are our utopian visions today? A healthy environment? Full employment? A high standard of living? Security for our persons and property? And what special resources do we have to fulfill them? Technological know-how; an extraordinary educational system and a high rate of literacy; a viable political system; and a free and vigorous press.

It is significant, I believe, that the underpinnings for our sense of national character and destiny have changed over the centuries. Throughout the colonial period, Protestant Christianity was of paramount importance as the coagulant of our social diversity. During the nineteenth century, expansion and spread-eagle nationalism served that role. Since then, perhaps, it has been our extraordinary affluence and standard of living. As the need to readjust our standard

and style of living emerges ever more clearly, it is not at all certain what will serve as our source of societal cohesion during the century ahead. Nevertheless, our uncertainty in this respect should be taken as a challenge, for as one friend has remarked of American history: "Not the 'manifestness' but the uncertainty of the national destiny was the great motive and emotive power of the national life."

For much too long, perhaps, the American sense of destiny—indeed, of being God's Chosen People—was contingent upon the land's abundance. Good harvests and happy business cycles were taken to mean that Providence had singled us out for special blessings.⁵⁶ The largesse of Nature's Nation has not really diminished (yet); but there are many more inhabitants of Nature's Nation in 1976 than there were in 1776 or even 1876. Therefore our destiny may ultimately depend not so much upon abundance, but upon our own resourcefulness in husbanding it. If we meet that challenge, then we may, like the Puritan founders quoting from Deuteronomy, hope to gaze upon "a land wherein thou shalt eat bread without scarceness, thou shalt not lack any thing in it."⁵⁷

Half a dozen colleagues have been kind enough to read this essay and share with me their critical responses and suggestions: Jane N. Garrett, Samuel P. Hays, Walter F. LaFeber, Peter McClelland, Richard Polenberg, and Elliott Rudwick. In thanking these good friends, I do not mean to taint them in any way for the flaws that remain; for I have not followed their advice in every instance—at my peril, to be sure. Nevertheless, I appreciate all their efforts to set me straight. I also wish to thank my hosts at Ohio State University, especially Professors Marvin Zahniser and Richard Snyder, for their hospitality and thoughtfulness during the delightful days of my visit: 17-19 October 1976.

1. In addressing the broadly formulated transition "from abundance to scarcity," one confronts the need for discrimination and distinctions—such as abundance of what for whom and relative scarcity for which groups in particular? During the fifty years following 1870, for example, annual growth of capital per unit of labor input reached an all-time high in United

States manufacturing. Output per man-hour doubled during the period 1870-1919, and that would seem to be a very solid indication of a dramatic rise in abundance. Yet during the same approximate period, the production-worker's share of the value of manufactures fell from 40.7% in 1899 to 36.5% in 1929—a decline that tells a somewhat different tale. See Gabriel Kolko, *Main Currents in Modern American History* (New York, 1976), pp. 163-64; Jeffrey G. Williamson, "American Prices and Urban Inequality Since 1820," *Journal of Economic History* 36 (June 1976): esp. figure 2 on p. 306, Twentieth-Century Urban Inequality Index, 1890-1948; Don R. Leet, "The Determinants of the Fertility Transition in Antebellum Ohio," *ibid.*, pp. 359-78; and the report sponsored by the United Nations concerning the economic relationships between rich and poor nations, discussed in the *New York Times*, 14 October, 1976, pp. 1, 14, and 15.

2. During the spring season, 1976, a splendid example of the "Peace and Plenty" pattern was exhibited at the Sterling and Francine Clark Art Institute in Williamstown, Massachusetts. This particular one is dated 1841 and belongs to John Gerhort of Pennsylvania.

3. George Inness, the nineteenth-century American artist, did two major paintings entitled "Peace and Plenty." The first (and perhaps most widely known of all his landscapes) was done in 1865 from studies he had made along the Charles River near Medfield, Massachusetts. A serene and majestic scene of pastoral bounty, it shows a field of ripe grain being harvested. The second, executed three years later, depicts tall oaks growing in sloping green meadows along the banks of a rivulet. A man and woman wander across one field, there are cattle grazing nearby, and sheep in the distance. See LeRoy Ireland, comp., *The Works of George Inness. An Illustrated Catalogue Raisonné* (Austin, Texas, 1965), pp. 78, 108, plates 311 and 437. See also the anonymous nineteenth-century watercolor, "Washington, Father of Our Country," in *Important Frakturs, Embroidered Pictures, Theorem Paintings and Other American Folk Art*, Sotheby Parke Bernet public auction catalogue #3692 (12 Nov. 1974), p. 6, plate 14.

4. Alexis de Tocqueville, *Democracy in America*, ed. J. P. Mayer (New York, 1966), p. 227.

5. *Ibid.*, pp. 279, 280, 281, 283, 285, 286.

6. *Ibid.*, p. 70.

7. *Ibid.*, pp. 383, 386-87. Cf. the occasional warnings, such as "There is danger of our falling fast asleep in the lap of prosperity" (*North American Review* 38 [1834]: 157), and that the United States was a nation "whose only curse is its prosperity" (*American Quarterly Review* 20 [1836]: 420).

8. Quoted in Henry Steele Commager, *America in Perspective: The United States through Foreign Eyes* (New York, 1948), p. xii.

9. Quoted in *Jacksonian Panorama*, ed. Edward Pessen (Indianapolis, 1976), p. 292.

10. Samuel G. Goodrich, *Peter Parley's Common School History* (Philadelphia, 1845), p. 288. Gabriel Kolko observes that "economic growth moved [American] manufacturing's economic heart from the Pittsburgh region to mid-Ohio between 1870 and 1920, and much farther west yet in the metal mining, coal, lumbering, and oil and gas industries, over-

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whelmed the ingenious capacities and capital of the primary economic centers" (*Main Currents in Modern American History*, p. 251).

11. For the quotations in this paragraph I am indebted to Perry Miller, "The Romantic Dilemma in American Nationalism and the Concept of Nature," in Miller, *Nature's Nation* (Cambridge, Mass., 1967), pp. 197-207. See also James Marston Fitch, *Architecture and the Esthetics of Plenty* (New York, 1961), frontispiece by Cole, "The Architect's Dream," and esp. chaps. 1 and 18.

12. Willard Hurst, *Law and the Conditions of Freedom in the Nineteenth-Century United States* (Madison, Wis., 1956), pp. 44, 99.

13. Henry George, *Progress and Poverty*, abridged ed. (New York, 1970), p. 5.

14. See Simon Patten, *The New Basis of Civilization* (New York, 1907), pp. 187-88.

15. See J. R. T. Hughes, *Social Control in the Colonial Economy* (Charlottesville, Va., 1976), parts 3 and 4. See also William R. Allen, "Scarcity and Order: The Hobbesian Problem and the Human Resolution," *Social Science Quarterly* 57 (September 1976): 263-75.

16. David M. Potter, *People of Plenty: Economic Abundance and the American Character* (Chicago, 1954), pp. 107-8.

17. Quoted in J. E. Crowley, *This Sheba, Self: The Conceptualization of Economic Life in Eighteenth-Century America* (Baltimore, 1974), p. 43. See also Edmund S. Morgan, "The Labor Problem at Jamestown, 1607-18," *American Historical Review* 76 (June 1971): 595-611.

18. [Benjamin Martyn], "Reasons for Establishing the Colony of Georgia, with Regard to the Trade of Great Britain" (1733), in *Collections of the Georgia Historical Society* 1(1890): 231. See also Aubrey C. Land, "The Tobacco Staple and the Planter's Problems: Technology, Labor, and Crops," *Agricultural History* 43 (January 1969): 69-81.

19. See H. J. Habakkuk, *American and British Technology in the Nineteenth Century: The Search for Labour-Saving Inventions* (Cambridge, Eng., 1962), esp. chap. 3, "The Economic Effects of Labour-Scarcity." The quotation is from p. 46. Cf. Paul David, *Technical Choice, Innovation and Economic Growth: Essays on American and British Experience in the Nineteenth Century* (Cambridge, Eng., 1975), chap. 1, "Labor Scarcity and the Problem of Technological Practice and Progress in Nineteenth-Century America," pp. 19-91; and Peter Temin, "Labor Scarcity in America," *Journal of Interdisciplinary History* 1 (Winter 1971); 251-64. The issues involved in this controversy are very complex, but they seem to hinge upon two related questions: (1) whether labor scarcity in manufacturing resulted from labor scarcity in agriculture, and (2) whether American industrial efficiency resulted from labor scarcity in the manufacturing sector.

20. The date is 1768. Quoted from Crowley, *This Sheba, Self*, p. 141.

21. See Robert A. Gross, *The Minutemen and Their World* (New York, 1976), chap. 4, "A World of Scarcity"; Kenneth A. Lockridge, "Land, Population and the Evolution of New England Society, 1630-1790," *Past and Present*, No. 39 (April 1968), pp. 62-80.

22. Henry Conklin, *Through "Poverty's Vale": A Hardscrabble Boyhood in Upstate New York, 1832-1862*, ed. Wendell Tripp (Syracuse, 1974), pp. 47, 49.

23. Rachel Peden, *Speak to the Earth. Pages from a Farmwife's Journal* (New York, 1974), p. 27.

24. *Ibid.*, p. 21.

25. See Robert Beverley, *The History and Present State of Virginia*, ed. Louis B. Wright (Chapel Hill, N.C., 1947), p. 295; Richard Bridgman, "Jefferson's Farmer before Jefferson," *American Quarterly* 14 (Winter 1962): 567-77 (the 1758 quotation will be found on p. 572); David Bertelson, *The Lazy South* (New York, 1967), especially chaps. 4 and 5.

26. Barry Commoner, *The Closing Circle: Nature, Man, and Technology* (New York, 1971), pp. 149-50.

27. *New York Times*, 14 August, 1975, p. 42.

28. Commoner, *The Closing Circle*, pp. 82-83, 92-93, 149.

29. One is reminded of Edmund Burke's observation, made in *Thoughts and Details on Scarcity* (1795): "And having looked to Government for bread, on the very first scarcity they will turn and bite the hand that fed them."

30. Potter, *People of Plenty*, pp. 123-24. See also Otis L. Graham, Jr., *Toward a Planned Society: From Roosevelt to Nixon* (New York, 1976).

31. Hurst, *Law and the Conditions of Freedom*, pp. 7, 17. In support of my position, see Gus Tyler, *Scarcity: A Critique of the American Economy* (New York, 1976), esp. pp. 212-13, 238.

32. Hurst, *Law and the Conditions of Freedom*, pp. 52-53, 57, 66.

33. See Richard Hofstadter, "Free Silver and the Mind of 'Coin' Harvey," in *The Paranoid Style in American Politics and Other Essays* (New York, 1965), pp. 238-315.

34. See Paul W. Gates, "Public Land Issues in the United States," *Western Historical Quarterly* 2 (Oct. 1971): 372-74; see also Gates, *History of Public Land Law Development* (Washington, D.C., 1968).

35. Gates, "Public Land Issues in the United States," p. 376.

36. For interesting commentary on this ambivalence, see Wallace Stegner, *The Uneasy Chair: A Biography of Bernard De Voto* (Garden City, N.Y., 1974), p. 303; and Marcus Cunliffe, *The Right to Property: A Theme in American History* (Leicester, Eng., 1974), p. 14.

37. See Daniel Bell, *The Cultural Contradictions of Capitalism* (New York, 1976), p. 254.

38. See note 7 above.

39. See Crowley, *This Sheba, Self*, pp. 94, 97, 152, 157; Fred Somkin, *Unquiet Eagle: Memory and Desire in the Idea of American Freedom, 1815-1860* (Ithaca, 1967), chap. 1, "Prosperity the Riddle."

40. In addition to Daniel Bell, cited in note 37 above, see Michael Harrington, *The Twilight of Capitalism* (New York, 1976); Samuel Bowles and Herbert Gintis, *Schooling in Capitalist America: Educational Reform and the Contradictions of Economic Life* (New York, 1976); Robert L. Heil-

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broner, *Business Civilization in Decline* (New York, 1976); Barry Commoner, *The Poverty of Power: Energy and the Economic Crisis* (New York, 1976); and Forrest McDonald, *The Phaeton Ride: The Crisis of American Success* (New York, 1974).

41. See Marshall I. Goldman, "Growth and Environmental Problems of Noncapitalist Nations," *Challenge*, July-August 1973, pp. 45-51.

42. Cf. Lester C. Thurow, "Tax Wealth, Not Income," *New York Times Magazine*, 11 April, 1976, pp. 32-33, 102-105.

43. Habakkuk, *American and British Technology in the Nineteenth Century*, pp. 32-33.

44. Harold L. Enarson, "The Art of Planning, or Watching You Get It All Together," *New York Times*, 4 October, 1975, p. 27.

45. Samuel P. Hays, *Conservation and the Gospel of Efficiency: The Progressive Conservation Movement, 1890-1920*, 2nd ed. (New York, 1969), pp. 165-74.

46. *Ibid.*, p. 275.

47. Commoner, *The Closing Circle*, pp. 267-68. For Commoner's critique of technology, see pp. 80, 129, 140-77, 189.

48. See, for example, K. Ross Toole, *The Rape of the Great Plains: Northwest America, Cattle, and Coal* (Boston, 1976); Norris Hundley, Jr., *Water and the West: The Colorado River Compact and the Politics of Water in the American West* (Berkeley, Calif., 1975); and Donald E. Green, *Land of the Underground Rain: Irrigation on the Texas High Plains, 1910-1970* (Austin, Tex., 1973).

49. Patti Hagan, "U.S. Is Trying to Do a Lot with What It Wastes," *New York Times*, 21 September 1975; A. G. Chynoweth, "Materials Conservation: A Technologist's Viewpoint," *Challenge*, January-February 1976, pp. 37-40; Tyler, *Scarcity*, pp. 227-28, 230-31.

50. *Speak to the Earth*, p. 5.

51. See Stephen G. Salkever, "Virtue, Obligation, and Politics," *American Political Science Review* 68 (March 1974): 78-92.

52. Quoted in Geoffrey T. Hellman, *AAK: A Profile* (New York, 1952), p. 32.

53. In exploring more fully the notion of a "scarcity of satisfactions" in American society, two provocative essays by Kenneth E. Boulding might be found useful: "Toward the Development of a Cultural Economics," in Louis Schneider and Charles M. Bonjean, eds., *The Idea of Culture in the Social Sciences* (Cambridge, Eng., 1973), pp. 47-64; and "Economics as a Moral Science," *American Economic Review* 59 (March 1969): 1-12. On page 4 of the latter essay, Boulding observes that "economics specializes in the study of that part of the total social system which is organized through exchange and which deals with exchangeables. This to my mind is a better definition of economics than those which define it as relating to scarcity or allocation, for the allocation of scarce resources is a universal problem which applies to political decisions and political structures through coercion, threat, and even to love and community, just as it does to exchange."

54. For comments upon the American inability (or unwillingness) to play, written by a nineteenth-century medical observer, see S. Weir Mitchell, *Wear and Tear, or, Hints for the Overworked* (first pub. 1871; 8th ed., Philadelphia, 1897). See also Henry Cabot Lodge, "Uses and Responsibilities of Leisure," address given at Harvard College, 23 March 1886, in Thomas B. Reed, ed., *Modern Eloquence* (Philadelphia, 1900), 8:777-85; and William R. Taylor, *Cavalier and Yankee: The Old South and American National Character*, Anchor Books ed. (New York, 1963), pp. 113-14.

55. *Speak to the Earth*, pp. 40-41. See also David M. Potter, "Leisure: The Economic Aftermath," in *Challenge: The Magazine of Economic Affairs* 4 (December 1955): 42-46; and Alasdair Clayre, *Work and Play: Ideas and Experience of Work and Leisure* (New York, 1974).

56. See Perry Miller, *The New England Mind from Colony to Province* (Cambridge, Mass., 1953), p. 190.

57. Deuteronomy 8:8-9.

Growth, Affluence, and the Limits of Futurology

We are engaged here in an exercise in futurology, to discuss the consequences for the United States and the world of a change in the evaluation of the prospects for continued economic growth. This conference is, in large measure, a result of the emergence of neo-Malthusianism in the world. Some economists and other social analysts have concluded that the pattern of steady growth that characterized the Western world since the Industrial Revolution began must come to an end. It is also assumed that the dreams or aspirations underlying the efforts of less-developed countries to dramatically increase their productive systems are utopian. They cannot aspire to become wealthy industrialized societies. The underlying assumptions for these pessimistic conclusions are fairly simple. The neo-Malthusians point to the considerable increase in population of the world, one that will continue to the point where we will inevitably have many more billions than we now have. Secondly, they note that the resources that have sustained industrial development in the west, particularly those that have contributed energy and raw materials for industry and transportation, are not inexhaustible. The best known version of this view is contained in the report from the Club of Rome, *Limits to Growth*.¹

Western industrialized countries, the principal claimants for such materials until recently, absorb an inordinate proportion of them. Immediately after World War II, it was estimated that the 6 percent of the world's population living in the United States consumed about 50 percent of the raw materials used for industrial purposes. With the postwar

growth of other Western economies and also demands from less-developed countries, the proportion of an increased world supply now used by the United States is one-third. In any case, the developed countries of North America, Europe, Japan, and Australasia clearly consume considerably more than half of these resources, but they have less than a quarter of the world's population. Beyond these two main structural considerations, some advocate the cessation of growth in the foreseeable future because of value judgments which insist that growth has brought with it various negative or dysfunctional consequences for humankind. These negative effects lie in the area of ecology. Industrial growth has dirtied the world in a variety of ways that make conditions of life less good, or less healthful, and in social relations, the ways in which the pace of life in a large-scale industrial society is highly competitive, ultramaterialistic, and bureaucratic. The critics argue that the advanced industrial societies have produced not human happiness but rather a variety of social and psychological and biological morbidities. Thus it is argued on one hand that growth will have to stop because of the changing ratio of available resources to the population, and that it should stop because it produces a bad world. I shall not attempt to further elaborate the arguments of those who anticipate or favor an end to growth, since I assume that one of the contributors to this volume, Kenneth Boulding, will have done this in his essay.

These pessimistic views are countered by other economists and social thinkers who believe that a Malthusian perspective today is as erroneous as it was when Malthus first contended that the inevitable growth in population would prevent an increase in wealth. The counter-view holds that much as Malthus underestimated the resources that could be located and the inventive ingenuity of the human race, his contemporary disciples make the same error.

The most optimistic version of this position has been argued by the deputy editor of the *Economist*, Norman Macrae, one that is about as diametrically opposite to the views assumed by the report of the Club of Rome as is conceivable. He anticipated in 1972 that within the next eighty years, the poorer "two-thirds of mankind should be raised from intolerable indigence to something better than the comfortable affluence which the other one-third of us already enjoy." In fact, he contends that much of the needed increase in the less-developed countries will occur by 2012. Among other reasons for such optimism is his belief that scientific knowledge and technological development have been proceeding exponentially and that continuing even more rapid advances will solve the limits and pollution problems.² He suggests that it is

probable that during at least our children's lifetimes the eventual breakthrough to widespread and intelligent use of computers will add totally new dimensions to all of man's traditional powers of deduction and induction and serendipity . . . that this will drive human invention and innovation through a growing ability to put together matter molecule by molecule, through extraordinary new abilities to control natural phenomena (the weather, drawing all the energy we need from the fusion process that will utilize the waters of the oceans as their limitless reservoir of fuel). . . .³

Macrae's views have been reiterated recently by the editors of the *Economist* writing collectively. They suggest that the factors that helped contradict Malthus's predictions in Britain, namely, a combination of clean water, better diets, and greater self-help and dignity, are emerging in the less-developed world today. They argue that "there is now a world-wide movement towards Chadwickian sanitary reforms" that promises to produce "supplies of clean water all over the earth by 1990." "There is a hope for green revolutions; [and] the building of a foundation of Third World

self-help." Birth control drives in various Third World countries will end "the people explosion. And man will find the natural resources he needs—abundantly available."⁴

An equally optimistic view is contained in a recent book, *The Next 200 Years*, written by Herman Kahn, William Brown, and Leon Martel of the Hudson Institute. Their thesis "can be summarized with the general statement that 200 years ago almost everywhere human beings were comparatively few, poor, and at the mercy of the forces of nature, and 200 years from now, we expect, almost everywhere they will be numerous, rich, and in control of the forces of nature."

This optimistic scenario notes that in 1776 there were 750 million people in the world and a \$150 billion gross world product, which came to \$200 per capita in fixed 1975 dollars. In 1976 there were 4.1 billion people, a \$5.5 trillion gross world product, or \$1,300 per capita income. One hundred years from now at the time of the American tricentennial, their prognosis is for a world of 15 billion people, with \$300 trillion in gross world product, or a \$20,000 per capita income in fixed 1975 dollars. They assume further that at the time of the tricentennial there will have been a leveling-off tendency with respect to population growth.⁵

The Next 200 Years points to a number of factors that make this scenario plausible. These include evidence that the birthrates are declining in many less-developed countries, and that a variety of population experts agree that the maximum rate of growth will soon be reached. Kahn et al. point to the fact that those who are pessimistic about the potentiality for growth in less-developed countries have been wrong, since the UN's original goal for the decade of development of 5 percent growth has been not only met but considerably exceeded. Further, they agree with Macrae that long-term energy prospects are good, that these rest in fact on "sources that are inexhaustible." Sources of raw materials are great and are continuing to grow, e.g., there are

various sources such as ocean nodules that will in fact increase the supplies of many materials needed by industry. As the world moves to post-industrial economies, it will become increasingly less dependent on many metals. Recycling as an economic factor has only begun to play a role, but will contribute much to the raw material potential in the future. Kahn et al. also argue that the anxiety about the availability of food to feed whatever size population of the world comes into existence is much exaggerated, that at the moment the problem is not production but inadequate distribution systems. This clearly can be remedied. In addition, agricultural technology can increase food production enormously in countries which today are not food surplus countries.

Herman Kahn is, of course, known for having exorbitant ideas and for allowing his chronic optimism to perhaps outweigh pessimistic facts. He himself has noted that he always chooses the optimistic side in commenting on differences he has had with colleagues. It should be noted, therefore, that views such as those expressed by Macrae and Kahn are not idiosyncratic curious ones. Similar views have also been advanced by a number of major economists. Thus, William Nordhaus and James Tobin of Yale in a well-known article "Is Growth Obsolete?" deny that "the problem of natural resources becomes an increasingly severe drag on economic growth." In fact, they suggest that "the opposite appears to be more likely."⁶ They also stress that technological innovation has always taken care of the need to shift from one set of materials to another, that market processes lead to developments that fill needs. They say that the "nightmare of a day of reckoning in economic collapse when, for example, all fossil fuels are forever gone seems to be based on a failure to recognize the existing and future possibilities of substitute materials and processes. As the day of reckoning approaches, fuel prices will provide—as they do not now—

strong incentives for such substitutions, as well as for the conservation of remaining supplies.”⁷ They draw optimistic conclusions about the possibilities for approaching zero population growth on a world scale from past experience of developed countries, more particularly the United States.⁸

Similar conclusions are reached in a number of articles by economists and others in the fall 1973 issue of *Daedalus*, on “The No Growth Society.” These disagree on technical as well as value grounds with the pessimistic predictions. Some of the authors agree with Nordhaus and Tobin that zero population growth (ZPG) does not mean zero economic growth (ZEG). Harvard economist Richard Zeckhauser concludes that “growth is not pernicious but desirable.”⁹ He counters the thesis of exhaustible resources with the argument that as one type of resource becomes limited in availability a changing price structure results in substitutions becoming available. This occurred in the past and there is no reason to anticipate that it will not happen in the future. He argues in detail that the contentions by critics of growth that growth inevitably produces various negative social and environmental consequences are not documented, and in any case that many of the existing dysfunctional effects can be eliminated.

Kenneth Boulding, who agrees with the no-growth advocates that in the long run the “present process of expansion” cannot go on, that there are a limited amount of resources on “spaceship earth,” nevertheless seems to project the time in which expansion must stop into the somewhat distant future from the point of view of the present inhabitants of the planet. He notes, as have others, that “the dramatic decline of fertility in the whole temperate zone has already made [Club of Rome] projections obsolete.”¹⁰

More recently, a new survey dealing with “World Population Trends” by Lester Brown, issued in October 1976, reports that worldwide “the rate of growth has slowed so

dramatically over the past five years that a long-predicted doubling of the population may not occur." Brown stated: "I would not be surprised if the world population never again doubled." The worldwide population growth rate dropped from 1.9 percent to 1.64 between 1970 and 1975, the first such decline in world history. In the most populous country, China, the birthrate declined sharply from 32 to 19 births per thousand people.¹¹

On 13 October 1976 an international group of economists headed by Nobel Laureate, Wassily Leontief, who had been commissioned by the United Nations Department of Economic and Social Affairs to investigate the problems of growth, reported after three years of research that "world resources will be sufficient to support a growing population and higher living standards, without inevitable environmental damage." The existing limits to growth, according to them, are not scarce resources, but political and institutional deficiencies. They call for accelerated rates of development in the less-developed countries.¹²

These disagreements among eminent economists and social scientists concerning the constraints or lack of constraints that affect the potential for growth and increased affluence on a national as well as on a world scale are, of course, not unique to the current discussion. They clearly point up the need for further research to test the validity of the different assumptions made by advocates on each side. It is not likely, however, that this debate will be resolved in the foreseeable future by more data, better theory, or more sophisticated arguments.¹³

The Limits to Futurology and Social Science Analysis

The controversies about the limits to growth point up once again the difficulties involved in efforts at futurology, for it seems clear that social scientists can explain only a small

part of the variance involved in dealing with the major societal or worldwide issues that concern them. To a considerable degree, scholars like other people tend to react to what are often short-term changes in mood defining the major problems that require analysis and understanding. Many changes, initially perceived as secular structural ones, occur in waves that ebb and flow, though not necessarily in any kind of regular cycle.

Rudolf Klein has noted that the dominant concerns of the young field of futurology itself have changed dramatically. "Indeed, just to glance at some recent products is to realize how quickly intellectual fashions now oscillate: man's future (if one is to believe the professional social prophets) is changing almost on a year to year basis." In the 1960s futurologists were concerned with the ways to secure growth, with the negative implications of automation, with the problems of nuclear destruction.

Now, five years later, it appears that the world's long-term future has suddenly changed. We no longer live under the shadow of nuclear war. We are no longer faced by the threat of enforced idleness brought on by automation. We are no longer faced by the danger of domination by an all-knowing because all-computerized bureaucracy or by a military-industrial elite (to quote some other prophetic visions of the past). Instead we are told that we are living in the shadow of an overpopulated, overexploited, overproducing and overconsuming world.¹⁴

Social scientists, working on more specialized topics, cannot boast of a better record. Our standard operative procedure seems to be to account for a current trend, or current definition of the mess that we are in, by looking for other concomitant structural trends. Since the structural tendencies associated with the trend we are trying to explain or find solutions for generally continue, while more often than not the trend or problem that concerns us disappears or ebbs away, much of our interpretive analysis turns out to be

inadequate. This can be seen by looking back at some of the kinds of analyses and predictions made by social scientists and economists over the past three decades, that is, since World War II. An examination of this record suggests that we should be exceedingly modest about using our status as experts to draw conclusions that call for major policy changes. I would like to briefly mention some of these.

The first misprediction is the depression that never arrived. As we all know, the Great Depression of the 1930s was not ended by the natural play of economic forces, or, in most countries, by deliberate government action. Rather, mass unemployment and low prices were eliminated by World War II. Many economists generally assumed, therefore, that once the war ended large-scale unemployment would reoccur, particularly in those industries and areas that had concentrated heavily on defense work.

Scholars were so certain of this development that a number of research projects were planned that involved studying the impact of unemployment on people who had been employed during the war. Detailed interviews were made with people whose jobs were certain to disappear with the end of the war. The call by Henry Wallace and others for government planning to guarantee 60 million jobs was dismissed as utopian. In fact, as we know, there was no postwar depression of any major consequence. The developed world has sustained three decades of relatively high levels of employment. The varying recessions have resulted in lower rates of unemployment than some prewar levels, such as the 1920s, that had been considered as periods of prosperity.

It is now almost forgotten that continued depression-consciousness in the late 1950s and early 1960s led to many economists' paying considerable attention to finding ways to speed up growth both within the United States and on a world scale. As Henry Wallich has noted:

There can be little doubt that, particularly following the re-

cession of 1957-1958, economists began to go overboard in their glorification of growth. In part this was a political response to the slow growth of the late 1950s, in part a reflection of the impact of Sputnik. The interest of less-developed countries in catching up helped to cast growth in the role of an all-absorbing goal at that time.¹⁵

Economists, on the whole, also failed to anticipate the change in the relationship between unemployment and inflation. It had always been assumed that inflation was negatively related with increases in unemployment. This assumption has not held up for various periods in the postwar epoch, particularly the recession of the seventies, from which we are just emerging.

Norman Macrae has also pointed to the inadequacies of economic forecasts. He notes:

Over the first 20 postwar years, a majority of important decision-influencing people at one time or another forecast coming famines in six main particular products. The world then progressively created unsaleable and unprofitable surpluses in every one of them: temperate foodstuffs after 1947, raw materials after 1951, "manufactured goods that could conceivably ever be sold to the United States and bridge the dollar gap" after about 1954, fuels (especially coal after 1945, and oil after Suez), orthodoxly trained university students (especially in the science faculties) after 1960.¹⁶

It is with good reason that Robert Heilbroner has emphasized the difficulties faced by economists in predicting the future of a national economy, saying that "it may be that this is less possible than it was, because the economy itself now is so much more a creature of decision making, and so much less the outcome of sheer interplay of impersonal forces, that prediction becomes inherently more difficult."¹⁷

Wassily Leontief is even more pessimistic about the ability of economics to formulate generalizations that withstand change. As he put it in his presidential address to the American Economic Association in 1971:

In contrast to most physical sciences, we study a system that is not only exceedingly complex but also in a state of constant flux. I have in mind not the obvious changes in the variables . . . that our equations are supposed to explain, but the basic structural relationships described by the form and the parameters of these equations. In order to know what the shape of the structural relationships actually are at any given time, we have to keep them under continuous surveillance.¹⁸

In citing these problems of economic analysis, I am not suggesting that economics is not able to explain or to understand what has happened since 1945. Economists, like the rest of us, are good historians, that is, they are able to find the factors that explain and retrospectively predict what occurred. Somehow, however, they have not been very good forecasters.

Demography, a border-line discipline falling between sociology and economics, also can not boast of its record. Extrapolating from the history of Western countries, demographers formulated the "theory of the demographic transition," which projected a steady decline in the rate of population growth in advanced societies characterized by "the achievement of general literacy, urbanization, and industrialization" and the diffusion of knowledge of birth control methods. But as Dudley Kirk noted in the mid-1960s, the theory seemed to break down about World War II.

It is ironic that demographers developed the techniques for projecting certain long-standing trends in the components of population growth, especially in natality, just at a time when these trends were about to dissolve. New attitudes favoring earlier marriage and more children appeared in the very societies where the great majority of families had been practicing birth control. The recovery of the birthrate in Western countries just before, during, and especially after World War II violated the projection of previous trends and those formulations of the demographic transition that considered western countries to be approaching a stationary or declining population.¹⁹

As we all know, this period did not last either. Kenneth Boulding concludes that

fertility seems to be subject to quite unpredictable shifts. Thus, in the United States we had a period of high fertility (1947-1961) which was quite unpredicted, now we are in a phase of low fertility which was equally unpredicted. It would be a rash prophet, however, who would assert that there could not be an equally unexpected rise in the future, or even a further unexpected drop, to the point where one country or another would exhibit the "fertility shock" which Rumania went into in 1969, when, apparently, it suddenly hit the Rumanian government that Rumanians might simply die out.²⁰

The same concern has recently been voiced in Australia, which has reached the zero population growth level. The slogan "populate or perish" has been revived as students of demographic trends warn Australians that "they may be a dying race."²¹

Economists and demographers, of course, do not have the worst record. Other social scientists are equally inefficient. Problems anticipated by a considerable amount of social science literature that society would face in reabsorbing the veterans of World War II for the most part simply did not occur, either on the level of collective or of individual behavior. The sociological literature of the 1950s addressed itself in some part to explaining what seemed to be major basic changes in the American national character. Those who agreed that the conservative fifties reflected increased secular pressures for conformism in American society range in political point of view from Erich Fromm and C. Wright Mills to William White and David Riesman. They sought to explain structurally the increased prevalence of other-directed or market-oriented personalities, which had replaced the once dominant inner-directed or producer-oriented types. The change was related to the shift from an economy of small producers, a labor force a major segment of

which was self-employed in agriculture or business, to one in which the large majority worked within large-scale bureaucracies. The analysts suggested that the latter environment tended to produce conformists, for people within bureaucracies advance by selling themselves, by impressing superiors and colleagues. In the earlier society people succeeded by working hard and intensively, with much less concern for the opinions of others. The logically predictable conformist decade of the fifties was followed, as we know, by the non-conformism of the late sixties and early seventies. Yet, the structural environment, the trends that allegedly produced conformist trends, were present in a more intensive fashion in the late 1960s.

Sociologists also erred in their anticipations about the class structure of American society. Leftist students of stratification such as Robert Lynd and C. Wright Mills and conservative sociologists such as August Hollingshead and W. Lloyd Warner suggested that the high level of social mobility, which characterized American society, was a consequence of economic growth and geographical expansion, trends that could not continue indefinitely. The growth of large-scale corporations, the decline in self-employment, were also logically expected to reduce opportunity. Many anticipated the emergence of hard, fixed class lines and conflict as a result. Such anticipations also turned out to be erroneous. What the experts failed to evaluate properly was the change in the occupational structure. The proportion of lowly, unskilled positions has steadily declined—it is now under 10 percent, while middle- and upper-level jobs, requiring more education, have increased. Where we once had a pyramidal structure with many menial jobs at the bottom, we now have shifted to a diamond-shaped one, which bulges at the middle. Social mobility on a mass level remains as high or higher than ever.

The analysts of stratification also failed to anticipate that the combination of rapid expansion of higher education facilities, which permits persons from relatively deprived backgrounds to go to universities, and the end of the family business and the concomitant growth of large-scale corporate bureaucracies, together with the increase in government, would create new possibilities for the lowly to rise within the corporate ladder of industry and the bureaucratic hierarchy of government. A much larger proportion of the heads of major companies now come from poor social origins than ever before in American history.²²

As a result of these developments, there appears to be less rather than more emphasis on status (family class) background, and more social egalitarianism. The technological revolution—computerization, increased automation—has reduced the proportion in the lower class. Increased mechanization has led to greater equality. Comparable structural trends may be noted throughout the developed world.

The most striking example of a generalized failure of sociologists to anticipate developments may be found in the area of ethnicity. Until recently, Marxist and non-Marxist scholars agreed on a standardized set of generalizations about ethnic and national minorities. These assumed that ethnicity reflected the conditions of traditional society, in which people live in small communities isolated from one another, in which mass communications and transportation were limited. Most scholars anticipated that industrialization, urbanization and the mass spread of education would operate to reduce ethnic consciousness, that universalism would replace particularism. Marxists were certain that socialism would mean the end of ethnic tension and consciousness on the levels that existed in pre-socialist societies. Non-Marxist sociologists in Western countries assumed that the processes of industrialization and moderni-

zation would do the same. Assimilation by minorities into a large integrated whole was viewed as the inevitable future. As two scholars of the subject, Nathan Glazer and Daniel P. Moynihan note, it was generally believed that "divisions of culture, religions, language," and race

would inevitably lose their weight and sharpness in modern and modernizing societies, that there would be increasing emphasis on achievement rather than ascription, that common systems of education and communication would level differences, that nationally uniform economic and political systems would have the same effect. Under these circumstances the "primordial" (or in any case antecedent) differences between groups would be expected to become of lesser significance. The "liberal expectancy" flows into the "radical expectancy"—that class circumstances would become the main line of division between people, erasing the earlier lines of tribe, language, religion, national origin, and that thereafter these class divisions would themselves, after revolution, disappear. Thus Karl Marx and his followers reacted with impatience to the heritage of the past, as they saw it, in the form of ethnic attachments.²³

As we all know, the opposite has occurred, both in the Western and communist worlds, and in the less-developed world as well. The Achilles heel of communism has turned out to be nationalism, not only the consciousness of Poles and Czechs vis-à-vis the Soviet Union, but of the various national groupings within Yugoslavia and the Soviet Union as well. At a private dinner meeting two years ago, Anthony Crosland, minister of foreign affairs in Great Britain, when asked his view of the major problems facing the United Kingdom in the next ten years replied that it was whether there would be any United Kingdom. He felt that there is only a 50-50 chance that Scotland would still be part of the United Kingdom a decade hence. Most of the other multilingual, binational or bi-religious states that have persisted for many decades, if not centuries, have faced turmoil in recent years. Canada, Belgium, Malaysia, and Lebanon all face

crises of national existence in which minorities press for autonomy if not independence. Pakistan and Cyprus have divided. Nigeria suppressed an ethnic rebellion. In the classic Swiss case, tension has risen within multilinguistic cantons. France faces difficulties with its Basques, Bretons, and Corsicans. In Spain, Basques and Catalans demand linguistic rights and greater autonomy.

In seeking to explain, after the fact, the disintegration of previously united societies, some social scientists have in characteristic fashion inverted the causal process, that is, they identify the processes that once were supposed to be leading to a decline in differences as the cause of their increase. As Eugene Skolnikoff notes:

The old belief that growing *interdependence* among nations would breed at least a sense of common purpose, and more hopefully a genuine community of values, has proven a weak reed at best. Unexpectedly rapid growth in the relations and dependencies across national borders has not reduced strife but rather has sharpened divisions and distinctions. Much of the change can be traced to the more rapid development and application of technology than was or could have been predicted, a phenomenon that still appears to be accelerating. Increased openness and interconnectedness had led to new areas of dispute, breakdown of concerns within nations.²⁴

Sociological generalizations about the necessary functional requirements for the stability of family relationships that supposedly affected relationships between men and women also have turned out to be contradicted by developments. One may find many references, including in my own writings, to the proposition that sex cannot be a source of major political difference, that the members of the same family unit must have similar social-political attitudes. Role differentiation between men and women, husbands and wives, fathers and mothers, was perceived as fulfilling functional needs. Affective, that is emotional, relationships and instrumental ones were seen as being dealt with by different

sexes because they could not be handled well by the same persons. Biological sex differences led to sex being used as a way of differentiating roles within families and societies. Once again, the events of recent years require some serious modification of these standard assumptions and predictions.

Political analysis is in no better shape. During the early 1950s in the United States, I was one of a group of scholars who attempted to explain the phenomenon of McCarthyism.²⁵ Most of us linked it to the tensions of a prosperous society that produced heightened status concerns and anxieties, increased competition among groups and individuals who were rising or falling in status. Status politics, rather than class politics, seemingly characterized such periods. The underlying trends that supposedly produced increased status tensions have continued, but McCarthyism disappeared with the end of the Korean War. There are, of course, other continuing forms of group tension, such as the rise of white racist movements, that may be properly linked to status threats. It is clear, however, that the broad predictive power of the theory of status politics is nowhere near as strong as suggested in the early fifties.²⁶

The post-McCarthy era found many people analyzing "the end of ideology," or, as in my own case, the "decline."²⁷ The reduction in ideological tensions within advanced industrial societies was related in large measure to growing affluence, to the incorporation of previously excluded strata into the body politic, to the spread of education, and to the seeming reduction of many of the extreme morbidities of industrial society through the institutionalization of the planning and welfare state. Although many of the analysts of the end of ideology excluded intellectuals and young people from their generalizations about the decline of ideology, it is largely true that few anticipated the emergence of the forms of protest that have characterized the growth of the New Left

and minority movements in the late sixties and early seventies.

The New Left and the New Politics of the sixties and seventies, which drew their strength heavily from the universities and from the ranks of the intelligentsia, the educated professional strata, were in turn subjected to scholarly analysis. In this country and elsewhere the student revolt was explained in part by changes in the situation of the students, particularly within the university. It was argued that the growth of large massive bureaucratic universities, of a mass student and faculty population, all made the experience of being a student much less pleasant, and offered less prospects for the future, than ever before. The Berkeley Revolt and its successors were seen in some considerable degree to reflect a protest against bureaucracy and impersonality, and the pressures on students to prepare for materialistic careers.²⁸ The mid-seventies, however, are characterized by a "calm," a period of political quiescence on campus, although the structural conditions that supposedly produced student protest still continue and, if anything, have intensified. Pressures on students to conform to educational authority, to devote their education to preparing themselves for a niche in the economy, are stronger than ever.

A leading political scientist, Gabriel Almond, after citing comparable analytic failures, notes that the "inherent weakness and softness of social regularities leads to equally weak and soft social theories. . . . Because the regularities are subject both to drift and sudden changes, the theories based upon them can quickly become obsolete. That this has been the case in political science is clear."²⁹

Some who adhere to Marxism or other revolutionary doctrines may react to this brief survey of the inadequacy of social science analysis by concluding that it demonstrates the failure of bourgeois or non-radical social science. But if one looks at Marxism, it is certainly in no better shape.

Marxist economists and sociologists made comparable errors to the non-Marxists in evaluating economic developments, ethnicity, and the prospects for political tensions in Western industrialized societies. A major figure in radical sociology, Alvin Gouldner, has pointed out that the record of "academic sociology" has been superior to that of the Marxists in anticipating various recent changes, that the non-Marxists were more sensitive than the Marxists.³⁰ Marxist economists have been repeatedly disconfirmed in their anticipations of economic breakdown in the West and of lack of growth in less-developed societies.

On a broader scale, however, it may be said that Marxism's major assumptions and predictions about the transition to socialism bear little or no relationship to actual developments. Capitalism's progressive role, according to Marxist theory, has been to create a level of production that would enable people to live in genuine freedom for the first time in history, that would permit everyone to have enough and thus make possible a much more egalitarian, if not a totally egalitarian, society. Marxists, until World War I, assumed that the United States would be the first socialist country because it was the most-advanced capitalist country. Marx wrote categorically that the most-developed society presents to others the image of their future. Social superstructures, political systems, were supposed to follow in the train of economic development.

The Russian Bolsheviks regarded their seizure of power in a less-developed country as a historic anomaly that could not and would not last. They anticipated that the only possibility for a progressive advance in the Soviet Union lay in its being tied up to advanced socialist industrial countries in the West. They looked forward eagerly to the outbreak of the revolution in Western countries. No crueller joke has been played by history than the phenomenon of Marxism becoming the banner of the revolutionary movements of totally

non-industrial societies, of communism holding power in China, in Cambodia, Albania, and many other poor, largely agrarian nations. Conversely, of course, revolutionary Marxism is weakest in the countries with the highest level of industrial development, those that have the largest working class, the highest standard of living. Literally, no relationship exists between Marx's anticipations about the links between economic structure, technological development, and social and political development, and what has actually happened. Marxism as a system of sociological, economic, and political analysis has been negated, not only by events in the Western industrial countries, which have seemingly overcome the anticipation that their contradictions would produce massive economic crises, but even more fundamentally by the coming to power of socialist statist movements in less-developed countries. Statism in a total sense seems to be a phenomenon of less-developed, non-industrial societies, the precise opposite of Marx's forecast.

In citing the failures or, more accurately, inadequate predictions of the assorted social sciences, it is not my intention to suggest that social science is unable to deal with social and economic phenomena. Clearly, all the disciplines have done much to explain the ways in which economy, society, and individuals behave. Social science, however, is still at its best in advancing what Robert Merton has called middle-range theories and in explaining specific time and place-limited developments. It can best handle interrelationships between two or more variables within specific delimited structures. As social science moves out to deal with macroscopic systemic trends and tendencies it accounts for smaller and smaller parts of the variance. Economists escape some of this problem theoretically by dealing with analytically closed systems, based on limited sets of assumptions. They, however, are no more able than other social analysts to fully comprehend total system be-

havior. Our enduring analyses tend to be historical. There is nothing wrong with this. In many ways our best work resembles that of physicians, who analyze the behavior of specific individuals, rather than of biologists, who specify the characteristics of a total stable system.

A recent paper by a leading psychologist, Lee Cronbach, discusses precisely the same difficulties faced by his supposedly more experimental and scientific field. Cronbach cites many examples of experimentally validated generalizations that no longer hold up. He notes:

Generalizations decay. At one time a conclusion describes the existing situation well, at a later time it accounts for rather little variance, and ultimately it is valid only as history. The half-life of an empirical proposition may be great or small. The more open a system, the shorter the half-life of relations within are likely to be.

Though enduring systemic theories about man in society are not likely to be achieved, systematic inquiry can realistically hope to make two contributions. One reasonable aspiration is to assess local events accurately, to improve short-run control. The other reasonable aspiration is to develop explanatory concepts that will help people use their heads.³¹

Gabriel Almond also concludes that the inherent failure of political science to formulate enduring generalizations "means that it must again move closer to the historical and philosophical disciplines which gave it birth. The return to history will put us back in touch with the substance of political processes, and will help us recover the humility which is appropriate to a science of humanity carried on by humans."³²

This emphasis on middle-range theory and on historical case studies does not mean that we should not try to deal with macroscopic developments or predict future trends. Sociologists analyze consequences of changes in the proportion of the population who reach varying levels of education, differences in the distribution of occupations, e.g., the

decline in the number of manual or skilled positions and the increase in professional or technical employment discussed earlier. We know that higher education is associated with certain kinds of values and behavior, while different occupations are conducive to varying life styles and patterns of social organization, and have specific orientations to competition, work, and the like, associated with them. Presumably, then, a systematic change in the composition of the work force or of the age levels of population should have determinate though not necessarily predictable effects on the body politic.

Yet it should be noted that we cannot predict secular changes on a system level or the probability of events from changes in the composition of a population, or the relative weight of the same factor in different systems. Thus, there is abundant evidence that the more education people have, the more tolerance they have for ambiguity, the more likely they are to be free of bigotry, to support civil liberties and civil rights. From this fact it ought to follow that, as the population of a country becomes better educated, it should be more protective of minority rights. In fact, as we know, this is not true. The McCarthyite America of the 1950s was the best-educated America up to that time. Periods of massive intolerance have recurred frequently over the two centuries of American history although education and wealth have increased secularly. On a comparative scale we may point to the fact that some of the best-educated nations have fallen victim to persecution manias, such as Germany in 1933. Clearly, unpredictable combinations of specific events or factors frequently negate the weight of the most powerful structural factors.

An interesting example of such a reversal upsetting a structural prediction may be taken from political science. In 1965 Robert Lane, an eminent political scientist at Yale, published two articles in the *American Political Science*

Review and the *American Sociological Review* reporting on evidence from public opinion polls and other sources that indicated a steadily growing degree of satisfaction with the body politic and economic among the population from 1938 until 1965.³³ The changes included an increase in commitment to values and norms sustaining tolerance, free speech, and participation in the democratic political system. Lane attributed such changes to the steady growth in affluence and in education of every stratum in the population. The opinion polls showed that the better-educated and the more well-to-do a person is, the more tolerant he is of others and the more satisfied he is with his own situation and the body politic. Yet, as we all know, 1965 was the end of an epoch. From 1965 to the early 1970s almost every indicator that Lane used of satisfaction and tolerance declined rapidly.³⁴ The reaction to the Vietnam War followed by Watergate and the revelations about activities of various American security agencies plus, in the latter years of the period, economic recession, brought about a steady reduction in confidence in the American polity and increased intolerance. Yet, until 1972 all the structural trends that Lane had identified as concomitants of the growth in positive attitudes in behavior continued.

To repeat, this discussion is not meant to imply that we should not try to analyze and predict. Quite obviously in economic as in political or other forms of social behavior, more knowledge and systematic thinking is better than less knowledge. But when one is involved in making major policy recommendations and decisions for the future of nations or, in the case of the Club of Rome, for the world, it is necessary to be humble, to be cautious, to know much more than we do, before being able to state conclusively that humankind's commitment to growth should stop. Clearly, the less precision in an analysis or prediction, the more unexplained variance, the more likely that the conclusions

that people reach from the available data reflect what they want to find, whether that what stems from political ideology, an academic or intellectual theoretical commitment, self-interest, or something else.

As political scientist James Q. Wilson has stressed, social science can test (predict) the relationship among factors only when it can isolate them from other variables, and when the factors and their effects are unambiguous and easily measurable. But the most significant effects on a societal level rarely meet these criteria.

Either the effects to be studied are hard to measure (as with educational attainment or true crime rates) or the possible effects are hard to define and detect (as with most habits of mind and of personality), or the possible explanatory factors are hard to disentangle (as with race, class, and education), or the act of studying the situation alters it.³⁵

This means that with almost any complex problem, such as the implications of growth or no-growth, people who disagree about the consequences of a given policy will rarely resolve their disagreement by reference to research. The improvement in research techniques—made possible by use, for example, of the computer—has not increased the likelihood of reliable, unambiguous results.

Concerns about Growth

The recent increase in writing about the negative consequences of growth, of affluence, of industrialization, of urbanization, revive to some degree recurrent intellectual and political concerns. Periodically Americans have voiced anxieties comparable to the present. As literary historian Daniel Aaron has pointed out, throughout American history

preaching of lay or secular jeremiads feared what the phenomenon of growth (wealth, progress, power) might do to unregenerate America. Had not this surfeit of success, this obsession with

progress, induced them to connive with the devil in stealing land from Mexico, condoning slavery, cheating Indians, exploiting workers, tolerating slums.

In recent years the critique of growth has not altered much although it has taken on a different tack. American literature is full of statements rating quality over quantity. . . . Most important of all . . . for writers and artists is the identification of size and growth with pollution in all of its forms—economic, political, moral.³⁶

In the political arena one of the steady syndromes has been what I call the "Mr. Clean" one. Since the late nineteenth century, groups of Americans, usually affluent reformers, have seized on some aspect of American society as dirty and have sought to clean it up and reform it. The government, the civil service, was one of the first such areas to be cleansed. Civil service reform secured its main support base from the "Mugwumps," from members of educated old families and academe, who saw in corrupt politics a destructive force in American life. The concern with corrupt politics was followed by the criticisms of the pre-World War I Progressives, recruited heavily from the same sources as the Mugwumps, who, seeking to clean up the environment, fostered the conservation movement. They also were disturbed by the destructive effect on American cultural values and way of life of the vulgar materialism fostered by the *nouveaux riches* of the decades about the turn of the century. These Mr. Clean elements have revived in our time in the form of concerns about pollution, ecology, and the influence of money on politics. Organizations like Common Cause, Nader's Raiders, and the Urban Coalition reflect this tendency. These groups have constituted the reform movement of the affluent in an affluent society. Dirt, ugliness, corruption, vulgarity, disturb those dedicated to the higher life, involved in intellectual activities or coming from privileged families, who have not had to dirty themselves in order to become well-to-do or get a good education.

Other advocates of an end to growth argue that advanced technological society with its emphasis on division of labor has also led, in the words of E. J. Mishan, to "a decline . . . in the satisfactions that men once derived from their daily tasks, [and] who is to say that the loss has been fully compensated by the constant proliferation of goods and gadgetry and the transformation to a mechanized environment. . . . Economic growth depends, among other things, on extreme specialization that dulls the spirit, narrows the sympathies, and cuts one off from the largeness of life."³⁷ But black political scientist Willard Johnson contends that Mishan "is guilty of debating the issues in terms of values that, for all their humaneness, ignore the concerns of the poor. . . . No doubt his concerns feed on a genuine consideration for the quality of life, but they seem to me mistaken about the contribution material goods can make to it."³⁸ Or, as Anthony Crosland, the foreign secretary in Britain's Labour government, argued, those who seek to limit growth to protect the environment are "kindly and dedicated people. But they are affluent; and fundamentally, though of course not consciously, they want to kick the ladder down behind them."³⁹

Conversely, the advocates of growth, those who would down-play the consequences of pollution, those who are less concerned about beauty in the environment, tend to come from groups involved in the productive process who want to get more for themselves through material advancement. They include well-to-do business men, together with workers and poor people who are more interested in increasing their economic circumstances, enhancing chances for mobility for their children, getting more education, securing access to leisure facilities, and so on.

Defining or locating the groups supporting varying points of view does not, of course, say anything about the validity of a given proposition or opinion. Growth may be good or bad,

possible or impossible, in the long run, regardless of who likes it or dislikes it, or benefits or is harmed by it. Since I am not an economist and I have not done firsthand research on the conditions of growth or on the limits to growth, I do not intend to take a position based on the evaluation of the evidence. Rather, I would like to spend the remainder of this essay discussing some of the consequences of the no-growth scenario. It is possible to bring together some of the evaluations or hunches that have been advanced to describe what will happen to the human race as a result. I should note, however, that like Herman Kahn I tend to be an optimist about growth and innovation. I believe — or perhaps more accurately I should say I hope — that we will be able to find substitutes for resources that are being depleted, to recycle or, more probably, to innovate in various ways that will enable the race to continue toward a more affluent and hopefully more egalitarian and freer future. I favor the growth scenario in part because, as I shall indicate, I think the possibilities for much of what I would like to see occur, namely, the expansion of freedom and greater equality, are linked in my judgment to abundance and to growth. I believe that a no-growth society would be a more authoritarian and more intensely stratified social system.

The Consequences of Growth and No-Growth

Abundance, as David Potter has told us in his brilliant book *The People of Plenty*, lies at the center of efforts to explain American exceptionalism.⁴⁰ Countless European observers of the American national scene, such as Tocqueville and Carlyle, stressed the extent to which the richness of the American continent with a limited population made possible a new social structure, a new man, a new set of social relationships that emphasized equality. Most of the articles and books written to explain the absence of

socialism as a political force and class-consciousness in the European sense in the United States have also stressed abundance. Werner Sombart put it well in his classic work *Why Is There No Socialism in the United States of America?*: "All Socialist Utopias come to nothing on roast beef and apple pie."⁴¹

Historians and sociologists have agreed that abundance reduces the potential for class tensions. As David Potter stated, compared with the class societies in other countries and other times the United States has a "new kind of social structure in which the strata may be fully demarked but where the bases of demarcation are relatively intangible. The factor of abundance has exercised a vital influence in producing this kind of structure, for it has constantly operated to equalize the overt differences between the various classes and to eliminate the physical distance between them, without, however, destroying the barriers which separate them."⁴²

It is obvious, of course, that the United States is not an egalitarian country, if by egalitarianism one means anything that approaches equality of results. In fact, the most recent comparative studies completed under the auspices of the OECD indicate that income distribution is more skewed, more unequal, in the United States than in the Netherlands, Sweden, Norway, Japan, the United Kingdom, and Australia, although the differences among these relatively affluent countries are not very great.⁴³ It may be argued, however, that the way in which people perceive the distribution of income linked to the distribution of different kinds of consumer goods people use for immediate gratification is more important in affecting their feelings about equity than the actual distribution of income as such. The distribution of consumer goods has tended to become more equitable as the size of national income has increased. This relationship between wealth and the distribution of consumer goods has

been commented on by Gunnar Myrdal: "It is, indeed, a regular occurrence that the poorer the country, the greater the difference between the poor and rich."⁴⁴

This, of course, does not mean that an increase in GNP automatically results in a narrowing of the income gap among the classes. In less-developed countries such an increase initially may largely go to increasing the wealth of the affluent and the standard of living of the middle class, without improving the lot of the large mass of the poor. The extent of income inequality in these countries also varies greatly with the policies followed by their governments, e.g., the variation in spread of education, land distribution, population control, production and regional sectors emphasized, and the like.⁴⁵ In addition, it should be noted that a number of recent studies of income distribution find relatively little change in income inequality accompanying growth since World War II in the wealthy non-communist countries.⁴⁶ Yet, a conclusion that the proportion of the national income received by different segments of the population does not change much in a given period does not imply that the standards of living of the less-privileged may not rise considerably, enabling the *consumption gap* among the classes to decline.

In the United States the average per capita income has increased eight times during the course of the century, and this dramatic growth has brought about a wide distribution of various social and economic benefits, greater than that which exists in almost all other countries except for a few of the wealthiest ones in Europe. Thus, in America a much larger proportion of the population graduates from high school (over 80 percent), or enters college (close to 45 percent) than in any other country. The greater wealth of the United States also means that consumer goods such as automobiles and telephones are more evenly distributed here than elsewhere. A recent evaluation by the (London)

Economist, using twelve social indicators to assess the relative advantages of different countries as places to live, placed the United States far in the lead over eight other industrialized non-communist states.⁴⁷

Sociologist Gideon Sjoberg has traced the implications of such developments historically in America. He suggests that the emergence of mass production during the twentieth century has caused such a redistribution of highly valued prestige symbols that the distinctions between social classes are much less visible now than they were in the nineteenth-century America, or in most other less-affluent countries. Sjoberg argues that the status differences between many blue-collar workers and middle-class professionals have become less well-defined, since working-class families, like middle-class ones, have been able to buy goods that confer prestige on the purchaser—clothing, cars, television sets, and so on. Such improvements in style of life help to preserve a belief in the reality of the promise of equality.⁴⁸

Economic growth is also associated, of course, with the upgrading of the occupational structure, discussed earlier. Where Western societies once had many menial jobs at the bottom, a pattern that still characterizes less-developed nations, including most communist ones, they have now changed and the proportion of reasonably well-rewarded positions has increased so that like the United States they bulge at the middle. One of the conditions for an increased sense of equality and greater opportunity is increased mechanization. The most-advanced technological societies, such as the United States, Sweden, and Germany, have reduced onerous work to a greater degree than others. It should be evident that those who foresee or advocate no growth, who oppose technological expansion either because they do not believe available resources will sustain it or because they feel that a more-mechanized system will be a dirtier society in a variety of meanings of that term, must

anticipate a future in which the possibilities for progress toward greater equality will also decline. If we have to stop technological development, if we have to move into a no-growth age, then instead of moving toward greater equality, toward upgrading the situation of the poor, we will experience intense struggles over distribution of consumption goods, struggles in which those who control power resources, whether through ownership or capital or control of the state, will be at a considerable advantage.

As Kenneth Boulding has pointed out:

One reason why the progressive [steady growth] state is "cheerful" is that social conflict is diminished by it. In a progressive state, the poor can become richer without the rich becoming poorer. In the stationary state, there is no escape from the rigors of scarcity. If one person or group becomes richer, then the rest of society must become poorer. Unfortunately, this increases the payoffs for successful exploitation—that is, the use of organized threat in order to redistribute income. In progressive societies exploitation pays badly, for almost everybody, increasing their productivity pays better. One can get ten dollars out of nature for every dollar one can squeeze out of a fellow man. In the stationary state, unfortunately, investment in exploitation may pay better than in progress. Stationary states, therefore, are frequently mafia-type societies in which the government is primarily an instrument for redistributing income toward the powerful and away from the weak.⁴⁹

Robert Heilbroner, who agrees with Boulding that growth must cease, notes that a no-growth America will not simply involve increased conflict with the upper class and the rich, for "the top 5 percent get only 15 percent of all income." The working class and the poor cannot improve their situation without coming into conflict with the middle class. Thus, he says, "when growth slows down, we must expect a struggle of redistribution on a vast scale—a confrontation not just between a few rich and many poor, but between a relatively better-off upper third of the nation and a relatively less well-off slightly larger working class. And fighting against both will be the bottom 20 percent [who now have only 5

percent of the income]—the group with most to gain, the least to lose.”⁵⁰ This intensification of the class struggle, of course, will go on everywhere.

In the United States, rising demands for quotas, for affirmative action with special advantages for underprivileged groups like blacks, Chicanos, and women, may be portents of the future that Boulding and Heilbroner anticipate. The premise of the argument for such quotas, in part, is that the only way these hitherto deprived groups can move up is at the expense of other groups, that they cannot take advantage of the economic expansion of society in the way in which white male and Oriental immigrant groups did in the past. But the more privileged, who are more powerful, will seek to resist such demands in a non-expanding economy.

Richard Zeckhauser also emphasizes that a “no-growth society would work most severely against the interests of the poorer members of society. If zero economic growth were imposed on the current structure of the American economy, Lester Thurow has calculated ‘the distribution of family income would gradually become more unequal, blacks would fall farther behind whites, and the share going to female earnings would fall below what it would otherwise be.’ ”⁵¹

For those who believe that the good society is a democratic and free one, it is also necessary to recognize that democracy requires abundance, or at least that nations in which opposition parties, contested elections, and a free press exist are largely well-to-do. Currently, with the exception of a limited group of poor small countries, the only democratic regimes are located in the prosperous regions of Europe, North America, Australasia, and Japan. Those nations that have maintained stable democratic regimes longest, and in which anti-democratic parties are very weak, are the cluster of countries that are the wealthiest by far.

Classic democratic theory stemming from Aristotle suggests that free societies are most likely to be found in nations with a preponderant middle class. Societies with a large lower impoverished stratum tend either to be oligarchies (ruled by a self-perpetuating traditional elite) or tyrannies (popular-based dictatorships).

Sometime ago in discussing the conditions of the democratic order in *Political Man*, I elaborated on some of the ways in which affluence is related to democracy:

Increased wealth affects the political role of the middle class by changing the shape of the stratification structure from an elongated pyramid, with a large lower-class base, to a diamond with a growing middle class. A large middle class tempers conflict by rewarding moderate and democratic parties and penalizing extremist groups.

The political values and style of the upper class, too, are related to national income. The poorer a country and the lower the absolute standard of living of the lower classes, the greater the pressure on the upper strata to treat the lower as vulgar, innately inferior, a lower caste beyond the pale of human society. The sharp difference in the style of living between those at the top and those at the bottom makes this psychologically necessary. Consequently, the upper strata in such a situation tend to regard political rights for the lower strata, particularly the right to share power, as essentially absurd and immoral. The upper strata not only resist democracy themselves; their often arrogant political behavior serves to intensify extremist reactions on the part of the lower classes.

The general income level of a nation also affects its receptivity to democratic norms. If there is enough wealth in the country so that it does not make too much difference whether some redistribution takes place, it is easier to accept the idea that it does not matter greatly which side is in power. But if loss of office means serious losses for major power groups, they will seek to retain or secure office by any means available. A certain amount of national wealth is likewise necessary to ensure a competent civil service. The poorer the country, the greater the emphasis on nepotism—support of kin and friends. And this in turn reduces the opportunity to develop the efficient bureaucracy which a modern democratic state requires.

Intermediary organizations which act as sources of countervailing power seem to be similarly associated with national

wealth. Tocqueville and other exponents of what has come to be known as the theory of the "mass society" have argued that a country without a multitude of organizations relatively independent of the central state power has a high dictatorial as well as revolutionary potential. Such organizations serve a number of functions: they inhibit the state or any single source of private power from dominating all political resources; they are a source of new opinions; they can be the means of communicating ideas, particularly opposition ideas, to a large section of the citizenry; they train men in political skills and so help to increase the level of interest and participation in politics. Although there are no reliable data on the relationship between national patterns of voluntary organization and national political systems, evidence from studies of individual behavior demonstrates that, regardless of other factors, men who belong to associations are more likely than others to give the democratic answer to questions concerning tolerance and party systems, to vote, or to participate actively in politics. Since the more well-to-do and better educated a man is, the more likely he is to belong to voluntary organizations, the propensity to form such groups seems to be a function of level of income and opportunities for leisure within given nations.⁵²

The assumption that abundance is a necessary condition for a good society is not limited to the example, or the writing, of people who prefer the kinds of societies that have emerged in the so-called Western world. At the root of the Marxist theories of progress and of the conditions required for a free socialist society is a similar assumption. Marx fervently believed and sought to demonstrate that inequality, the exploitation of people by each other, reflected the *necessary social conditions imposed on societies by scarcity*. As I noted earlier, the one major precondition for socialism is abundance. Socialism, according to Marx and Engels, must be a highly prosperous, what we now call post-industrial, society. They assumed that as long as there are not sufficient goods available to enable all people to live in comparative luxury, that inequality of income and power is necessary. They believed, as Trotsky has pointed out, that efforts to create socialism, a more egalitarian society, before

an era of overwhelming abundance would inevitably fail, that intense stratification must recur.

Marxist theory places an even greater emphasis on the relationship between abundance and political and social structure than does democratic theory. For according to the Marxist fathers, coercive social systems, that is stratified ones, are a product of the division of labor inherent in the need to produce goods and services in societies characterized by scarcity. For people to become totally free and equal, they must have complete control of their own destiny. They must be able to choose and control their own work and their conditions of life. Economies based on the division of labor also require power relationships. Engels, in his essay "On Authority," wrote that over the entrance of every factory should be written, "He who enters here gives up his freedom."⁵³ It is clear from reading the essay that Engels was not just talking about factories in capitalist society, that he meant this generalization to hold under all conditions in which factories and the division of labor existed. Marx, on one of the few occasions in which he described socialist societies, portrayed them as societies in which men would be free to hunt in the morning, fish in the afternoon, and criticize or read poetry in the evening.⁵⁴ It seems evident that Marx and Engels looked forward to a society in which all the onerous, menial work is done by machines.⁵⁵ Socialism would be a free society because work would be handled by inanimate slaves, in which no one lacked for what he required in the way of food, clothing, or shelter, and in which people enjoyed the luxuries that only the well-to-do have in a pre-communist world.

Marx strongly rejected Malthusian arguments that abundance is not possible, that the relationship among productivity, raw materials, and the growth of population would prevent continued increases in the per capita income, not only because these arguments seemed wrong to him, but

clearly because if they were true, then socialism is impossible. Communist theorists like Lenin, Trotsky, and Gramsci, all wrote in exuberant terms about American mass production because they believed that advanced techniques made socialism possible. Henry Ford, in spite of his reactionary political views and industrial practices, was a hero to the Russian Communists of the 1920s because of his development of the assembly line and mass production. Soviet factories contained pictures of Lenin and Ford.⁵⁶ And, of course, this worship of the god of productivity and abundance continues in the Soviet Union today. Authoritarianism and inequality are justified as leading to increased productivity, which will ultimately make an egalitarian communist society possible.

The revival in different ways of doctrines of neo-Malthusianism, the "limits to growth" thesis, the concern for the relationship of limited natural resources to growing populations, must be seen, therefore, not only as a matter of analytic and policy concern with respect to deciding whether there are effective limits to growth and, if so, what the social consequences of a world in which productivity will no longer increase would be. It is also necessary to recognize that the end of the dream of universal abundance, of a world in which all nations will be richer than contemporary America or northern Europe, is an end also to the dream of a democratic world, or of an egalitarian socialist world, at least in terms of the assumptions of the classic theorists of democracy and of socialism. This does not mean, of course, in terms of these theories and of our own experience, that a socialist or communist world, as exemplified by countries that now describe themselves by these labels, is impossible. State-dominated societies, total government economies, are possible at any level of productivity or abundance. Communism exists in countries that range in economic levels from totally agrarian societies like Cam-

bodia to moderately industrialized ones like the Soviet Union.

From a Marxian perspective, Trotsky argued that such systems must be authoritarian and inegalitarian, that they would be failures from the point of the communist objectives.⁵⁷ The argument, in fact, has been made by Karl Wittfogel and others that the statist communist societies of today are actually forms of the type of social system that Marx called Asiatic. Asiatic societies in the Marxist framework existed in the ancient world, mainly in Asia and North Africa. They were characterized by state-dominated economies. The state was the central economic and power institution because of the need to control elaborate systems of irrigation and waterworks over large territories. They were statist, highly inegalitarian, and tyrannical. Wittfogel in his book *Oriental Despotism* contends that contemporary communism is a revival of Asiatic society in the Marxian sense, that it is an intensely stratified one and cannot lead to any social order that might resemble communism in the Marxist sense.⁵⁸ Leninism-Stalinism-Maoism has collectivized scarcity, and inequality and tyranny are necessary concomitants of such a system.

The dangers involved in increased state power are not limited to less-developed communist societies. As Mancur Olson has noted:

Another characteristic that no-growth societies have is an extraordinary degree of governmental or other collective action. This would be true whether growth ceased through ZEG and ZPG policies now or because growth had someday proceeded to the point where it was obviously and immediately impossible to grow any further. Whether it became so by choice or by necessity, a no-growth society would presumably have stringent regulations and wide-ranging prohibitions against pollution and other external diseconomies, and thus more government control over individual behavior than is now customary in the Western democracies. . . . Thus there is reason to ask how well democracy as we know it would fare amidst the ubiquitous controls

that would be involved either in stopping growth now or in adjusting ultimately to the inescapable environmental constraint.⁵⁹

Those who support “no growth” in order to secure a more moral and cleaner society, of course, reject these pessimistic scenarios on value grounds. They, too, favor a more egalitarian and freer society. It is not possible for any of us to categorically say that our preferences are unattainable under either conditions of growth or no growth. Obviously, growth societies like the United States have not avoided major dysfunctions, severe inequality, poverty, racial tensions, and the like. But conversely, the best single example of a developed no-growth economy, albeit involuntarily, Great Britain, which has been governed by humane social democrats who believe in planning to advance egalitarianism and the quality of life, suggests problems even greater than those that accompany growth and affluence. The British people have shown in a variety of ways that they want the kinds of changes that are dependent on growth. As British political scientist Rudolf Klein notes, they want more.

Resentment of continuing inequalities is compounded by resentment of unemployment and of the failure of living standards to rise. For poverty is not just relative. Rising standards can and do mean better food, better housing, and better clothes for people. And at the current British standard of living—the “standard” for the future, let it be remembered—these sorts of improvements still matter very much. Although Britain probably has better housing conditions than most Western European countries, 13 per cent of households still lack private bathrooms and 12 per cent still live in houses or flats officially classified as unfit for human habitation. More than a third of households have no refrigerator or cooling machine, 55 per cent have no car, 65 per cent have no telephone, and 70 per cent have no central heating.⁶⁰

Most of those who believe that we must or should move into a “no-growth” era do not want consciously to condemn those living in abysmal poverty, particularly in the less-

developed nations, to remain at that level. Rather, they see the need to reduce the standard of living of the affluent nations, to transfer access to resources to the less well-to-do so that they can at least partially catch up. Ignoring the question of how this can be done politically, it is unfortunately necessary to point out that the wealth of the former is not primarily a function of their control of resources. "Natural resources account for only 5 percent of the value of goods and services produced in the U.S. and other developed countries." Thus, cutting back on American consumption will not enable other non-industrialized nations to sharply increase their level of productivity. As Nathan Keyfitz points out: "The trouble is that goods, as well as jobs that require materials, fit into other social activities in an interlocking scheme that is hard to change; social configurations are as solid a reality as raw materials."⁶¹

Conclusions

Some may look forward to the negative social consequences of no-growth anticipated by various observers, since they believe that an intensification of class conflict will bring about an end to capitalism and help to inaugurate a more humane egalitarian and cooperative society. Such hopes have been effectively answered by Robert Heilbroner, who is not only one of the most sophisticated exponents of the neo-Malthusian view but is also one of the leading socialist economists in the United States.⁶² (He happens to be the Norman Thomas Professor of Economics at the New School for Social Research.) Heilbroner, however, sees the end of growth bringing in its vein the end of the possibilities for a more humane, freer, and more egalitarian world.

The need to limit growth under a system of private ownership of capital, under "stationary capitalism," will, in his judgment, result in severe internal dislocations and con-

sequent great strife. "A stationary capitalism is forced to confront the explosive issue of income distribution in a way that an expanding capitalism is spared."⁶³

He concludes, correctly in my opinion, that the government in such societies "faced with extreme internal strife or with potentially social polarization, would resort to authoritarian measures."⁶⁴ But though a democratic socialist, he does not believe that a socialist society can do better. As he puts it:

A democratically governed socialism would very likely face the same Hobbesian struggle for goods as a democratically governed capitalism; and whereas an authoritarian socialism could certainly enforce some kind of solution, it seems likely that this would entail a degree of coercion that would make "socialism" virtually indistinguishable from an authoritarian "capitalism."⁶⁵

Earlier, I indicated that I prefer to accept the optimistic views of those economists who believe that necessity is the mother of invention, that sufficient need, a high enough price, will engender the kinds of innovations that will make continued growth possible in ways that will also reduce the morbidities of an industrialized civilization. Historical experience, as Nathan Keyfitz has pointed out, "shows the resilience of the productive system, its ability to substitute commoner materials for scarce ones."⁶⁶ But it is unclear whether invention and innovation can occur fast enough to avoid disaster. In the debate "between pessimistic raw material experts and optimistic economists," there is a "middle-ground to which both sides are tending that every barrier that industrial expansion is now meeting can be surmounted by technological expansion, but not in an instant."⁶⁷ As Keyfitz emphasizes,

What will make a decisive difference is knowledge: of how to produce amenities with less material, how to substitute materials that are common for those that are scarce, how to get

desired results with less energy and how to obtain that energy from renewable sources rather than from fossil fuels. We have seen some results in the past decade. With the advent of integrated circuits, a calculator that cost \$1,000 and weighed 40 pounds is now replaced by one that costs \$10 and weighs a few ounces. Artificial earth satellites have lowered the cost of communication; they provide television in Indian villages and may ultimately make telephone calls around the world as cheap as local calls. Synthetic polymers have replaced cotton and wool and thus released land. The list of what is still needed is too long to itemize: efficient solar collectors, compact storage batteries to run automobiles on centrally generated power, stronger and cheaper plastics (for automobile bodies, for instance) and so on.⁶⁸

The bottleneck is clearly the lack of sufficient incentives to create and to mobilize the necessary talent to provide the needed inventions and to speed up the time it takes to "convert knowledge into the production of goods." America has led the world in the past in such developments. It has slowed down in spite of the greater need. We must devote ourselves to the task of finding ways to break this bottleneck in our knowledge and technique, both on technical and social levels.

People, as Marx emphasized, make their own history. Nothing is inevitable except death. Let us not be paralyzed by numbers that do not give us the sum we would like to see. We can continue to change the equation. The future can be what we make of it, not what the futurologists predict.

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2. Norman Macrae, "The Future of International Business," *Economist*, 22 January 1972, pp. v-vi; see v-xxxvi.

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4. "History Lesson for Columbo," *Economist*, 28 August 1976, p. 12.

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6. William D. Nordhaus and James Tobin, "Is Growth Obsolete?", in *Economic Growth* (New York, 1972), p. 522.

7. *Ibid.*, p. 524.

8. *Ibid.*, pp. 527-28.

9. Richard Zeckhauser, "The Risks of Growth," *Daedalus* 102 (Fall 1973): 103. Subsequent quotations, from this and other articles in volume 102 are reproduced by permission of *Daedalus*, Journal of the American Academy of Arts and Sciences, Boston, Massachusetts.

10. Kenneth E. Boulding, "The Shadow of the Stationary State," *Daedalus* 102 (Fall 1973): 93.

11. Louis Sweeney, "Growth of World Population Shows a Major Decline," *Christian Science Monitor*, 29 October 1976, p. 1; "Marked Decline in Growth of World Population Seen," *New York Times*, 29 October 1976, p. A5. See also Lester R. Brown, *World Population Trends* (Washington, D.C., 1976).

12. Peter Grose, "Report at U.N. Says Rich-Poor Gap Can Be Narrowed by the Year 2000," *New York Times*, 14 October 1976, p. 1; "Summary of Report on 'Future of the World Economy' Issued by U.N. Department," *New York Times*, 14 October 1976, p. 14. For the complete report see Wassily Leontief et al., *The Future of the World Economy* (New York, 1977).

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14. Rudolf Klein, "Growth and Its Enemies," *Commentary* 53 (January 1972): 38-39.

15. Henry C. Wallich, "Economic Growth in America," in Cooper, *Growth in America*, p. 62.

16. Macrae, "The Future of International Business," p.v.

17. Quoted in Gabriel A. Almond and Stephen J. Genco, "Clouds, Clocks, and the Study of Politics" (Mimeo., Dept. Of Political Science, Stanford University, 1976), p. 26.

18. Wassily Leontief, "Theoretical Assumptions and Nonobserved Facts," *American Economic Review* 61 (1971): 3, as quoted in Almond and Genco, "Clouds, Clocks, and the Study of Politics," p. 26.

19. Dudley Kirk, "The Field of Demography," in David L. Sills, ed., *International Encyclopedia of the Social Sciences* 12 (New York, 1968): 345.

20. Boulding, "The Shadow of the Stationary State," p. 93.

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22. For a review of the evidence on social mobility see S. M. Lipset, "Equality and Inequality," in Robert K. Merton and Robert Nisbet, eds., *Contemporary Social Problems*, 4th ed. (New York, 1976), pp. 305-53.
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24. Eugene B. Skolnikoff, "The Governability of Complexity," in Cooper, *Growth in America*, p. 78.
25. See the essays in Daniel Bell, ed., *The Radical Right* (Garden City, N.Y., 1963).
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35. James Q. Wilson, "On Pettigrew and Armor: an Afterword." *The Public Interest*, No. 30 (Winter, 1973), p. 133.
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37. E. J. Mishan, "Ills, Bads, and Disamenities: The Wages of Growth," *Daedalus* 102 (Fall 1973): 74-75.
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61. Keyfitz, "World Resources and the World Middle Class," pp. 32, 34.
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63. *Ibid.*, p. 86.
64. *Ibid.*, p. 90.
65. *Ibid.*, p. 92.
66. Keyfitz, "World Resources and the World Middle Class," p. 32.
67. *Ibid.*, p. 33.
68. *Ibid.*, p. 35.

Scarcity and abundance of prime resources have exerted a profound shaping influence on the evolution of the American sociopolitical system; yet the nature, extent, and consequences of the supply of these resources are often matters of differing perceptions and judgments rather than objective determinations. Evaluation of conflicting estimates, predictions, and proposals, though a sometimes elusive exercise, is becoming increasingly important. Side by side with these contending points of view is the sober recognition (and admission) of mounting errors in past calculations and of grave actual or potential limitations on economic growth, on critical resources, on the current stock of analytic tools, and on the effectiveness of policy processes. Moreover, given that volatile public moods play as large a role as technical analysis, it is increasingly suggested that a thoroughgoing redefinition of society is required, based on an acceptance of the limits of our power, individual and social, to deal with unlimited appetites and wants.

The three essays presented here offer firm grounds—empirical, logical, historical, pragmatic, and philosophical—for prudent optimism that contemporary institutions and policies *can* cope effectively with both the opportunity and the threat inherent in unforeseen resource scarcities and shortages, in the dilemmas surrounding growth and no-growth, and in the age-old counterpulls between wants or needs and the sum total of the available means to satisfy them.

