1. The Coming Age of Scarcity

An Introduction

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The twentieth century can be characterized as the “age of genocide.” The “progress” of this century has been constant along its journey of horrors—from the massacre of the Armenians, to Stalin’s planned famine in the Ukraine, to the Holocaust, to the killing fields of Cambodia, to the ethnic massacres in Burundi and Rwanda, to the ethnic cleansing in the former Yugoslavia.

According to a number of scholars, the violence of past centuries pales before the violence and mayhem of the present one. In his pioneering work, Twentieth Century Book of the Dead, Scottish sociologist Gil Elliot estimated that more than 110 million people were killed by their fellow human beings between 1900 and 1972. Such findings led him to conclude that manmade death “is the central moral as well as material fact of our time” (Elliot 1972, 1–6). Sociologist Pitirim Sorokin, tracing quantitative trends in collective violence over the centuries, came to a similar conclusion. On the basis of his analysis, Sorokin concluded that “the curse or privilege to be the most devastating or most bloody war century belongs to the twentieth; in one quarter century it imposed upon the population a ‘blood tribute’ far greater than that imposed by any of the whole centuries combined.” (Sorokin 1962, 342).
Although the literature on collective violence focuses predominantly on genocide and warfare, it is important to recognize that there are other forms of governmental mass killing. In several earlier studies, we attempted to broaden the discussion of genocide by including a consideration of structural violence—the violence created by social, political, and economic institutions and structures, or by benign neglect or demographic and environmental factors. Structural violence, by causing suffering and death as the result of structured social inequality, creates conditions conducive to the outbreak of overt violence, particularly as civil war and ethnic conflict. Once initiated, this violence usually exacerbates the socioeconomic conditions by destroying portions of the economic infrastructure, by overturning the delicate political balance, and by damaging the ecosystem thereby aggravating the economic and social conditions that cause structural violence. It can easily become a vicious circle of violence. We see that being played out in the Balkans, the former Soviet Union, and in Africa.

The enormity of the violence of our century is indicated by our almost schizophrenic attitude toward it. We move between attitudes of despair and numbing on the one hand and denial or avoidance on the other. These attitudes are mirror images of each other. They both seek to deny reality by avoiding any responsibility for the need to understand and confront the phenomenon. Our first obligation, however, is to face it squarely.

As we argued ten years ago in *Genocide and the Modern Age*, if scholarly efforts are to contribute to the improvement of the human condition by preserving life, in the case of genocide and mass deaths we can no longer conceive of them as random and rare historic phenomena. History and contemporary experience just won’t allow such a conclusion. Instead, we are compelled to look for patterns and causation that lead to and are associated with these tendencies. We must look upon the history and nature of societies giving rise to mass death as human-made and thereby influenceable. Any other perspective would preclude the human agency necessary to act preventively. Thus, we postulate that the social, economic, and historic circumstances making mass death possible are largely the creations of human beings, are not random and may be associated with social patterns and structures that can be studied. Scholars have demonstrated that for past genocides. We should be able to bring these insight to bear on a consideration of the dangers we face in the future. As we approach the end of the millennium and the beginning of the twenty-first century,
nothing is clear or certain except that the projection of present direc-
tions in population growth, land resources, energy consumption, and
per capita consumption cannot be sustained and may lead to even
greater catastrophe. These challenges are experienced and expressed
by different social segments in ways that are likely to create fierce
conflict within place and between place. Within place, producers, the
state, and local groups are battling over the control of natural re-
sources. Between place, communities and nations battle over who
should produce and consume, and who should conserve.¹

The problem facing us as we approach the twenty-first century is
not how to reduce scarcity amid downsizing, but how to resolve the
resulting conflicts without resorting to genocide either explicitly through
warfare or implicitly through unequal burden sharing. We maintain,
with the contributors to this volume, the conviction that the issues we
face are very serious. However, we also believe that they are susceptible
to analysis and that the problems are influenceable. We do not subscribe
to rigid historical determinism—the future can be altered as long as we
understand the forces that may be propelling it and have the individual
and collective will to think beyond self-interest and narrow parochial-
ism. We all have a stake in balancing economic and ecological needs,
short- and long-term demand and individual and community interests,
both local and global. If we realize that, we have the chance of devising
strategies capable of allowing for diverse and divisive social segments
to make peaceful decisions as socioeconomic and ecosystems contract.
The alternative may be war and genocide. But before purposeful action
can be taken to prevent potential disasters, we first have to understand
what is at stake and what the issues are.

This book addresses one of the most pressing and significant is-
sues that humanity has been confronted with so far. Yet, despite the
compelling nature of the problem, only few attempts are under way—
little effort is spent—to analyze the dangers we face and to develop
strategies designed to avert the looming catastrophe. We would like to
maintain that world industrialization and urbanization and its associ-
ated social system and techniques—such as the universal market sys-
tem or centralized planning bureaucracies—cannot be sustained except

¹. Isidor Wallimann and Michael N. Dobkowski, eds., Genocide and the Modern Age:
Etiology and Case Studies of Mass Death (Westport, Conn.: Greenwood Press, 1987); Michael
N. Dobkowski and Isidor Wallimann, Genocide in Our Time: An Annotated Bibliography
for a relatively few privileged people and at the cost of increased mass death, which may include genocide. The alternative, namely, to abandon the global industrialization project and to begin a move away from industrial society as it is known today, equally entails a risk of mass death on a tremendous scale.

It is true that modernization and industrialization have confronted us with many great problems before while millions have been forced into deprivation, poverty, wars, and premature death. In the course of modernization worldwide, however, the world population has nevertheless grown significantly. Therefore, one might be tempted to conclude that the social and economic systems that have laid the paths and been the engines for industrialization will again respond in time to avert the anticipated mass death and increasing spiral of human self-destruction on a scale never witnessed so far. However, this would indeed be a fateful attitude to assume.

If this is so, we are as social scientists and humanists well advised to speedily reconsider our priorities and to increasingly engage in a kind of scientific praxis that is explicitly directed toward the preservation of life, at home and elsewhere in our global society. Guided by the norm and the wish to preserve life, we have to increasingly ask the following questions:

1. What knowledge is required? Do we have necessary theoretical social science knowledge to guide us through the forthcoming great transformation that is to lead us away from today’s modernity?

2. Whom does this knowledge serve? Do we have the type of knowledge that will both guide us through this transformation and serve humanity in that it is directed toward the preservation of life?

But what exactly is the problem that confronts us? What are the anticipated bottlenecks based upon which one could say that traditional modernization will come to an end? What are the bottlenecks that could lead to mass death? In an attempt to address these questions, let us first turn to a short discussion of industrialization.

**Industrialization**

It is important to recall that the great transformation from agricultural to modern, urban, and industrial societies has always been financed on the back of peasants both in the nineteenth century, in the area that is now known as the center, and in the twentieth century, in the area now known as the periphery. Whether this transfer of
value from the agricultural sector has been achieved with political and bureaucratic means or through the indirect and anonymous coercion of market systems, the truth remains that the surplus value produced in agriculture alone financed industrial production and made urban and industrial life sustainable. This is not to deny that agriculture simultaneously became more productive owing, in part, to the very growth in the urban-based sciences and industrial production it had financed. However, much of this “great transformation” has always been associated with immense hardship on the peasantry, be it for the many who remained in rural areas or for those who migrated as wage laborers to the growing cities. Much premature death because of poverty, disease, and lack of medical attention went hand in hand with drastic improvements in the life expectancy, particularly for infants. Thus, the age structure of the population was shifted to a median age of twenty, or even below, while life expectancy at birth rose to about sixty years.

The most common techniques to bring about the transformation of agricultural society have been the market mechanisms associated with capitalism and the socialist central planning approach relying primarily on authoritarian bureaucratic methods. These methods can again be divided into those that encouraged urban formations (Eastern Europe) and those that tended to discourage large-scale, rural-urban migration. Thus, China has tended to promote the selective industrialization of rural communities. Despite these differences, however, the socialist approaches have one thing in common that clearly distinguishes them from the capitalist transformation technique: the idea, and the social contract, that modernity and industrial society can be attained while guaranteeing—in conjunction with the right and the obligation for men and women to work—a sociocultural existence minimum to all. Only from about 1795 to 1834, and only in England during the Speenhamland regulations, did the capitalist technique resort to a kind of guaranteed minimum-income policy. Even this phase can primarily be seen as a strategy to get the transformation going, to soften the blows dealt by enclosures, and to encourage enough persons to permanently participate as wage laborers outside agriculture. Once the transformation had gained sufficient momentum, the Speenhamland regulations were abandoned to make room for the poor laws, police and jails, utilitarianism and free markets, Manchester liberalism and social Darwinism, cyclically recurring economic crises, class struggle, and revolutionary activity.
By the time the modern welfare state was developed, the capitalist system had entered the ongoing imperialist phase. Its transformation technique had taken a firm grip of ever more distant agricultural populations whose surplus could be used to both expand the newly created industrial society in the center and to introduce large-scale urban life and rudimentary industrial production in the periphery. Class struggle and other conflicts may have been instrumental in bringing it about, but the welfare state, and the almost guaranteed existence minimum that we associate with this institution, particularly since World War II, has also been financed by the surplus transferred and appropriated from the periphery. Meanwhile, however, the half of the world’s population still subject to transformation under capitalism is far from having an existence minimum guaranteed and, if at all, is only beginning to establish the first and most rudimentary social insurance schemes. Additionally, as the worldwide transformation proceeds, thus providing alternatives for industrial producers in the center, the center’s welfare state guarantees to existence are also eroding, despite such normative documents as the United Nations human rights convention or the European social charter. Faced with the competing socialist alternative to modernization, these documents were once strongly promoted by the already transformed and modernized capitalist center.

**Population Growth**

All industrialization has been associated with significant population growth. The world’s population roughly doubled from 1750 to 1900 and again from 1900 to 1950. In 1800 it still took far more than a hundred years for the world population to double. Today it takes only thirty-eight years. Some 1.7 billion people inhabited this planet in 1900. In 1990 it was 5.3 billion and in the year 2025 we shall have 8.5 billion. Only about one-fifth of the world’s population lives in the fully transformed and industrialized part of the world including Eastern Europe. About two-fifths alone live in India and China, giving China a slightly larger population than India. Sixty percent of the world’s population lives in Asia, about 9 percent in Latin America, and about 12 percent in Africa. The reasons for the ever faster population growth are well known. Although birthrates have tended to decline, they have not decreased fast enough to compensate for the gains owing to lower infant mortality and the general increase in life expectancy. These gains have not been made possible by high-tech medicine, but by relatively
simple techniques, such as an improved diet, better control over bacterial environments (general hygiene, water supply, food storage, antibiotics), and by vaccinations against various contagious and other diseases. The world-wide knowledge of these techniques, the possibility for their widespread deployment at a low cost, world information on social and medical problems, political pressure, the need for social control, and human compassion have been major causes for the ever-accelerating population growth. Presently, it is not expected that AIDS or diseases such as cholera or tuberculosis, although growing, will significantly alter the rate of population growth in the near future.

One of the correlates of modernization has been that birthrates decrease with increased urbanization and a higher standard of living. Experience in the fully transformed industrial countries generally has shown that population growth tends to stabilize at a low positive rate and that some countries even have slightly negative growth rate. This experience leads to the notion that, once the world will be transformed into modernity, industrialized, and economically developed, the world population too will be stabilized in its growth. Of course, the crucial assumption made here is that it is possible to provide the world with the standard of living of industrial countries, irrespective of the economic systems—particularly capitalism, which chronically tends toward overproduction and crisis—and ecological considerations.

Experience shows that most campaigns to more swiftly reduce the birthrate are successful only in societies with a sufficiently high standard of living. However, they can also be successful in relatively poor societies with a low standard of living if, and only if, social and economic justice is simultaneously given a high priority. The more vulnerable people become economically, and the more they are threatened by modernization and industrialization, the more they are inclined to adhere to birthrates that enhance population growth. This pattern is often seen as an example of irrational behavior. Allegedly, it prevents families from accumulating the human, social, and financial capital needed for the family's economic improvement, and it is said to annul all productivity gains made on the macro level to improve the standard of living. However, as is well known among development workers and agricultural specialists, when people must live at the margins of existence, they tend to minimize risks and not to maximize profits and accumulation. By adhering to higher birthrates, they aim to spread severe existential risks to more people, which from their point of view is a reasonable thing to do.
However, it is also true that women often give birth to more children than they desire, and that the children are required for the family’s survival and successful reproduction. Because this condition is usually induced by gender inequality, it follows that birthrates can also be reduced in part by strengthening the position of women in society. In sum, without sufficient equality on the micro and macro levels, there is little hope to reduce the birthrate sufficiently for population growth to level off.

**Migration and Employment**

Because the transformation reduces the percentage of the population employed in agriculture, and because insufficient alternative employment is available in rural areas, people have migrated to cities. Presently, some 45 percent of the world’s population lives in urban spaces. In fully transformed countries, it is about 70 percent, while it is only about 35 percent in those areas still undergoing transformation. Latin America is an exception. About 70 percent of its population lives in cities.

Migrants tend to be young and not only male. In some economic environments and cultures, women tend to migrate even more often than men. Because of the volume of migration and the high fertility potential of the migrant population itself, the population grows at a much higher rate in urban as compared to rural areas.

The industrialized center has only about 7 percent of its population employed in the agricultural sector. The rest of the world (which accounts for about four-fifths of the globe’s inhabitants) still employs about 60 percent of its population in agriculture. This corresponds to the situation in Europe and the United States in the middle of the nineteenth century, when Europe’s industrialization was well under way. However, industrialization and urbanization then involved both a smaller population and extended over a larger time span than is true today. Therefore, new and old urban spaces contain considerably more people than nineteenth-century cities, and we have not even begun to imagine what it means to bring—besides the ongoing population growth—only half of the now remaining agricultural population into other forms of usually urban-based economic activities.

The nineteenth-century transformation of agricultural society channeled migrants into industrial work—to the extent that they found employment at all. The tertiary, mostly service, sector was developed
later. Today just the opposite is true. The formal economy favors the expansion of services. In addition, the huge informal economic activity belongs itself more to the tertiary than to the secondary sector. This pattern seems to confirm the notion that we are far from growing into a true world industrial society. Displaced from agricultural occupations, people end up with few perspectives and no vision that can make them feel part of a new era, involving such things as the creation of nation states, industrial production, and mobility, which were characteristic of the nineteenth century. To the extent that they are taking part in the international division of labor, they mostly do so in dependency and with unequal terms of trade. And even though the standard of living in developing countries erodes further and poverty deepens, the population affected by industrialization and urbanization remains politically disenfranchised on an international level, where industrialization policies and world economic decisions are being made.

**Energy and Other Resources**

Thus far, all industrialization and urbanization has been associated with an increased use of energy, directly and indirectly replacing the human and animal energy used in production and distribution, expanding the sphere of unnecessary consumption, and allowing for world markets and their corollary, the world division of labor. This expansion of world trade and the world division of labor is, of course, again a precondition for world industrialization.

World energy consumption, although increasing, remained relatively low until 1950. From 1950 to 1990, however, the use of energy increased sevenfold, far outpacing the population, which approximately doubled during the same period. Most of this increase came from the use of fossil fuels, of which oil and gas constituted the largest share. The contribution of atomic and hydroelectric power to the world’s energy supply is only about 15 percent.

As gross national product (GNP) per capita grows, so does the use of energy. Therefore, one-fifth of the world’s population uses about four-fifths of the world’s energy, most of it as industrial fuels. Traditional fuels (wood, peat, dung) supply about 5 percent of the world’s energy and are almost entirely (85 percent) used in peripheral countries. At the present rate of use, it is estimated that the world has oil for another 40 years, gas for another 60, and coal for another 660 years. Coal supplies about a third of today’s energy. The future supply of traditional fuels
(particularly wood) depends on several factors, such as the need for drinking water, the need to reduce carbon dioxide levels, the amount of acid rain, and the damage from the destruction of ozone layers.

It is not possible here to address the future supply of all resources such as minerals and water. It is important, however, to mention that the arable land available for the production of food and fibers tends to shrink. Any expansion will be possible only at the expense of forests or grasslands, jeopardizing other resources, particularly water and topsoil. Any increases in the agricultural output would, therefore, have to come from different growing techniques, pest controls, irrigation, the use of fertilizers, plant breeding, and genetic engineering. During the 1980s, the growth in world grain production has decreased and, if measured per capita to correct for population growth, world grain production has tended to level off.

**Bottlenecks: A Historically Unique Constellation**

Impending bottlenecks, as can be deduced from the discussion so far, center in population growth, land resources, energy, and environmental constraints. What is most crucial is that we have never found ourselves in a situation in which all four factors are so closely linked. Sure, we have had a growing population and population pressures before, but there has always been more land to be cultivated. Sure, we have had large populations to care for before, but more energy-intensive agricultural production and improvements in plant breeding have always been possible. Sure, we have had the need for more energy before, but there has always been some new oil field just a few feet below the ground. Sure, we have had all these pressures before. But have we experienced them as impenetrable limits, as absolute deficiencies of land and energy? Have we experienced them all at the same time and as impenetrable limits? Certainly not. Have we ever simultaneously experienced such severe land and energy limits and also faced the real danger of an ecological collapse? Again, certainly not.

Today, this planet counts some 5.5 billion people. In 2025, it will contain 8.5 billion. Beyond 2025, we do not know how much the population will grow. Current opinion tends to assume that, as a result of economic development, the birthrate will "automatically" fall to about two children per family before 2050, a level now observed for transformed countries. This assumption is very unrealistic, however, since about 35 percent of the population under transformation already lives
in poverty—although the transformation is far from having been completed and the number of children per family in industrializing countries under transformation is still about four. But even if the assumption should prove to be correct, the population is expected to reach 9.5 billion in 2050 and to level off at about 10 billion in 2075. However, by 2030, we shall also have exhausted the presently known oil reserves or about 30 percent of today's energy supply. And by 2050, we shall further have exhausted the presently known gas supply or (together with oil) about one-half of today's energy supply, although owing to population growth, we shall also have reduced the per capita energy consumption by about 40 percent.

The energy crunch is made worse by environmental limits. The degree to which we have been using fossil fuels is changing our ecosystem and the human, animal, and plant reproduction and survival patterns that have for centuries been built around it. The lives of millions are increasingly at risk if sea levels begin to rise and glaciers melt. It is estimated that 30 percent of the world's population lives in a thirty-mile-wide coastal strip and is concentrated in Asia and Europe. Millions of people would have to be relocated as environmental refugees, their lives would be threatened by floods and tidal waves, more fertile arable land would be lost, and the erosion inland would be more severe owing to increased rains.

As a result, the largest environmental organizations urge a 30 percent reduction of carbon dioxide levels by 2005, a 50 percent reduction by 2020, and an 80 percent reduction by 2050. These reductions would indeed necessitate a drastic change in our present energy-use patterns and amount to a drastic absolute cut in the amount of energy used—all this in times of significant population growth.

Finally, the tremendous food pressures must be reiterated. We can cultivate the land more intensively and turn our lawns into vegetable gardens, but how many millions more can be fed by such measures? We may resort to the oceans for protein, but oceans are already overfished. We may turn away from animal protein to feed more people with the same amount of grain, but this reserve applies only to the transformed world and becomes increasingly insignificant as the Third World population grows. We may resort to ocean farming, greenhouse and hydroponic production, but can we compensate for the destruction of agricultural lands because of overuse and overexposure to wind and water? Can we compensate for the loss in land because of urbanization and the increased demand for housing? Can we compensate
for the loss in plant growth and crop yield because of increased ultra-violet radiation? We do not believe that these challenges will be met without bottlenecks that may cost the lives of millions.

It seems evident now that there will be a temporal conjunction of four sizable bottlenecks: population, land, energy, and environmental-carrying capacity. All of them are so intricately related that they form a system complexity whose very balance has never been so delicate and yet so important to our survival. Therefore, we must also distinguish between bottlenecks that present continuous but stable challenges and those that represent discontinuous and unstable challenges. Population growth, for example, is a challenge with great continuity. However, as we approach the question of energy and land, particularly if environmental pressures are included, we can increasingly expect challenges characterized by discontinuity. Even though energy resources may not be depleted, the supply of energy could for technological, political, or economic reasons become highly discontinuous. Agricultural land may increasingly go out of commission in a discontinuous way, because of events such as droughts, floods, erosion, or drastic overuse. As the system reaches an ever-greater complexity, and as survival hinges ever more and with small margins on this complexity, any jolt to the system is bound to make survival more immediately a matter of life and death.

Furthermore, the jolts emitted by the economic system are also of importance, for production factors like population, land, energy, as well as many environmental constraints are mediated and coordinated by markets. Markets, however, are also known to have a great deal of discontinuity owing to the anonymous number of its participants and the unforeseeable outcome produced by their myriad market interactions. Thus, the capitalist market, the very technique chosen to manage survival, is itself a threat to survival, as is exemplified by speculation, recessions, and depressions, booms and busts. Market dynamics themselves upset the delicate balance between land, energy, population, and the environment, and thereby directly determine survival and death rates.

Additionally, techniques to assure continuity in a world of random but significant disturbances may break down. Already insurance companies suspect that a number of recent weather-related events may have ceased to be sufficiently random or insignificant or both to be insured. The private market insurance system may soon prove to be unable to ensure against certain ecosystem risks. The instability would
thereby increase, leaving politics as the last potential guarantor of continuity and stability, as is already the case with atomic power plants, where no private insurer is willing to cover the entire risk, *nor could such risk be covered*. However, how many big risks, should the event and the scarcity associated with them occur, can the political system handle before solidarity breaks down, instability increases, conflicts grow, and massive death results?

In times of growth and system expansion, potential conflicts can more likely be ignored, for their resolution is relatively easy. Everybody can come up with Pareto-type conflict resolutions. The going gets much tougher though, and more lives are at stake, when conflicts await resolution during system contraction, increased scarcity, and shrinking surpluses. First, the number and severity of conflicts tend to increase. Second, conflict potentials can no longer be as easily ignored, for, should they erupt, the disturbance would only augment the scarcity and make any resolution increasingly and unnecessarily more difficult. Third, resolutions to conflicts are politically and economically much harder to find in times of general scarcity and contraction.

Presently, our world still relies on expansion and Pareto-type conflict resolutions. International exchange and free trade is thus enhanced, as is evident by the North American Free Trade Agreement (NAFTA) and the General Agreement on Tariffs and Trade (GATT). Furthermore, Eastern Europe, once a highly self-sufficient economic and political system, is being dismantled and integrated with the world division of labor. China, while still self-sufficient, may because of its participation in international trade and communication also become more unstable and be pressured to further expand market relations. While Eastern Europe and China chose to bring about industrialization by the primacy of political priorities over market priorities and by politically distributing scarcity (also in the sphere of consumption), Eastern Europe is now joining the rest of the world by introducing social and political relations based on the primacy of markets. And China may soon follow and experience large-scale migration, increased inequality, poverty, higher birthrates, and destabilized population growth.

Capitalism, which is now the world's dominant political and economic system, thrives on market expansion. However, how compatible is capitalism with the long-term zero or negative growth environment of the future? It is incompatible! Not only does capitalism have great
difficulty in handling such conditions, economically and politically, but it also has, for the same reasons, difficulty in preparing for them. Thus, markets, if left to themselves, cannot factor in long-term scarcity. Has the price of oil, for example, signaled that oil will soon be very scarce? On the contrary, oil markets have, if anything, signaled an ever-growing supply of oil. The same could be said for land, lumber, and many other natural resources in limited supply.

The ability of the capitalist market system to guide us through the next decades of increasing scarcity and downscaling of industrial production is very limited indeed, and if lives are to be preserved, the primacy of politics over markets will have to be introduced again, as was the case for practically all of human history except its bourgeois phase. In this context, it is ironic that, just when political control over the economy is especially needed, Eastern Europe is—with huge losses in productive capacity and means of production and at tremendous social and economic restructuring costs—reintroducing the primacy of markets.

**Issues to Be Addressed**

To enter an age of ever-increasing scarcity and downscaling is to enter an age of increased conflicts that contain a great potential for mass death and even genocide depending on the mechanisms by which scarcity is channeled to affect only certain groups and the mechanisms by which conflict is resolved, managed, or suppressed. If the analysis given here is correct or even plausible, and if the goal is to help humanity survive this tremendous challenge with no or minimal human loss, we must increasingly ask questions like the following:

1. Based on our knowledge, where and how can we warn the larger public of impending bottlenecks, and thus make the bottlenecks a legitimate focus of high priority discussion everywhere?

2. How does the capitalist system tend to react when it approaches a zero or negative growth environment? What are the economic and political mechanisms by which scarcity is distributed? What is the likelihood for fascism and other authoritarian political systems to arise to deal with scarcity while preserving class relations? What might be the cost in human lives if the distribution of scarcity were left to markets or to authoritarian and fascist politics?

3. What could we learn from societies at war or in an environment of war? How did they experience and deal with scarcity? What
forms of solidarity and other coping mechanisms (even under capitalism) did they adopt?

4. What conflict-resolution strategies can be pursued for conflicts in which all parties have something to lose?

5. What can be learned from the behavior of cooperatives and other mutual-help type social organizations pertaining to the management of scarcity?

6. To what extent is the broad social control over the means of production a prerequisite for increased solidarity and a more equal distribution of scarcity (or surplus), particularly since even a relatively perfect worldwide distribution of income alone would not come close to eliminating world poverty today?

7. To what extent can the impending bottlenecks be dealt with only by reestablishing basic self-sufficiency on a regional basis?

8. To what extent can basic regional self-sufficiency, if coupled with a democratic access to the means of production, inhibit migration, decrease the birthrate, and reduce the surplus that is transferred from the periphery to the center?

9. What is the necessary kind and level of industrial production, and modern cultural and social life that must be retained to effectively and efficiently downscale while simultaneously meeting growing bottlenecks and needs?

10. To what extent should social scientists be engaged as catalysts and organizers of movements concerned with social justice and the preservation of human life? After all, it is well accepted that social scientists are involved in such things as human relations, quality of work life, and other "movements" to keep corporate organizations alive. Why should social scientists not be equally free and assertive in sharing their knowledge with organizations whose aim is to stop world industrialization, to downscale industrial society, and to preserve life?

These are but a few questions that must increasingly be addressed, and many of them are broached in this volume. Other important questions could be added. Moreover, the social science theory repertoire must, in anticipation of the issues ahead, also be reevaluated. Many classic and modern social science theories have their origin in the late-eighteenth and nineteenth centuries. Invariably, these theories are concerned with the dramatic social changes brought about by the opening, expansion, and differentiation of social and economic systems, and as a consequence, will soon prove to be grossly inadequate. As this analysis
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suggests, the severe bottlenecks that lie ahead will bring about an equally drastic social change owing to scarcity, system closure, and to the downscaling in industrial production, world markets, the world division of labor, urbanization, and so on. This transformation of society will not be just a 180-degree reversal of the ongoing world industrialization, but one of another kind. This all encompassing, fast, and drastic social change of the near future will ultimately also generate a new brand of "classic" social theory.

The Enlightenment of the eighteenth century bore two different and opposing conceptions of the human being. Hobbes argued that left to their own devices, people would descend to the level of the animal, so that without the proper ordering of society and civilization, human beings would be ruled by the law of the jungle. The contrary position is that of Rousseau, who argued that people are inherently good but society was the corrupting influence. Modernist faith has largely followed Rousseau's position: the self was thought of as ultimately good. What was needed was a societal revolution that allowed the natural goodness of the individual to emerge and flourish.

We have come to be highly skeptical of the belief in the inherent goodness of the self. Enlightenment, education, culture, and science will not necessarily produce individuals who will do what is right. The genocides of the twentieth century have unveiled the true heart of humanity. At our center lies an ability to commit evil of an almost unimagined degree. We have seen the nature of human beings and found that the most ordinary among us can transport millions to their death, can fill the earth and the sky with the victims of killing fields. The theory of the inherent goodness of the human being was daily disproved in Nazi Germany and in the other state-sponsored genocides and massacres.

But if Rousseau's argument was shown to be naive, so has Hobbes's been proved wrong, for what made Nazism possible was the use of state power for absolute evil ends. The near-total genocide of the Jewish people, for example, would not have been possible without, on the one hand, the ability to use all aspects of cultural transmission to reduce the Jew to nonperson and, on the other, the ability to mobilize the full weight of the modern bureaucratic state to carry out mass murder.

That dual ability is still with us. It would be a tragic error to think that what happened in Germany and Europe, for example, was a singular event that we cannot understand and that cannot be repeated;
we can and it already has. *Newsweek* reported on May 9, 1994: "As many as 200,000 people have been murdered, mutilated and dumped like garbage in the streets of Kigali, the capital, and in the verdant countryside of Rwanda during weeks of savage tribal warfare. Wielding machetes, knives, clubs, and grenades, Hutu government forces and paramilitary extremists have hunted down and slaughtered Tutsi civilians and sympathizers in... a campaign of 'genocide.' Refugee sites have become deathtraps" (24).

Even now, in Europe, in Africa, and elsewhere, specialists are selecting, exploiting, and concentrating new victims. Potentially, these measures are the precursors of a killing operation. As time passes, the destruction of European Jewry and the other genocides of the twentieth century will recede into memory. From this moment on, however, fundamental assumptions about human behavior and about civilization can no longer stand unchallenged, for though the occurrence is past, the phenomenon remains, as well as the causes exacerbated by the political, social, and economic bottlenecks outlined above. The unthinkable has already happened; the idea of future catastrophes is therefore not unthinkable.

When we look at our young students, we tremble for their future. We would like to be able to tell them that despite endless violence and disillusionment, one must maintain faith in people and in humankind and in our ability to solve problems. Despair is no solution. The solution lies in analysis, in hard thinking and questioning, and in purposeful and informed action. To that goal this book is dedicated.

The structure of the book is simple. The first part, including the essays by John B. Cobb, Jr., and Chris Lewis, analyze major forces having an impact on the survivability of civilization as we know it into the twenty-first century. Both authors outline the challenges we face, including overpopulation, pressure upon the land, migration, ecological damage, and social instability. They conclude that rates of growth in population and in per capita consumption cannot be sustained. They argue, therefore, that we are witnessing the collapse of global industrial civilization. The paradox of development is that within the tremendous success of modern industrial civilization lies the cause of its collapse and ruin. By recognizing that imminent collapse, however, we may also find a solution to the impending catastrophe. Instead of seeing the collapse as a tragedy, both authors see it as an opportunity to move away from a global, market-driven economy to more local and regional models.
In part two, we present more detailed discussion of the problem of scarcity and how it relates to conflict. The authors in this section powerfully argue that the current level of human activity is unsustainable. They demonstrate that population growth in particular affects the natural world and can affect the social order and international political systems. John Gowdy and Joseph Tainter remind us that there are historical dimensions to this problem that we need to be aware of. We can learn from past societies that the economy is a subsystem of a larger biophysical system and dependent upon it. Past civilizations collapsed because their leadership elites ignored this basic fact. There is a connection between power, environmental degradation, and social collapse. A demographic explosion not only hurts the hundreds of millions of people caught in it, but also does great damage to other spheres. Human activity, ecological damage, and social and political conflict are related, these authors contend. Their consensus, with some variation, is that the projected growth in the world’s population cannot be sustained without social and political turmoil.

The earth is under a twofold attack from human beings—the excessive demands and wasteful habits of affluent populations of developed countries and the billions of new mouths to feed in the developing world. This leads Gowdy, Trainer, and Abernethy to portray the issues as a race against time. The main source of conflict and war is the ceaseless quest for greater wealth and power in a world with shrinking resources. Dilworth provides a theory that tries to explain how we got into this vicious-circle predicament, but he also believes that there can be no solution to the problems outlined above within an economy driven by market forces and capital accumulation. If we do nothing to stabilize the world’s total population, curb the profligate use of energy and food, and control damage to the environment, before long we will have so overpopulated and ransacked the earth that we will pay a heavy price in regional, possibly global, conflict. As Abernethy suggests, even the United States is not insulated from this problem. Migration strains, illegal immigration, urban collapse, the growth of an urban underclass, social disintegration, and rampant crime are all related to illegal immigration, which is related to global overpopulation. This problem also has an impact on the developed world, which must find solutions; Abernethy suggests some that deal with population and immigration control. Finsterbusch proposes solutions that increase the ability of governments to macromanage the economy and
allow for major value shifts in society away from consumption to simplicity and "conspicuous frugality."

It is clear that ideological rivalries, racial and religious hatreds, and historical factors also contribute to conflict. Nevertheless, the social effects of scarcity seem to form the context within which such struggles swiftly intensify. Although, as Tainter and Dilworth point out, this was as true in ancient Macedonia or in eighteenth-century Europe as it is today, what has changed is the momentum of population growth involving hundreds of millions of people, rather than the millions in Louis XIV's day. What sort of future do we face if social turbulence increases at the same pace as the world's population? That is the subject of the case studies in part three of the book.

The authors in part three go beyond the empirical and theoretical studies of the first two parts to examine how scarcity has already led to mass death and genocide in Rwanda, Bosnia, Somalia, and Haiti and to speculate on the likelihood that scarcities could be a more decisive factor in genocide in the future. Roger Smith, David Smith, and Waltraud Morales argue effectively that scarcity is not the only explanation for global wars, ethnic violence, and civil unrest within states or between them. However, the important conditioning and motivating factor of scarcity cannot be underestimated and probably will be more prevalent in the future given the convergence of resource scarcity, environmental depletion, human degradation, and ethnopolitical and religious discrimination. Furthermore, as Rappoport argues, "postmodern" people, unfortunately, will generally be tolerant of and perhaps indifferent to genocidal events. All the relevant cultural factors—the language, imagery, and climate of moral ambiguity—suggest that a growing desensitization is at work. To help break through this pervasive psychic numbing and political apathy, Craig Rimmerman calls for engaging students in a serious confrontation with the implications of doomsday thinking and its critique. We must find ways of encouraging students and ourselves to confront serious issues and their social implications. Otherwise, we may slide into the fragmentation of the postmodern personality that Rappoport believes facilitates the adoption of desensitizing or defense mechanisms when facing impending tragedy.

Against such seemingly persistent and powerful social, economic, demographic, and psychological forces, what can an individual or a polity do to forestall these destructive forces? In the modern world,
events move at an outstanding speed, and our consciousness cannot keep pace. We remain trapped in the old, familiar modalities of thought and politics and economic organization. Yet, we have the ability, if not always the will, to change. We are, it seems to us, overdue to start this change and transformation. We have no alternative. As Primo Levi wrote more than a decade ago about the brave souls who stood up to oppression in the Warsaw Ghetto rebellion: “They have demonstrated that even when everything is lost, it is granted to man to save, together with his own dignity, that of future generations.” (Levi 1989, 170–71). We still have that ability, but with every passing year and every new global tragedy, it becomes more difficult to grasp.