

Can America Survive?

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Abbreviated Version

This is an abbreviated version of the book, *Can America Survive?* It presents an all-text condensation of the complete book, with figures and technical appendices omitted. For access to the omitted parts, see Internet web site <http://www.foundationwebsite.org>.

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Chapter I. Introduction and Summary

Can America Survive? The answer is “no.”

Everything in the modern world is dependent on energy – massive amounts of it. The major energy source is fossil fuels: petroleum (oil), natural gas, and coal. Fossil fuels will deplete worldwide in about 50 years for oil and gas, somewhat later for coal. Except for nuclear energy, alternative sources of energy (e.g., solar) can support only a few hundred million people on the planet.

Nuclear power can provide the energy for a high-population industrial world, but only if fast-breeder reactors, which produce plutonium, are used. A small amount (a few kilograms) of plutonium can be used to make an atomic bomb. With fast-breeder reactors around the world, terrorists will have ready access to large amounts of plutonium. The choice is clear: a low population based on solar energy, or nuclear war. Either way, the world's human population will drop dramatically within just a few years, to a fraction of its current size.

This book describes the current situation and its predicted course. For the US – and any other overpopulated, multicultural, high-energy-use country -- the future is one of war, social fragmentation, and dramatic population reductions. Power will consolidate in a single dominant ethnic group; others will be eliminated or reduced to slavery or serfdom.

The organization of this book follows a logical progression, starting with a description of the current state of the planet and human population. Current trends in human population growth are identified. The relationship of human welfare to energy availability is described, and the future availability of energy is discussed. The role of economics to population growth is examined. Policies for determining what the human population size should be are identified. A new approach to population policy is introduced; it is called the “minimal-regret” approach. The likelihood of nuclear war is considered, and the damage that would result from a limited nuclear war is estimated. The impact of this war is assessed for the United States, Canada, and other countries. An assessment is made of the likelihood that the United States and various other countries will prevail after a nuclear war. The relationship of the minimal-regret approach to nuclear war strategies and the postattack environment is discussed in detail.

Chapter II. The Current State of the World

Economic State of the World. Less than a sixth of the world's population enjoys a high standard of living. The rich are getting richer, and the number of people in dire poverty is exploding. Provision of a high standard of living requires an energy consumption of about 2,500 kilograms of oil equivalent per person per year. The world's energy resources are not sufficient to provide a high standard of living to its current population, or even support a population of this size for very long.

Environmental State of the World. Industrialization and human overpopulation are destroying the planet's air, land, water, and ecology. Carbon dioxide concentrations in the atmosphere are continuing to mount as forests are cleared and fossil fuels are burned. Chlorofluorocarbons and other industrial gasses continue to destroy the ozone layer protecting the planet's plant and animal life. The average temperature at the Earth's surface has increased by almost a degree (Celsius) in the last 150 years and by almost half a degree in the last thirty years. Changes of this magnitude are sufficient to cause very large changes in the world's weather, sea levels, and flora and fauna.

Over the last century the world has lost half its original forest area, and much so-called "reforestation" is simply replacing ecologically diverse forest with monoculture tree plantations. Each year, mankind destroys another 16 million hectares of ecologically diverse forest. In the past 20 years, forests have disappeared in 25 countries, and over 95% of the forests have disappeared in 18 countries.

Chemically toxic and radioactive industrial wastes poison more and more of our finite land resources every year. Runoff from agricultural chemical has devastated coastal wetlands and fishing areas.

Overpopulation and industrialization is causing tremendous destruction of the planet's biodiversity: the greatest mass extinction of species since the time of the dinosaurs. An estimated 50-100 species become extinct each day from wildlife habitat destruction.

Nuclear-Warfare State of the World. The world's industrialized nations have lost control of fissionable material, such as plutonium (used to make nuclear bombs). The number of nations possessing nuclear weapons has increased from five to seven (with the addition of India and Pakistan). Rogue nations and terrorist groups are advertising for plutonium. Any "rogue nation" or dedicated terrorist group can construct a suitcase-sized atomic bomb. Such bombs may be simply carried to their targets: it is unnecessary to use airplanes or missiles to deliver them. Russia is producing large amounts of plutonium, and its nuclear scientists are unpaid and underpaid. With the amount of "lost" plutonium, hundreds of nuclear bombs can be produced.

Chapter III. Human Population Growth

The root cause of all of the environmental and ecological problems facing the planet is twofold: the very large human population, and the extraordinarily high levels of toxic waste produced by human industrial activity.

In evolutionary terms, human population growth has occurred in "surges" -- a surge when mankind invented weapons and tools about three million years ago, one when mankind invented agriculture about ten thousand years ago, and one when the industrial revolution began, about five hundred years ago. The three levels of human population were approximately 2-20 million during the preagricultural Stone Age, 200-300 million in the preindustrial agricultural age, and the present time, at six billion and counting.

The population surge for the present time has not yet leveled off, but it will, very soon. The reason why human population will level off soon is that it is literally exploding, and explosions do not last very long. When mankind began to tap the energy storehouse of fossil fuel about the year 1500, human population began to grow steadily, at about one half of one percent per year. In this century, the rate of growth has increased to over one percent per year. The present human population of six billion is increasing at a rate of about 1.3 percent per year, or about 80 million per year, or about a billion every twelve years. If current demographic trends continue, the global human population is projected to increase to a level of between nine and twelve billion by the year 2050.

This explosive human population growth cannot continue for much longer. Moreover, even the current human population level of six billion is not sustainable. The industrial activity of this large population is poisoning the planet and destroying the balance of nature on which mankind's very existence depends.

Chapter IV. Population Projections

Many demographic organizations make population projections, which are estimates of future population size under various assumptions about fertility and mortality levels (and to a limited extent, immigration). The most widely cited global populations are those prepared by the United Nations and the World Bank.

Under the fertility and mortality assumptions of the United Nations, world population is projected to be between 8 and 12 billion by the year 2050, and between 4 and 28 billion in the year 2150 (1994 projections).

Under the fertility and mortality assumptions of the World Bank, world population is projected to be between 8 and 10 billion by the year 2050 and between 10 and 13 billion in the year 2150 (1994 projections).

Based on historical data, the population growth rate for industrialized nations as a whole does not fall below .5 percent. If this behavior continues then the human population is projected to be about 8.5 billion in the year 2050 and about 13.5 billion in the year 2150.

Population projections are not forecasts, since they do not take into account the many social, economic, biological and environmental factors that affect population, such as war, famine and disease. They simply show what the population size will be under stated assumptions about human fertility and mortality. If current demographic trends continue, then global population will continue to soar, to about 9 billion by the middle of the next century and about 12 billion (double its present size) by the year 2025.

In view of the tremendous stress that an industrial human population of about a billion is placing on the world environment and ecology, it is difficult to imagine that global human population will ever reach the higher levels suggested by the projections, or even that the size of the industrialized human population (about a billion) can be maintained. Nevertheless, population projections are useful because they show how rapidly and how large human population will grow under various demographic assumptions, if other

factors do not come into play. They illustrate vividly how serious the human population explosion is.

Chapter V. Carrying Capacity Estimates

Population projections are of limited value because they do not take into account the many factors that affect fertility and mortality, such as social, economic, biological, and environmental factors. Carrying capacity estimates are estimates of the global human population taking into account planetary resource constraints, such as size, amount of arable land, and amount of water. The (human) carrying capacity of Earth is an estimate of the maximum number of human beings the planet can continue to support indefinitely. Consideration may also be given to quality of life, in which case the issue is how many people at what standard of living.

David and Marcia Pimentel and their colleagues have produced much useful research on the subject of human carrying capacity in their book, Food, Energy, and Society. They estimate that Earth may be able to support about 10-15 billion people living in poverty and malnourishment, or about one to two billion people at a good standard of living, for the near future.

David Willey of The Optimum Population Trust also estimates the planetary carrying capacity at about one to two billion people.

Chapter VI. Planetary Forecasts

Population projections and carrying capacity estimates are not predictions, or forecasts of the future human population of Earth. Population projections are simply estimates of future size conditional on specified values of demographic parameters, ignoring planetary resource constraints (land, water, energy). Carrying capacity estimates take resource constraints into account, but they do not address the issue of what population sizes are most likely. Projections and carrying capacity estimates are of interest, but they are of limited scope and value. Forecasts take into account both of these and all other factors (e.g., political, religious, ethical, sociological, ecological) as well.

This book forecasts that the human population of Earth will be on the order of a few tens of millions, and no more than a few hundred million, within just a few years. The following chapters explain why.

Chapter VII. The Relationship of Population and Quality of Life to Energy Consumption

The achievement of a high standard of living requires the expenditure of large amounts of energy – about 2,500 kilograms of oil equivalent (kgoe) per person per year. For all of the standard measures of quality of life, a high level is achieved only when energy consumption reaches this level. These measures include life expectancy at birth, infant mortality rate, access to safe water, access to sanitation, and illiteracy, as well as composite measures such as the United Nations Development Program's Human Development Index, Gender-Related Development Index, Gender Empowerment Measure, and Human Poverty Index.

The problem facing the world's nations is that to provide an energy consumption of 2,500 kgoe per capita per annum would require about twice as much commercial energy as the world currently produces. When the world population reaches nine or twelve billion, the amount of energy required will be about three or four times current production, or about six times the total amount available from solar energy. Just for China and India to provide 2.5 tons of oil equivalent per person per year would require their use of all of the energy available from solar energy, over the entire planet.

The implication of these observations is that when fossil fuel supplies are exhausted in a few decades, the standard of living will be extremely low for most people on the planet, or there will have to be a tremendous increase in the utilization of nuclear power.

Chapter VII. Energy Sources

The major source of energy for mankind at the present time is fossil fuel. The planet's oil reserves are about half used up, and are expected to last for about another fifty years. At current rates of utilization, there is sufficient coal to last about 200 years. If underdeveloped countries like China and India want to substantially increase the standard of living of their citizens, utilization rates would have to increase substantially.

The world's coal is distributed very unevenly – 70% of the recoverable coal reserves is located in just three countries (China, USA, and Russia).

Two of the best sources of information on global energy supplies are Food, Energy, and Society by David and Marcia Pimentel, eds., and Energy for Tomorrow's World by the World Energy Council.

Mankind is currently utilizing about half of all the solar energy captured by plant photosynthesis, and even this is not sufficient to cover its food, forest products, and energy consumption. Worldwide, only about one-sixth of man's total energy use is from solar sources (hydropower, biomass), and about five-sixths is from fossil fuels. As fossil fuels deplete over the next century, mankind will have to look to other sources of energy. The major alternative sources are nuclear power and solar power.

Much solar energy is low-grade energy (e.g., heat, not electricity). Furthermore, many solar energy devices have an “energy yield” of less than one, i.e., they require more energy to produce than they ever generate. Moreover, they often produce only low-grade energy, while the energy required to produce them is high grade (e.g., a solar water heater). When fossil fuels run out, mankind will be forced either to reduce its standard of living dramatically, or reduce its total population size dramatically, or turn to sources of energy other than solar.

Nonsolar energy sources of renewable energy include tides (lunar energy), geothermal (from the internal heat of the Earth), and nuclear energy (from uranium). Tides and geothermal can produce only limited amounts of energy in a few locations.

There are two basic types of nuclear energy: fusion and fission. Today’s nuclear reactors are all fission reactors, i.e., they generate energy by splitting atoms. Fusion nuclear energy is generated by joining together, or fusing, hydrogen atoms into helium atoms. Despite the expenditure of billions of dollars and decades of time, it is not clear that a commercial fusion reactor will ever be developed.

There are two main types of fission reactors: the thermal, or “once-through” reactor and the “fast breeder” reactor. The world’s reserves of uranium are sufficient to provide about 100 years of nuclear power using thermal reactors. Using the fast breeder reactor, however, the world’s reserves of uranium are sufficient to produce power for hundreds of thousands of years. In view of mankind’s insatiable demand for energy, use of the fast breeder reactor is inevitable.

The problem with the fast breeder reactor is that it produces plutonium. Whereas it is difficult and costly to use the fuel of a thermal reactor to make a nuclear bomb, it is relatively easy to make a nuclear bomb from plutonium. And once the world moves to using fast breeder reactors on a large scale, there will be breeder reactors everywhere. That is, plutonium will be everywhere. And that means that everywhere there is power, there is a ready supply of plutonium for nuclear bombs.

If the world turns to breeder reactors, it will in essence have hundreds or thousands of plutonium factories around the world. In view of the total inability of mankind to get along, it would be just a matter of time until one group or another assembled a few hundred or a few thousand suitcase bombs and proceeded to blow up all of the major cities of the world.

Waste Considerations

In addition to the issue of energy availability, another crucial issue facing industrial civilization is the issue of waste generation.

Prior to the industrial revolution, the planet’s ecosystem, while changing somewhat in composition because of the agriculturalization of the world, was in balance. That is, all of the waste generated by each species was used as food by other species. That is no longer true today. Industrial activity produces many “synthetic” products that are not assimilable at all by living creatures. The 8,000 kgoe per year in energy used on average by each person in the US is used to produce a wide variety of toxic and nonbiodegradable products.

Having an adequate energy supply is just half of the problem. The other half of the problem is what to do about the waste. In the natural ecosystem, energy is obtained from the sun each day, and continuously converted by living creatures into waste that is completely consumed by other living creatures. Mankind, however, uses energy to produce waste that cannot be consumed by living creatures. For industrial man to continue to survive, i.e., to be sustainable, it is necessary (although not sufficient) for him to eliminate all of the waste that his industrial activity produces. Present day man does not do this. He simply dumps most of the waste – toxic, radioactive, or other – into the environment. In order for man to survive in the ecosystem as we know it, it must be the case that all of his waste is reprocessed. Otherwise there is no balance of nature. Biological creatures do not have to worry about reprocessing their waste; evolution and the balance of nature have taken care of that. Industrial creatures such as man must worry very much about this, or they will “soil their nest” and make it unlivable. For every joule of energy that is used by man, he must insure that the waste produced by it is reprocessed (completely). This requires substantial energy.

Summary

The message of this chapter is that the large increase in human population over the past 500 years has been made possible by tapping the energy in fossil fuels. When that source of energy disappears in the next century, the human population will either drop right back to the preindustrial levels supported by solar energy (e.g., a few hundred million), or other forms of energy must be found to substitute for fossil fuels. At the present time, fast breeder fission reactors are the only feasible alternative, and they have a serious drawback of producing plutonium, which can readily be used to make atomic bombs.

The basic approach to the energy problem (i.e., the depletion of fossil fuels in a few decades) by the world governments is to ignore it. There is much talk of alternatives to fossil fuels and fission nuclear energy, such as solar energy and fusion energy, but it is just talk. Despite much investment and research, alternative technologies have not been developed.

Clearly, mankind is facing some difficult decisions. Either reduce global population size to a level that is supportable by the annual budget of solar energy, or use nuclear fission to generate energy, thereby producing long-lasting radioactive waste and the material used to produce nuclear bombs. Since no steps are being taken by world governments to accomplish the former (i.e., a human population of size that can be supported by solar energy), it is pretty clear where we are headed: more people and more nuclear energy.

Human population will continue to expand, and mankind will continue to use nuclear energy and generate nuclear waste. Industrial man will **not** be denied energy, or he will cease to exist. The fact that nuclear reactors generate radioactive waste and waste heat will not deter mankind in the least from using them. But the fact that the most promising type of nuclear reactor – the fast breeder reactor – generates large amounts of plutonium will have a significant impact on man’s future. The availability of large amounts of plutonium significantly increases the likelihood of nuclear war.

Chapter IX. The Role of Economics

Economics is a main force underlying population growth. Because of man's greed, he is constantly striving for more...more of everything. More material possessions, more power, more knowledge, more security, more comfort, better health, longer life, more variety, more freedom. The standard measure of material well-being is the gross domestic product (GDP) per capita. Recently, a number of other indicators of well-being have received attention, such as the UNDP's Human Development Index, but these additional indicators are strictly "second string" measures of standard of living. The indicator that matters to the people in charge – politicians and industrialists – is the gross domestic product.

The people in charge – politicians and industrialists – want to increase both GDP and GDP per capita. A country with twice the economic output per capita as another country having the same population is twice as rich, and probably twice as powerful. A country with twice the population as another country having the same GDP per capita is probably twice as powerful in the world community, and probably has twice as many millionaires.

The people in charge also want economic growth, which can be achieved either by increasing the population size (by natural increase or immigration) or increasing the industrial output per person. Increased economic growth means more opportunities to generate wealth, by building new houses, automobiles, appliances, buildings, roads, and other infrastructure.

If the world population doubles from six to twelve billion, the world will need twice as many basic necessities such as pots, pans, fans, and air conditioners. This translates roughly into twice as much economic activity, twice as many industrial jobs, twice as much earnings, twice as much profit, twice as much economic wealth.

So what is wrong with this picture? Who is against high standards of living? What is wrong is that the attention of the people in charge (politicians, industrialists) is centered on the promotion of economic growth irrespective of the damage to the planet's ecology. Millions of species live in the world's tropical forests. While it is not really known how many species are eliminated for each hectare that is burned, it is obvious that if all of the tropical forests are destroyed, then all of the resident species are gone forever. And that is exactly what is happening.

So long as human population grows and economic activity increases, the material wealth of those in charge will increase, both in absolute and per capita terms. Because of man's greed, the planet's political and industrial leaders will never promote a policy of lower population or lower economic activity. Both will continue to increase, and nature will continue to be destroyed. This fact is obvious from all of human history.

Why, one might ask, will the world's leaders not put a stop, or at least discuss putting a stop, to economic growth, when there is the potential for disaster – not just the loss of many other species, but the very real possibility of the complete destruction of their own nations and the human race? It is not totally clear. One factor is "discounting in time and space": the disaster will probably fall on the next generation, not on ours, and so we

do not need to worry about it. I believe that this is an important factor, because of the almost universal response I have gotten from people when I told them the subject of this book. A laugh, and a remark similar to, "Oh, I probably won't be alive then anyway."

Another factor is that people are willing to kill for economic benefit, but not for environmental benefits. Countries will go to war, sacrificing the lives of millions, for the prospect of economic gain. And they will go to war to defend themselves from enslavement. Similarly, individuals and groups will commit murder for economic gain. But no one, it appears, is willing to kill to protect other species, or even the next generation of the human species.

The late Ernst Friedrich ("Fritz") Schumacher understood the nature of economics. He wrote three books, Small Is Beautiful, A Guide for the Perplexed, and Good Work. He pointed out that economics ignores man's dependence on the natural world, and he described a system of social organization that promotes a humane and sustainable relationship of man to nature. This system, which he referred to as "technology with a human face" (or "economics as if people mattered") involves the use of low-cost methods and equipment in small-scale systems. He believed that universal prosperity cannot be accepted as the foundation for peace, because, if it is achievable at all, is attainable only by cultivating greed and envy, which destroy happiness and peace. He observed that economies of scale have transformed the world's beautiful pre-industrial cities into massive slums filled with human misery, crime, alienation, stress, and social breakdown. Increasing city size has led to enormous problems and human degradation.

Schumacher quoted Gandhi, "Earth provides enough to satisfy every man's need, but not for every man's greed." He noted that growth has become the keynote of economics all over the world. He quoted Professor Walter Heller, former Chairman of the U. S. President's Council of Economic Advisers, "I cannot conceive a successful economy without growth."

As Eugene Rabinowitch, editor-in-chief of the Bulletin of the Atomic Scientists, observed, "...there is no convincing proof that mankind could not survive even as the only animal species on Earth." But is it right to do this?

Economics is the driving force that has corrupted mankind and is destroying the planet. As mathematician John Maynard Keynes observed (in his 1930 essay, "Economic Possibilities for our Grandchildren") the fatal limitations of economics as a long-term basis for human society:

"Some day we may return to some of the most sure and certain principles of religion and traditional virtue – that avarice is a vice, that the extraction of usury is a misdemeanor, and the love of money is detestable. But beware! The time for all this is not yet. For at least another hundred years we must pretend to ourselves and to every one that fair is foul and foul is fair; for foul is useful and fair is not. Avarice and usury and precaution must be our gods for a little while longer."

Chapter X. What Size Should the Human Population Be?

The preceding chapters show that, under current conditions, human population and industrial activity will likely continue to grow without limit for as long as possible. Neither will stop unless some external factor, until now not operative, comes into play.

An earlier chapter addressed the issue of carrying capacity, and showed that the answer to the question, “What size should the human population be?” may vary widely, depending on what criteria are imposed. This chapter addresses this same question, but from a viewpoint that differs somewhat from those used before.

The major difficulty in determining a global population strategy and an answer to the question, “How many people should there be on planet Earth?” is that of deciding on the goal, or purpose, of human existence.

This book will adopt the viewpoint that the primary, or basic, purpose of mankind is twofold: to preserve its long-term survival, and to allow the planet’s balance of nature to continue much as it has in the current geological age, i.e., to not destroy the biosphere in which mankind evolved.

To this end, let us consider the following criteria for (goals as a basis for) determining human population size:

1. The probability of long-term survival of the human race is maintained very high (i.e., in some sense maximized).
2. Damage to the planet’s environment and ecology from human activity is kept very low (i.e., in some sense minimized).

The qualifiers “in some sense” are used because it is recognized that the planet’s ecology is very complex, and it is just about impossible to maximize or minimize any aspect of it, short of totally destroying the planet’s ecology or totally eliminating mankind.

A population that satisfies the preceding criteria will be called a “minimal-regret” population. The essential difference between the minimal-regret approach and other approaches that have been considered or proposed is that there is no attempt to maximize the human population size. Emphasis is instead on long-term survival of the human race and the planet’s ecology (i.e., of all other species), regardless of the size of the human population.

The “minimal-regret” approach differs significantly from the “minimum-population-size” approach, which is concerned with determining the minimum-sized population that could enjoy a high standard of living indefinitely. With the minimal-regret approach there is no attempt to maximize **either** the number of human beings **or** the human standard of living. The emphasis is on maximizing the likelihood of long-term survival of the human race and preserving the planet’s natural environment, not on the hedonistic goals of maximizing man’s pleasure or number.

The minimal-regret approach also differs significantly from the “optimal-population-size” approach proposed by The Optimum Population Trust. The rationale for the “optimal population size” is not at all clear. Why should there be any attempt to maximize the size of the human population at all, when the human population has been so destructive to the planet and other species and itself? The optimal population approach has the appearance of a “bribe,” or perhaps an “apologia” – if mankind would just agree to a smaller population size, then everybody could have a high standard of living. This approach appeals to man’s greed, and that may enhance its chance of acceptance. But in the attempt to maximize the human population at all, it continues to accept, indeed promote, a substantial risk of destruction of other species and the human species. The risk of species extinction (our own as well as other species) is reduced by **minimizing** the level of human population and economic activity, not by **maximizing** it!

To survive, the human race is going to have to minimize its use of energy, not maximize it. This approach is diametrically opposed to economics, which is committed to maximizing the use of energy (since that maximizes economic activity).

While there may be many solutions to the minimal-regret approach to determining human population size, the following is one possible solution:

Candidate minimal-regret population: A global human population of 5 million hunter-gatherers and a single industrialized nation of 5 million.

The “candidate minimal-regret population” consists, first, of a very-low-density global population of hunter-gatherers. Why 5 million? Because it appears from archeological evidence that the planet was able to support about 5 million hunting-gathering human beings for hundreds of thousands of years, without causing substantial changes to the biosphere. There is justification for believing this to be a sustainable level, because it proved to be so for hundreds of thousands, perhaps millions, of years. This belief is based on actual experience, not on conjecture.

So much for the low-density global population of 5 million hunter-gatherers. Now, what about the second component of the candidate minimal-regret population -- the single industrialized nation of 5 million? The reason for specifying a small industrialized nation in addition to the global hunter-gatherer population is that, now that technology is “out of the bag,” there is no reason to believe that a hunter-gatherer population of 5 million would not (quickly) evolve to an agricultural society, and then to an industrial society, and then once again to extreme size. The purpose of the single industrial nation is to restrict the size of the hunting-gathering population to 5 million. This is done by destroying any evidence of economic activity, such as the development of large farms or villages.

Why a single industrialized nation of 5 million, and not two or more? Because if there are two or more, there is a strong incentive to grow. The strength of a nation is proportional to its level of economic activity. At a given level of development, its strength is proportional to its population. If there are two industrialized nations on the planet, each will attempt to grow in size (population and economy) in an attempt to maximize its security. With a single industrialized nation, there is an absence of modern war. With two or more countries, war is inevitable.

Why the size 5 million for the single industrialized nation? This number is speculative. The desired size is the smallest size that can support an industrial society capable of restricting the rest of the planet to a hunting-gathering mode. If a single nation of one million could do the job, then the desired size of the industrial society would be one million. If the minimum sustainable size of an industrial society is 10 million, then the desired size is 10 million. In any event, the desired size is the minimal possible size of an industrial society, because of the large amount of waste generated by an industrial society. The minimal size of an industrial society is not presently known. The value 5 million is a "rough guess." Maybe one million could do the job. Maybe 20 million is required. The issue of determining the minimal sustainable size of an industrial population requires further analysis.

A final point, to elaborate on something that was discussed briefly above. What is the purpose of having a hunter-gatherer society at all? Why not just have a single industrialized population of five million, or other minimum sustainable size, as in the "minimum population" approach. As mentioned earlier, the purpose of the hunter-gatherer society is to increase the odds of long-term survival of the human race. Any population that is very localized -- and a small industrial population will be localized -- is in danger of extinction. In the case of a single industrial population of five million, a few nuclear weapons or an asteroid could easily extinguish the entire population. Having a hunter-gatherer population distributed around the globe significantly promotes the likelihood that the human race will survive this type of catastrophe.

In other words, the hunter-gatherer population and the industrialized populations need each other. They form a symbiotic relationship. The small, industrialized population keeps the size of the hunter-gatherer population (and hence global human population) in check; the hunter-gatherer population is insurance against catastrophic destruction of all mankind. The hunter-gatherer population also provides the industrialized population with a *raison d'être*. Preserving mankind and a Garden-of-Eden balance of nature on Earth may be a reasonable mission or goal statement, but it is too general for use as an operational objective. Maintaining a hunter-gatherer population in check is a specific, tangible objective -- a reason for getting up each morning and going to work.

The primary objective in specifying the size of the industrial and hunter-gatherer populations is to minimize the amount of energy controlled by mankind, and to let nature do its job in maintaining a Garden-of-Eden balance. This is totally the opposite of the current approach of attempting to maximize the amount of energy controlled by mankind. Instead of using 40-50% of the energy produced by photosynthesis for man's exclusive purposes, the goal would be to utilize a minimal amount, say 1% or less, for man's purposes. Mankind got into trouble when its numbers and activity increased to the point at which it started making measurable changes to the planet's environment. The minimal-regret population would return control of the planet's ecosystem to nature, with minimal interference from man.

The role of the industrial society of 5 million is planetary management. The current approach of having 229 countries, each champing at the bit to grow in economic size or population size or both, is a complete disaster. It is the same as having a ship with 229 captains -- 229 greedy, venal captains! Recent experience has shown that the current system -- permissive, undisciplined, economics-based -- is making planetary-level changes in the planet's atmosphere and biosphere, to the point where the continued existence of the biosphere as we know it is jeopardized.

With respect to the global hunter-gatherer population, the candidate population size has been proven by experience to be sustainable. But the addition of the 5 million industrial population introduces an aspect that was not a part of long-term human history. The question arises as to whether an industrial society of 5 million is sustainable. It may be or it may not be. Without it, however, the global hunter-gatherer population would surely develop and grow. There is a risk associated with any level of industrialization, but the candidate population minimizes that risk by setting the size of the industrial population as low as possible.

The candidate minimal-regret population puts an immediate halt to large-scale industrial activity. It restores the planet's biosphere as close as possible to the way it was prior to the massive changes brought about by agriculture and industrialization. It reduces the likelihood of an industrially induced planetary disaster (e.g., greenhouse-gas disaster, biodiversity "meltdown") to a low, near-preindustrial level. It raises the likelihood of mankind's survival back to what it has been for hundreds of thousands of years. It saves the planet for future generations. It bequeaths the same planet to each future generation. It rejects the notion that this planet is the chattel of the current generation to destroy for all time. It accomplishes all of these desirable outcomes. It restores to all other species the freedom and ability to continue to exist. All that is denied to mankind is the freedom to propagate to the limit and to destroy all earthly species, including itself.

Chapter XI. How Soon Should Human Population Be Reduced?

Mankind's industrial activity is causing changes to the biosphere at a horrific rate. The rate of change will increase even faster as undeveloped countries industrialize. In view of the fact that the consequences of these changes will be catastrophic, human population and industrial activity must be reduced dramatically and immediately in order for the planet to survive. There is no known reason for waiting.

As Walt Kelly's cartoon character Pogo once observed, "We have met the enemy, and he is us!" What is causing the severe problems in the Earth's biosphere is man's presence in large numbers. The human species, with economics as a catalyst, has infested the planet. It has grown like a cancer to the point where it is killing many species and, if it continues, will kill both itself and the rest of the biosphere. It is a parasite killing its host. The time to treat this disease is long overdue.

Chapter XII. The Inevitability of Nuclear War

This chapter discusses the likelihood of nuclear war.

Historical Developments

During the past several decades, from the end of World War II (1945) to the demise of the Soviet Union (1991), the world political situation was relatively stable. The Cold War involved two superpowers, the United States and the Soviet Union, engaged in a nuclear standoff. Neither side wanted nuclear war, and it never happened. The defense strategy was Mutual Assured Destruction, or MAD. Both sides possessed thousands and then tens of thousands of nuclear weapons. Since there was no effective defense against a massive ballistic missile attack, both sides were convinced that attacking the other would be tantamount to committing suicide.

And nuclear war never happened.

The Present Situation

The situation has changed now. With the collapse of the Soviet Union, there remains one world superpower, the United States. Both sides are in the process of reducing the sizes of their nuclear stockpiles from the current level of 36,000 warheads (19,775 operational) to just a few thousand.

From the points of view of the United States and Russia, the breakup of the Soviet Union and the end of the Cold War have reduced the risk of a deliberate nuclear war, since much of the animosity is gone. Looking at the world as a whole, the situation is more dangerous than ever before. The number of nations possessing nuclear weapons has increased by two, with the addition of Pakistan and India. The level of control over the weapons of the former Soviet Union has been reduced. The level of control over fissionable material from which nuclear bombs can be made has also been reduced. With each passing year, the amount of fissionable material in the world increases. With each passing year, the resentment of the world's poor nations and cultures for the rich nations increases, as they realize that they will never catch up. With each passing year, the anger of Islamic nations and cultures against Western culture grows. Terrorism is increasing. Although the risk of a large-scale ballistic missile war may have decreased, the likelihood of a small nuclear war appears to have increased dramatically. Motive, means, and opportunity. All three prerequisites for action are set.

The atomic bomb was used as soon as it was available. In fact, it was used by the US at a point in World War II when the war was clearly won. In view of the fact that a "moral" nation such as the US had no compunctions about using nuclear weapons "just to bring the war to an end a little quicker," it is obvious that any nation that is in serious danger of losing a war would not hesitate to use nuclear weapons against its enemies, if it had them.

I believe strongly that a nuclear war is inevitable. The reason for this conviction is the "politics of envy" – the desire of a "have-not" group to destroy an opponent that is better off, even if by doing so his own position is unchanged or even worsened. The politics of envy is a principal motivation of terrorist groups who attack the United States. With the proliferation of nuclear-weapon technology and weapons-grade fissionable material, it is just a matter of time until a terrorist group decides to use nuclear weapons against US cities. The US has lost control of its borders, and has accepted immigrants from all cultures into all levels of its society. It is very vulnerable.

It is not very difficult to make a plutonium bomb. It is not simple, but any dedicated group with funding can acquire the engineering expertise to accomplish it. In today's world, building the bomb is the easy part. The most difficult part is obtaining the fissionable material (plutonium or uranium) for the bomb. Although still difficult, this is becoming easier and easier. Libya and Iraq have made concerted efforts to acquire plutonium for nuclear weapons. It is just a matter of time until they succeed.

On January 13, 1999, the documentary television program 60 Minutes II broadcast a program about the manufacturing of plutonium in Krasnoyarsk-26, Siberia, Russia. Krasnoyarsk is an underground complex – hidden deep in a mountain – containing a nuclear reactor that produces a half ton of plutonium a year. It is not the only such facility. One-half ton of plutonium is an amount sufficient to make 100 nuclear bombs a year, or one every three days. Since its inception, the Krasnoyarsk facility has produced 40 tons of plutonium – sufficient to make 10,000 nuclear bombs.

So what's the big deal? Well, the big deal is that Russia is broke, and the workers at Krasnoyarsk have not been paid for three months. They need to keep the reactor operating, in order to provide energy for the city outside the mountain. They have no money, and they are quite upset. The US has agreed to pay some of the cost of operation of the facility, but Russia insists now that the US pay the full bill. The point to this situation is that there is a lot of plutonium in the world, with more being manufactured every day. With the collapse of the Soviet Union and the bankruptcy of Russia, it is just a matter of time until "rogue" nations and terrorist groups that want plutonium will have it. It is just a matter of time until they have a lot of bombs. It is just a matter of time until a full-fledged nuclear war. The next big terrorist action against New York City will not be some dynamite or ANFO against the World Trade Center – it will be a suitcase bomb that decimates the entire city!

America, wake up!

Chapter XIII. Low-Intensity Nuclear Conflict

This chapter examines several different types of low-intensity nuclear war. By the term "low-intensity nuclear war" is meant a war involving 1,000 or less nuclear bombs – a small fraction of the tens of thousands of nuclear weapons possessed by the world's nuclear powers. This size war could readily be accomplished, for example, by a "rogue nation" or terrorist group of small size, using 1,000 suitcase-sized atomic bombs.

The details of the global nuclear war analysis that are included in the complete book are not presented in this abbreviated version. The main conclusion of the chapter is that, with a relatively small nuclear attack – 1,000 atomic bombs – it is possible to destroy a large proportion of Earth's city population. Several different types of attacks are examined. These include a "population" attack, in which the objective is to maximize the total population destroyed; an "energy" attack, in which the objective is to maximize destruction of commercial energy consumption; a "biodiversity" attack, in which emphasis is given to destruction of population in countries having high biodiversity; and

a “combination” attack, which emphasizes destruction of large cities in countries having high commercial energy consumption or high biodiversity.

For a “population” attack (which is designed to destroy as much human population as possible), an attack of this size would destroy about three-quarters of the planet’s city population (of capital cities and cities of size over 100,000). The other attacks, which are not directly aimed at population, also destroy a large proportion of the total city population.

Chapter XIV. Country Case Studies

The preceding chapter showed that a low-level nuclear attack can destroy a very large proportion of the world’s city population. This chapter examines what is left, after such an attack. The key issue to address is how many functioning countries remain, after the attack. The attacks of the preceding chapter did not take into account the country affiliation of each city; there was no direct attempt to destroy countries (e.g., by destroying a certain percentage of each country’s population).

The purpose of this chapter is to impart a sense of the level of destruction of the global economic system. To that end, it examines the damage to the major world countries, and summarizes the damage to each country.

Appendix I (“Attack Summaries”) presents a list of all 229 countries, with an indication of the amount of damage from each of the four attacks. The list includes total number of cities, total city population, the number of cities targeted under each attack, and the proportion of the city population destroyed under each attack (amount and percentage).

The chapter describes the situation in several countries with respect to the “combination” attack. Of the 229 countries, 103 of them are attacked in the combination attack. The presentation identifies the population levels that could be supported in each country by primitive agriculture and by hunter-gatherer lifestyle. It also discusses the racial, religious, linguistic, and cultural homogeneity of the countries, before and after the attack.

The situation varies substantially from country to country. In some cases, the remaining population is sufficiently small to be supported at a low level of agriculture, but in others (e.g., Brazil) the remaining population is still too great to be supported by the land. In cases where the minorities tend to live in cities, such as in the US and Canada, the population is more homogeneous culturally after the attack than before. In others, such as Brazil and Russia, the cultural situation would not change much.

Following the combination attack, a large number of countries would still have large remaining populations, but not necessarily so large that the remaining populations could not be supported by low-level agriculture on the country’s arable land. The import of this is that if a single country is to prevail after a minimal-regret war of just 1,000 nuclear bombs, it is going to have to face a lot of formidable adversaries. In particular, China’s population remaining after the attack is still massive (892 million), even after 270 of its cities are attacked.

In summary, the situation is as follows. Although a low-intensity attack of 1,000 atomic bombs can destroy a large proportion of the world's city population, after the attack there is still a large population remaining. It would represent a formidable challenge for any single country to attempt to assume world control after this low-level attack. The country having the best chance of doing so would be China, with a postattack population of almost 900 million.

Chapter XV. What to Do after the War?

The preceding chapter shows that, after a 1,000-weapon war, a substantial population remains, and that a larger-scale war is necessary to accomplish defeat of all of the world's countries. As discussed earlier, nothing changes in the long run unless a single nation or group takes charge after the war, and moves to maintain global population at a low level. After the nuclear war, the key issue to address is whether a single nation or organization could prevail over (i.e., defeat) each and every one of these remaining countries.

The prospect of conventional war with one or several or all of these remaining countries is rather sobering. If these countries realize what is happening, they will surely ally in an attempt to destroy any single nation or group committed to the elimination of economic activity. To reduce or eliminate this possibility, one approach is to target one nuclear weapon on each of these countries, or at least to each one with population in excess of a specified size, such as one million. With this approach, all of the potential opponents to the single nation are weakened, and the likelihood of success is substantially enhanced.

One of the countries surviving the "combination" attack, of course, could serve as the single nation in charge of a minimal-regret population. In order to be sustainable, the single nation must be homogeneous with respect to race, language, religion, and culture. Russia scores high on these factors, as does China. Although the US does not at the present time, it would after a low-intensity attack. A list could be constructed of ethnic homogeneity scores, but that would require a data collection effort that was beyond the time and resource limitations placed on this book.

Of the several countries examined, at the present time only the US and Russia have the wherewithal to accomplish the objective of becoming the single industrialized controlling nation. China will, too, before long. A problem that arises for any of these is that they all have large populations, and are historically committed to large populations. Not one of them fits the concept of a "single industrialized nation of five million people," that was mentioned earlier in the discussion of a minimal-regret planetary population concept. If any one of them were to manage assumption of world control and then continue to promote a highly industrialized level of living for its own large population, the situation would not be much improved, if improved at all, from the current situation. This aspect is not addressed here, and warrants further consideration.

Assuming that a single nation or group is successful in defeating all others after a nuclear war, the issue arises concerning the elimination of economic activity worldwide. Following the attack, some countries will still have very large residual populations. Except for China, it is out of the question to attempt to defeat these countries by means of conventional warfare. This probably means that the single nation in charge will have to possess a strong air force, missile force, or a strong space-based military capability.

Two promising new technologies on the horizon may play a role in the maintenance phase. The space-based laser mentioned above is one of these. Few people realize that a major factor in the decision to abandon work on the Strategic Defense Initiative ("Star Wars") was the inability to process the massive amount of information about a missile attack, once the attack has been launched. The enemy can not only launch multiple independently targetable reentry vehicles, but decoys as well. Until they are slowed down by reentry into the atmosphere, these decoys are essentially indistinguishable from real warheads. The problem of attempting to correlate and track all of the ballistic missiles and discriminate decoys from real warheads in a large-scale ballistic missile was not solvable, even with all the computer power in the world.

Furthermore, even if the correlation/tracking and discrimination problems were solved, the attacker may employ a "ladder-down" attack. In such an attack, the attacker explodes a nuclear weapon in space, to destroy nearby communication satellites. Also, the ionized-gas "fireball" or "cloud" completely blocks out communications, even for surviving electronic systems. The attacker's missiles fly through the fireball. As soon as they come through, a second nuclear bomb is exploded. This process is continued, generating a sequence ("ladder") of fireballs that mask the attack all the way down.

The space-based laser uses a radically different approach. Under this concept, the system destroys all missiles as they take off. No missile is allowed to leave the ground. The intractable problems of correlating and tracking large numbers of missiles and decoys, and of "ladder down" nuclear blackouts are simply eliminated.

The space-based laser can play a role in eliminating economic activity after a nuclear attack. Global surveillance systems can detect such activity and destroy it. The space-based laser system can help push the industrial world "back to the Stone Age."

A second new development that holds promise for the maintenance phase is that of very large-scale dirigibles. Once the threat of conventional response (surface-to-air missiles, aircraft) has been eliminated, dirigibles offer a very efficient means of patrolling the planet, and destroying any signs of economic activity.

The preceding chapters show that it is possible by means of a small nuclear war to destroy a major portion of the world's city population and industrial capacity. The potential then exists for a single nation to take charge of the planet, and maintain it in a positive, controlled fashion.

Chapter XVI. The Role of Religion

There are probably several ways a global nuclear war could start. A nuclear war between two nations or groups of nations was a very real possibility during the “cold war” era. As mentioned earlier, a localized nuclear war, even if it totally destroyed the US or Russia or several other countries, would by itself cause little ultimate change in global population. This chapter explores circumstances under which a nuclear war aimed at establishing a minimal-regret population might occur.

First, it seems clear that such a war would have to be religiously motivated. We are talking here not just about killing on the order of six billion people: an ambitious or evil man could do this without batting an eye. The essential difference between a “minimal-regret” war and most others is the goal of destroying the world’s industrial capacity and economic basis. Most wars are motivated by a desire to acquire economic power, not destroy it. With the goal of economic power removed, some other intangible goal, of substantially greater importance, would have to take its place.

Could not the rational goal of saving the planet’s ecosystem be goal enough? Evidently not, in view of recent history. The process of destroying the world’s ecosystem is now well under way, and has been under way for a long time. The number of people who have killed, or even been willing to lay down their lives for, other species or future generations is essentially zero.

Barbara Ehrenreich, in her book Blood Rites, discusses the intimate relationship between war and religion. While one man’s killing another is frowned upon as murder, the accomplishment of killing tens of thousands of the enemy on the field of battle is a socially acceptable, prayed-for, glorious gift of God. General Robert E. Lee once remarked, on surveying a battlefield, “It is well that war is so terrible. We should otherwise grow too fond of it.”

This chapter discusses war from the viewpoint of the world’s major monotheistic religions.

Christianity, Judaism, and Islam vary significantly with respect to the relationship of religion to the state. When asked about this relationship, Jesus’ response was, “Render unto Caesar what is Caesar’s, and unto the Lord what is the Lord’s.” As discussed at length by D. H. Lawrence in Apocalypse, Christianity is a religion for individuals, not for states. It is impossible for any state to “turn the other cheek” and continue to exist. This is not true of Judaism or Islam. Both are quite comfortable with a religious state. The concept of “jihad,” or holy war, to defend and spread the faith is a dominant part of Islamic culture. All three religions are quite comfortable with slavery, but with some restrictions.

What does all this mean with respect to a “minimal-regret” war to impose a single planetary government? What it means is that Christianity and Judaism expect it, and Islam is unopposed – if it happens it is the “will of Allah.” In Biblical prophecy, however, the entity that rules the world after the war of destruction of the cities is not Christian or Jewish, but a dictator authorized and empowered by God.

Chapter XVII. Socio-political Characteristics of Energy-Rich and Energy-Poor Societies

With respect to energy availability, there has never been a society like the present one, and there never will be again. The current human generation is consuming, in an evolutionary instant of time, the fabulous fossil-fuel storehouse of energy that has been and will be stocked only once in the evolution of Earth. Western society in general, and the US in particular, is awash in energy. In today's world, energy is essentially free, and available on a massive scale – it is simply pumped out of the ground. The average energy cost of extracting the oil, gas, or coal is but a small percentage (e.g., 10-20%) of the energy obtained.

The massive amount of energy available to common citizens enables them to live like kings. In fact, many live far more comfortably than kings of earlier times. In terms of the services at his disposal, each US citizen is served by the equivalent of hundreds of slaves.

What has all this essentially free energy accomplished? It has enabled the US to transform itself into an egalitarian multicultural society. This type of society has never existed before. Multicultural societies have certainly existed before. Under slavery, the US population contained as many as 20 percent blacks overall, and up to 50 percent in some areas. India contained a variety of different castes, the members of which lived rigidly separate from each other. At its peak, the Roman Empire consisted of up to 40 percent slaves. What is different now is that the various cultures in the US – various races, religions, and cultures – all enjoy the same basic rights of citizenship.

When cheap energy is gone (and the word is WHEN, not IF), the profusion of rights and privileges will disappear. Present-day life in America is not in any sense a “zero sum game.” That someone has a high material lifestyle does not mean that someone else must go without. Because of access to massive amounts of low-cost energy (and the technology to utilize it, of course), everyone can have a lot. Because the population is growing (mainly because of immigration), there are substantial opportunities for increased industrial production and generation/accumulation of wealth. The waste, the species destruction, the pollution, the environmental destruction – for the time being, all of these external costs can be simply pushed off on someone else living in another country or a later generation.

What are rights? Rights are privileges granted to the members of a society, and they last only as long as the society can maintain itself and chooses to enforce those privileges. There are no “inalienable human rights.” Rights exist only in the context of a government and its laws. If your country is conquered, you do not have the right to the air in a jug. Americans enjoy an incredible degree of freedom and rights because America is a very wealthy country. When America falls, all of those rights will be gone. The right to employment or housing without regard to race, religion, gender, or national origin will be gone. The right to a trial by a jury of peers will be gone. The right to freedom of speech will be gone. The right to bear arms will be gone. The right to be free from cruel and unusual punishment will be gone. The right to life will be gone.

Without a government to back them up, statements of “rights” are meaningless. The 1948 UN Declaration of Human Rights and all the statements of rights that followed it are nothing more than worthless scraps of paper without a government to back them up. Once food and defense are taken care of, everything else that a government spends money on is discretionary. In a high-energy environment, a lot of attention may be paid to human rights. In a low-energy environment, “rights” of minorities, which are difficult and expensive to enforce, are the first things to go.

When times get hard and there is no longer a near limitless abundance, people will look to any differences as a basis for obtaining more of the limited resources for themselves. Differences in race, differences in religion, differences in language, differences in ethnicity and national origin. This is obvious. Look at the world’s “hot spots.” The war in Rwanda: differences in ethnic groups. The friction in Northern Ireland: religion. The problem in Yugoslavia / Serbia / Kosovo: religion. The problem in Indonesia: race, religion, and ethnicity. The Sinhalese/Tamil problem in Sri Lanka: ethnicity.

The point is not that one race or religion is better or worse than any other. The point is that when push comes to shove, someone has to be killed, and there must be some basis, some rationale for doing this. That’s where differences – **any** kind of differences – come into play. It doesn’t really matter what race, religion, language, or nationality you were born into. As a human being, you must accept a cause and take a stand, as arbitrary as it may be or seem. Ultimately, you will be called to and must decide to kill for your cause (nation, race, religion) or you will be killed by someone else who is willing to fight for his. You must take a stand for your cause, or you will surely die for someone else’s.

There is a lot of talk these days about “ethnic cleansing.” When free energy is gone, ethnic cleansing will prevail. The recent ethnic cleansing in Rwanda and the current ethnic cleansing in Kosovo are simply manifestations of what happens when too many people occupy a region or depend on limited resources. Someone has to go, and the way to accomplish this will revolve around race, religion, language, and ethnicity. Slobodan Milosevic is not the cause of the ethnic cleansing in Kosovo. The cause is overpopulation. If he were not promoting ethnic cleansing, someone else would be, sooner or later. The world is going to see a lot more ethnic cleansing in the years ahead, as human population explodes and energy reserves deplete. Ethnic cleansing is not the problem; it is merely a symptom.

In a world filled with people, there are two ways of establishing a new nation -- subjugation of the current residents, or ethnic cleansing. Neither approach lasts forever, but ethnic cleansing appears to have a greater degree of permanency. The US practiced ethnic cleansing big time when it decimated the American Indian tribes to take over their lands. The Israelites committed genocide (total extermination) against many tribes, to purge them from “the Promised Land”. The Spanish wiped out the local Indian tribes in Costa Rica and Argentina. America was founded on ethnic cleansing and genocide. The US has a bloody history of ethnic cleansing and genocide, spanning centuries. For it to criticize Milosevic is laughable. It has no moral authority in this realm.

When cheap energy is gone, America will quickly disintegrate. Its population is now too large to subsist on low-energy agriculture. The country will fractionalize as quickly as

Yugoslavia did after the collapse of the Soviet Empire. In 1981, Joel Garreau wrote a book entitled, The Nine Nations of North America. Seventeen years later, that book is not far off the mark in identifying the likely states of North America when cheap energy is gone. Those nations are: Hispanic Florida and the Caribbean; the Hispanic southwest and Mexico; French Quebec; the Pacific maritime; New England; the industrial east; the south; the plains; and the nonmaritime west (the Rocky Mountains, midwestern and western Canada, and Alaska).

When cheap energy is gone, it will be black against white; Christian against Jew against Moslem; Protestant against Catholic; Hispanic against French against English; Caucasian against Asian. Democracy cannot thrive in an energy-poor country with insufficient land for everyone. Democracy is at best a transient form of government that arises when resources are abundant. The population of North America is now too great to support with preindustrial agriculture. When abundant land and cheap energy are gone, the issues will be who will be master, who will be slave, and who will be dead.

Malcolm X attributed the problem between blacks and whites to the fact that the white race is inherently evil. The source of racial strife, racism, and slavery is not genetic: all races have practiced slavery. The source of racial strife, and the source of religious, linguistic, and ethnic strife, is economics. In a low-energy, land-poor setting, the dominant group in any area will be homogeneous, from racial, linguistic, religious, and cultural perspectives.

Chapter XVIII. Who Will Rule?

A low-intensity nuclear war as described earlier can be accomplished by virtually any motivated group. Unlike conventional or ballistic-missile warfare, which require expensive planes or missiles and guidance systems, the cost of the “delivery system” for 1,000 suitcase bombs is very low. All it takes is 1,000 dedicated individuals and some careful planning and coordination. Because of the low cost, the “group” need not be a country. In fact, a non-country group may have a distinct advantage over traditional geographically defined countries, since it is more difficult to target.

As discussed earlier, a minimal-regret war has two distinct phases – the first phase consisting of a nuclear attack on cities, and a second, long-term phase aimed at destruction of the residual industrial capacity. Because of the extreme vulnerability of the world’s cities, it is a relatively easy matter for a group to accomplish the first phase. Once the majority of the urban population has been destroyed, however, it is “a whole new ball game,” with respect to who will prevail. Also as discussed earlier, if more than one nation prevails after the nuclear phase, human population and industrial activity will simply continue to grow, with no long-term change whatever from the current situation.

After the nuclear-war phase, there will be many groups who will compete for primacy. These include not only the remnants of today’s nations, but also the many “survivalist” and paramilitary groups. After the war, each of them, and new groups as well, will have a good shot at taking over, or at least of establishing territorial fiefdoms. Most

paramilitary militia or survivalist groups in the US are not well organized, however, so most of them will not survive.

With respect to increasing the odds of winning, there is a strong advantage to striking first. The group that selects the particular targets (cities, industrial facilities, energy facilities) can assure that its forces are positioned advantageously for survival after the nuclear attack. In an attack of 1,000 weapons, there are many potential targets whose "value" is approximately equal to the value of the last (least-value) city of the target list. The attacker can bring into consideration many other factors in selecting the actual target list, without changing the total payoff value of the attack very much at all.

So who will prevail in Phase 2? Who will rule? This chapter identifies a number of cultural groups and discusses their relative strengths and weaknesses relative to this issue. The discussion here is intended to be illustrative, not detailed or comprehensive. It will illustrate some of the important factors involved through discussion of a number of national, religious, and ethnic groups.

As discussed earlier, the group that prevails will be homogeneous with respect to race, religion, language, and culture – the requirements for any strong nation. At first look, it would appear that a small, linguistically distinct group would have the best chance for success. After Phase 1, there will still be many millions of survivors from the large countries. The odds of a small group from such a country prevailing either in Phase 1 or in Phase 2 seem low. The members of any small group from a large group will have many friends and relatives throughout the country. It is reasonable to imagine that a small group of ethnically distinct people with few outside relations could commit itself to waging a minimal-regret war against all the rest of humanity. More importantly, as the size of the group grows, the odds of maintaining security drops dramatically. In the US, millions of people now possess defense security clearances. Furthermore, those millions include members from all races, religions, and ethnic groups. Millions of people cannot keep a secret. When push comes to shove, individuals will protect their family and clan, not a multicultural hodge-podge that no longer possesses a cultural identity at all.

The security of Phase 2 operations will be dramatically enhanced if the prevailing group is of a race, language, religion, and culture that is different from all others. If this condition holds, the threat of infiltration from outside the group is dramatically reduced. Infiltrators would be immediately recognized by their racial and linguistic features, just as the World War II shibboleth, "lollapalooza" exposed Japanese infiltrators to American GIs.

A key issue that must be addressed relative to Phase 2 is the issue of how large a force is required to have a high likelihood of victory over the residual populations of the entire rest of the world. That issue is not addressed here, although it is a crucial feature of strategy.

This chapter presents a brief look at some major racial/cultural/religious groups, to assess the likelihood of their success. The chapter summarizes group characteristics, and some may attempt to dismiss these observations as "racial" or "cultural" stereotypes. They are indeed racial and cultural stereotypes. It is group characteristics that are of concern here, not the attributes of particular individuals. The selection of groups examined here is not intended at all to be comprehensive, but merely

representative, and serving to exemplify the attributes that may be important in determining who is likely to be in charge after a minimal-regret war.

This chapter examines factors that affect the ability of various cultural groups (nations, racial groups, religious groups) to initiate a minimal-attack war and assume control of the postattack world. The observations noted here are both objective and subjective, but they are not religious. God may have other plans – He will choose whom He will choose, and He will give authority to rule – and this chapter does not intend to “second guess” Him. But God may not care if there is a global nuclear war, and God may not care who is given authority to rule. The choice may be up to you!

So who will rule? Perhaps a more appropriate question is “What (ideas) will rule?” As Keynes noted, we are ruled by our ideas and little else.

Chapter XIX. Isaac Asimov Saw It All

Back in the 1950s, the science and science-fiction author Isaac Asimov wrote a book entitled, The Thousand Year Plan. This book was later renamed Foundation and, together with two sequels, Foundation and Empire and Second Foundation, formed part of what became known as the Foundation Trilogy. The plot for this popular series was that the galactic empire was in danger of falling apart, and a group of men committed themselves to “saving” it. Without intervention, it was estimated that galactic civilization would disintegrate into a primitive “interregnum” or “dark age” period of 40,000 years. By setting up an organization to preserve galactic technology, however, the period of anarchy could be reduced from 40,000 years to 1,000 years. That, in essence, was the “thousand year plan.” The group formed to implement the plan was the “Foundation.” The planet on which the Foundation was established was called Terminus. The architect of the thousand year plan was the psychohistorian, Hari Seldon.

Because of human overpopulation and runaway industrial activity, Earth faces a problem analogous to that faced by galactic civilization in The Thousand Year Plan. If an immediate and massive reduction in industrial activity does not occur, the likelihood of a catastrophic breakdown in the planet’s biosphere appears to be very great. If this happens, and if the human species continues at all, it could indeed be thousands of years before human civilization arises again.

In his writings, Asimov also addressed the energy problem. In The Gods Themselves, he addressed the problem imposed by the second law of thermodynamics, or the “entropy” problem. The second law of thermodynamics states that the level of disorder (or entropy) of a closed system cannot increase – the universe is gradually running down and will end up in what is called “heat death.” In The Gods Themselves, Asimov conjectures a “parallel universe” solution to the entropy problem, by which our universe and a parallel universe trade energy – in effect, our universe ceases to be a closed system.

Asimov was very concerned about the poisoning of the planet by industrial activity. He and Frederik Pohl wrote the book, Our Angry Earth, in an attempt to call attention to the

pending disaster. That book was written a year before the Rio de Janeiro Conference on the global environment. As observed by Frederik Pohl in the chapter, "Afterword: One Year Later" (following Asimov's death), nothing changed as a result of that conference. Pohl notes that money and politics are the problem. The march to disaster continues. Perhaps it is time to implement Asimov's thousand year plan.

Considering the future is a popular theme of science fiction writers. In his 1933 book, The Shape of Things to Come, H. G. Wells describes a future wracked by planetary war, the destruction of capitalism, Hobbesian chaos, and the rise of a world government.

In the article, "Population Factors in Development Economics" (in Population and Resources in Western Intellectual Traditions, a supplement to Vol. 14 (1988) of Population and Development Review, Michael S. Teitelbaum and Jay M. Winters, editors) author Kenneth E. Boulding observes, in criticizing Julian Simon and the anti-Malthusians, that "it is sometimes the poets and the science-fiction writers who are the best guides to the future." Time will tell.

Chapter XX. Religious Aspects

This chapter summarizes the attitudes of the world's three largest monotheistic religions toward issues that relate to a minimal-regret population and a minimal-regret war. Appendix L contains a selection of verses from the Jewish, Christian, and Islamic scriptures (i.e., the Bible and the Koran). The verses relate to the various topics covered in this book, including war, politics, morality, slavery, immigration, the environment, and eschatology (the branch of theology concerned with final events in the history of the world or of mankind). Some verses are included simply to provide background on these religions. While the number of verses quoted below may seem large, they are but a small fraction of the total. These verses are included because relatively few Americans have read the Bible, and even fewer the Koran, and may not be aware of its relevance to the problem of determining the world's population. In some cases, the number of verses relating to a particular topic is large, and the topic description is mentioned without quoting the verses.

The presentation here is mainly objective, not interpretive. The discussion of religion with respect to the themes and theses of this book is not intended to support or justify them in any way. This book is very much about war, however, and war cannot be separated from religion. For this reason, it is important to understand what the position of the major religions is relative to the issues considered by this book.

Chapter XXI. Can America Survive?

So, what is the answer to the question, "Can America Survive?"? This book has addressed that issue in the larger context of what is likely to happen to the planet. And the best guess is that the current mass destruction of the planet will not continue. It will

not continue because it risks destroying all animal life on the planet, in addition to mankind. It will not continue because there is a better solution, and that solution – the minimal-regret solution – is to transform the human population immediately, by war, to a single minimal-sized industrial population plus a hunter-gatherer population everywhere else.

All other approaches to the problem do not address the problem that the current human population size is decimating other animal species, and that the best estimate is that the human population size will continue to grow without limit until stopped by catastrophe. And at that point, all animal species, human or otherwise, will be wiped out.

So Can America Survive? The answer is “No!” It will not survive because the planet’s biosphere does not need, and cannot afford, a single industrial country of size 300 million people, committed to the generation of prodigious amounts of industrial waste for no purpose other than hedonistic pleasure. The minimal-regret solution is oriented to minimizing the human population, subject to avoiding extinction. Other solutions attempt to maximize human population, no matter what the risk of extinction to human or other species.

Given that the answer to the question is “No,” a second question may be asked. Will the surviving small industrial population be “Out of America.”? The answer here would also appear to be “No.” By its policy of massive immigration of foreign cultures – races, languages, and religions – it is no longer a viable culture at all, but a fractionated multicultural mess that will hold together only as long as the “free” energy of fossil fuels holds out. It is not a people. It is an out-of-control, growth-addicted, energy-addicted, incredibly wasteful and destructive industrial cancer that is destroying not only itself but also its host – planet Earth. Its democratic form of government – a wonderful idea for a homogeneous population in a low-population-density, low-energy setting -- has slowly paralyzed as the population has been converted to a balkanized hodge-podge of competing races, languages, religions, and cultures. No single culture is in charge any longer. In a sense, the planet is a ship with 229 captains (countries), and the United States is a ship with no captain at all.

Southern California and Florida are now Hispanic colonies. Many US cities are black, Asian, or foreign-language enclaves. Immigrants by the thousands, hundreds of thousands, and millions are swarming over the land, diluting and destroying the Anglo-Saxon culture that established the country and made it great. America is rapidly self-destructing. It is an overpopulated, multicultural, polyglot, multireligion, multiracial that has lost its identity, sense of purpose, and determination to survive, and will soon cease to exist.

Lest there be any doubt, I am not advocating the overthrow of the US government by force. That would be illegal, and treason. While George Washington was willing to commit treason and overthrow the established government by force, most people are not so inclined. As Jesus said, “Render unto Caesar what is Caesar’s, and unto the Lord what is the Lord’s.” As long as I am an American, I will be a loyal American. I am sickened that America is in the process of “slouching toward Gomorrah” and destroying itself. I am ashamed that my predecessors fought and died for this land (both Canada and the US), and my generation is giving it away. For much of my life, I was busy with pursuing a career and raising a family, and like so many others I never really thought too much about the population problem. I have thought about it now – a lot – and I believe

that it is just a matter of time until some group destroys many of the world's cities. It is just too easy to do, and there are just too many very unhappy people in the world.

Should America strike first, to save itself? That is a matter of policy that is not addressed in this book. The purpose of this book is simply to show that there is a strategy – a minimal-regret population – that addresses the problem of industrial destruction of the planet, and that can be implemented very easily by any motivated group.

In his book, The Affluent Society, John Kenneth Galbraith quotes Robert Browning, “Jove strikes the Titans down, not when they set about their mountain-piling but when another rock would crown their work.” In his book, Proverbs, John Heywood quotes the English colloquial saying, “Pryde will have a fall; for pryde goeth before and shame commeth after.” Behold how the mighty have fallen.

Appendix A. Selected Bibliography

The bibliography lists most of the over 600 books, articles, and other documents that were reviewed as background during the preparation of this book.

Appendix B. Conversion Factors

Factors for converting between English and metric systems of measurements.

Appendix C. Data Sources

Identification and brief description of the data sources on which the book's analysis is based. The primary data sources are the World Bank's CD-ROM, World Development Indicators and the United Nations' Statistical Yearbook (hardcopy).

Appendix D. Country Characteristics

Selected demographic, economic, and physical characteristics of 229 countries: total fertility rate, population, kilograms of oil equivalent per capita, total land area and cropland area.

Appendix E. Population Projections

A discussion of the population projection method used by the World Bank and United Nations (the cohort-component method), and a description of a simpler, two-parameter population-projection model.

Appendix F. Graphs Showing the Relationship of Various Indicators of Quality of Life to Commercial Energy Use

This appendix presents a number of graphs that show the relationship of various economic and social indicators to commercial energy use. The graphs show that to achieve the quality of life comparable to that achieved by the world's industrially developed countries requires access to a minimum commercial energy of about 2,500 kilograms of oil equivalent (kgoe) per capita per year. Current commercial energy consumption in the US is about 8,000 kgoe per capita per annum. A majority of countries (55%) have per capita commercial energy consumptions of 1,000 kgoe or less, and only 25% have per capita energy consumptions of 2,500 kgoe or more.

Appendix G. Low-Intensity Nuclear War

This appendix presents an analysis showing the damage that can be caused to the Earth's city population by nuclear war. Although interest centers on the damage that can be caused by low-level nuclear war (i.e., an attack of 1,000 small nuclear bombs), damage curves are presented that show the damage over a wide range of attack sizes. The appendix begins with a discussion of the statistical distribution of city sizes, and then proceeds to examine four different types of attack. These four attacks have different "payoff functions." The first attack targets population, the second one energy use, and the third one cities in countries having high levels of biodiversity. The fourth attack is a "combination" attack whose payoff function is a combination of population, energy use, and biodiversity.

Appendix H. City Characteristics

This appendix presents selected characteristics for the largest 322 cities of the world (these cities have population of one million or more). The characteristics presented are those used to determine the target selection of the attacks described in the previous appendix. These characteristics include population, kilograms of oil equivalent per capita per annum, kilotons of oil equivalent (total annual consumption for the city), number of plant species in the country, and two characteristics derived from these. (The attack analysis of the preceding appendix used a list of 3,385 Earth cities that have population over one hundred thousand or are country capitals. The list of Appendix H is a portion of the complete list.)

Appendix I. Attack Summaries

This appendix summarizes country characteristics for each of the four attacks considered in the book. For each of the four attacks, a table is presented that specifies, for each country, the number of cities attacked, the total population of the attacked cities, and the proportion of city population attacked (of the total population of the capital city and all cities having population of one hundred thousand or more). (Not all countries are included in the "energy" and "biodiversity" attacks, since the data required to determine the attack were not available for all countries.)

Appendix J. Lest We Forget

Epitaphs in the Chittagong War Cemetery 1939-1945

Appendix K. A Family Experience with the Japanese

A summary description of the Japanese attack on Hong Kong in December, 1941.

Appendix L. Selections from the Bible and Koran

Selected verses from the Bible and Koran. The verses relate to the various topics covered in the book, including war, politics, morality, slavery, immigration, the environment, and eschatology.

Appendix M. Figures

Figures supporting the analysis and discussion presented in the text. These figures present demographic characteristics of various countries, population projections, relationship of social and economic indicators to energy use, and attack payoff curves.