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A World 2010

A New Order Of Nations

Charles W. Taylor

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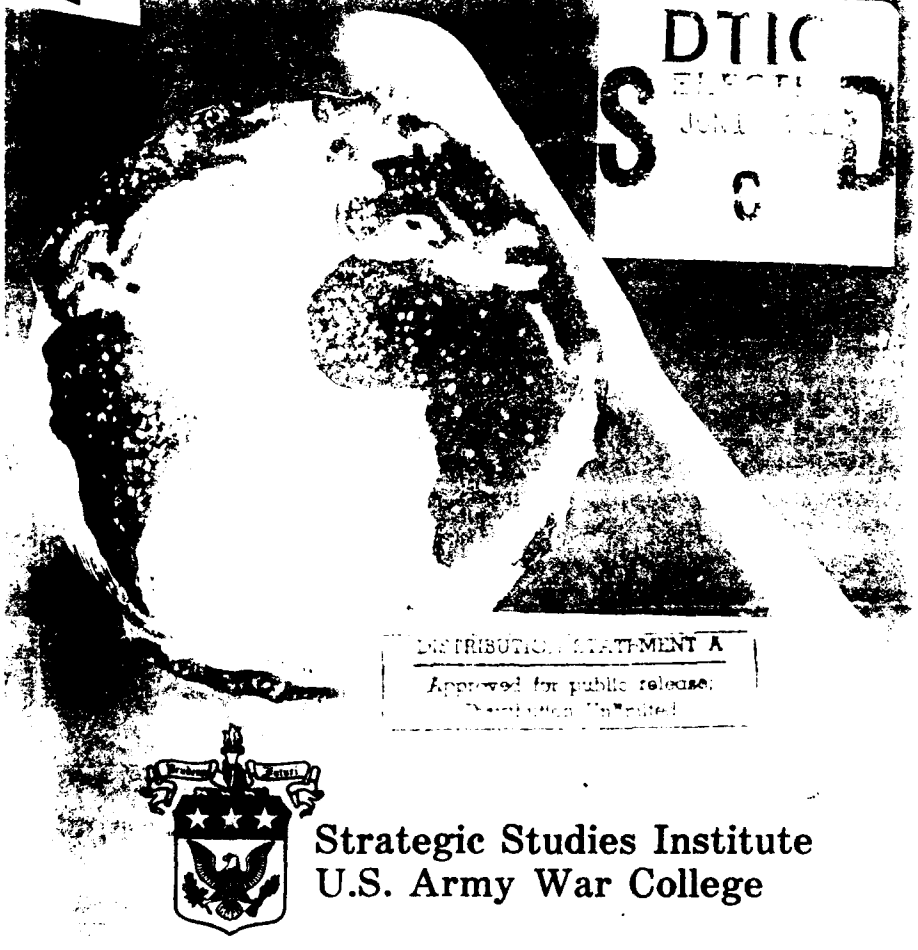

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In this book, A World 2010: A New Order of Nations, the author describes the decline of the influence of the 20th century superpowers. He explores the notion of a devolution of political and economic world power and forecasts a rise of a new order of nations. Further, he advances the concept of a rise of 21st century postindustrial states to preeminence. These new realities could usher in a new era of relative world peace brought about by the crumbling of the Soviet Union, the formation of new global economic interrelationships and coalitions, and the advancement of former Third World nations to become competitive industrial states. The author concludes by forecasting the notion of a U.S. national requirement for a subdued worldwide military presence that serves a passive role, deterring conflict and preserving peace.

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Comments pertaining to this report are invited and should be forwarded to: Director, Strategic Studies Institute, U.S. Army War College, Carlisle Barracks, PA 17013-5050. Comments also may be conveyed directly to the author at the above address or by calling commercial (717) 245-3010 or DSN 242-3010.

* * * *

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ERRATA

Page iv, title of Table 5 should read: "Projected Population Estimates by New Order Classification (in millions)"

Page 31, title of Table 5 should read: "Projected Population Estimates by New Order Classification (in millions)[6]"

FOREWORD

This book is a description of a plausible future world environment for the years around 2010. This environment describes a world where the influence of one superpower of the 20th century is diminished and where the government and the nation of the other has collapsed and reorganized into several new national entities. It also portrays a world where 20th century Third World nations achieve a new status in the world's family of nations. The author depicts in this book a world where new international status and alignments lead to a new world order of nations. The new order places the nations of the world in 2010 in five groups according to their relationship to modernization and industrialization.

The author created the concepts for *A World 2010* and its forecasts in 1984. The narrative was published in an Army document in 1986 entitled, *A World 2010: A Decline of Superpower Influence*. The concepts for this world were based on the author's interpretation of basic trends existing during the last half of the 20th century. These trends have a high probability of enduring through the year 2010, as well as shaping the world environment well into the 21st century. The 2010 environment focused on a devolution of world power and a new order of nations. The author perceived a world where new democratic governments and free-market economies of nations, including the East European nations and the Soviet Union, were developing and competing for power and world markets. The author described a world of increasing nuclear disarmament and a down-sized, CONUS-stationed military force. The concepts were sound, the forecasts were valid, but the time of the occurrence of many events was 20 years earlier than 2010. The forecasts did not anticipate an above normal Soviet rate of change effected by the former Soviet leader, Gorbachev, and the Russian leader, Yeltsin, in the 1990s. The author believed that because of these changes it was time to update the forecasts of the world in 2010. The concepts in the 1991 forecasts have been advanced to emphasize a new order

of nations and to examine its impact on the national security of the United States.

The author wrote this book for the Strategic Studies Institute, United States Army War College, as a contribution to long-range strategic futures and planning. The book and the forecasts, inferences, and any conclusions it contains were designed by the author to be a basis for the development of alternative future world scenarios for strategic planning by the Department of Defense and other government agencies.

WILLIAM A. STOFFT
Major General, U.S. Army
Commandant

CHAPTER 1

BACKGROUND AND PROCESS

Introduction.

At the dawn of the year 2000 AD, people and buildings for their homes, businesses, and industries will crowd the world's nations as never before. People in many nations will be living and working in a world of more or less free trade, free market economies, individual independence, and national interdependence. Nations during this first decade have not yet adjusted to the absence of competitive leadership–the days of the superpower world. A new global environment for the world's nations will bring almost all nations into new and closer relationships, politically, militarily, and economically, than in any previous time.

The world's nations likely will continue with the broad pattern of ideological, political and economic polarization that became most noticeable by the end of the 20th century, but not as divisive as in the past. The significant changes affecting the lessening of polarization are the strides many nations have made toward forming multiparty liberal democracies and the trashing of communism as a practical ideology by others. Yet, three major camps[1] will still exist after the turn of the century. They are: a. the democratic-like nations with capitalistic or socialistic economies, i.e., the "free" world; b. the totalitarian-like nations, e.g., socialist, communist (variations of Marxist Leninism), or nationalist with largely socialistic, or military- or government-controlled economies, i.e., the "not free" world; and c. groups of nations in various stages of political and economic transition and growth. These nations very likely will not necessarily be pledged to any of the other philosophical camps,[2,3] and likely will be variably aligned with one another according to their perceived common interests.

Also, they increasingly will challenge the world power positions of the major free and not free nations, politically and economically.[4]

All nations, by the turn of the century, will be aware of the beginning of a new era and reality. The new era will be the result of evolutionary and radical changes that have been occurring over the past several decades among and within nations. Contributing to these changes has been the gradual loss of primacy in international affairs previously shared by the superpowers. The most radical changes during this time occurred in the Soviet Union and Eastern Europe where the internal weaknesses within the communist system culminated in the fall of communism, the crumbling of the Soviet Union, and the rebirth of new independent democratic states. The new reality will be one that will encompass new interrelationships, emerging coalitions, and new friendships among nations. Global issues by 2010 will become significantly more complex and relationships will become increasingly more diffused than in the past. A devolution of global power will evolve that increasingly will shift from the superpowers of the 20th century to a new international order of nations. By 2010 the centers of international economic power structure will very likely swing variably from Washington to Berlin, Paris, Singapore, Tokyo, Kiev, Beijing, and Moscow.

The new order of nations, by 2010, almost certainly will create change within nations as well as change in their political and economic relationships with other nations. For some nations the change that will transpire will be a societal progression from an agrarian society to one that is industrial. For others, the change will be a transition from an industrial society to advanced high-tech industrial status. For a few, the change will be a shift to postindustrial information societies. The years leading to the world of 2010 will reflect changes in political and economic global power competition. The international environment existing in the world by 2010 clearly will show evidence of the evolutionary decline in 20th century superpower influence and the rise of a new order of nations in an environment typified by a devolution of power. Specific

variables used to describe the 2010 environment are: the devolution of power; demographics and manpower (work force); international interdependence; productivity and trade; sociopolitical and economic prominence; science and technology; and military power and arms transfer.

Starting with this new order of nations, the author of this futures study presents a plausible world environment around the year 2010. He describes the trends of the 20th century that most likely will shape the 2010 environment. In addition to the impact this future world very likely will have on U.S. national security, the author reviews the need for the application of military power as an instrument of national policy. Lastly, he examines the possible implications for a future U.S. Army that can evolve from a new world order which will shape the world of 2010.

Methods.[5]

The basic methods used for the development of this study are thematic, trend, and impact analysis. Sequential logic also was useful for projecting trends into the future, i.e., assigning probabilities to a logical progression of the consequences of trends and events and their interactions into the future. By tracking and following these logical audit trails of probable and plausible consequences or outcomes, patterns that make up the world 2010 environment can be observed and described. Every step of the process is holistic in perspective, i.e., the process creates multiple visual patterns of, and interlaced pathways into, the future. A broad view of the world is necessary to visualize alternative strategic world scenarios. The processes for developing these futures' scenarios are as follows:

- Selection: Select prominent and relevant strategic trends to establish a base line for a 2010 environment, i.e., the durable trends of the latter half of the 20th century.

- Projection: Project the consequences, outcomes, and interactions and the probabilities of these trends sequentially and logically outward in time and into the early years of the 21st century. The identification of an occurrence of any consequence(s), outcome(s), or interaction(s) reflects a passage of time.[6] The pace of interactions among trends varies; for some, the pace is increased to the point that a consequence occurs before the logic is developed; for others there are discontinuities and they progress no further. Occurrences, then, fall on a forecast focal or time plane that is made up of the environments or scenarios at a preselected, but relative, time in the future.

Within the process of projection there are very distinct dichotomies of terms that are increasingly being accepted by futurists in the social sciences. One important dichotomy is the difference between prediction and forecasting. Prediction, as it is used by some analysts, is a deterministic view of the future, i.e., it is certainty; e.g., tomorrow, it is going to rain. Whereas, forecasting is being used increasingly by futurists as a probabilistic view of the future, i.e., it deals with chance; e.g., tomorrow, there is a 60 percent chance of rain. This difference is important to the development of this study since everyone can predict the future, but no one can predict the future accurately, except by chance. The author has taken special care to minimize predicting world conditions in 2010 and has made every effort to forecast the future in nominal forecasting terms. For example, the above forecast statement would read: tomorrow, there is a better than even chance of rain. The author has provided a table of estimative semantics as an appendix for the reader to use to determine the probability of the occurrence of events.

- Composition: Construct plausible alternatives by composing and interpreting interrelationships and combining consequences and outcomes of trends and events. This step creates a plausible base-line (surprise-free) scenario.

This process is useful to find probable effects on U.S. national security as well as probable implications for the U.S. military. Finding a possible need for the application of military power as an instrument of U.S. national policy is another use. Creating strategic visions of the future is also a feature of the process. Of equal importance, as the environment of the 21st century begins to unfold in this process, the reader will begin to weigh the consequences of the selected strategic trends from his personal perspective. Whether in agreement or disagreement with the author's trend interpretations, the reader very likely will create variations of the future environment to fit his personal and professional future strategic visions.

A world environment so envisaged, where the status of the 20th century superpowers has declined, one superpower has collapsed, and a new order of nations is unfolding, surely could not happen without underlying assumptions that allow the interactions of the world's nations to shape the world of 2010. Such a world surely could not come into being without indicative driving trends paving a pathway through the next several decades.

Assumptions.

The assumptions for this study encompass war, world economy, and science and technology. The assumptions allow the development of a world 2010 environment during relative peace before the turn of the century and during the first decade of the new century. This environment also is free of restrictive societal events, e.g., natural or man-made aberrant, disruptive, anomalous, or catastrophic incidents. Any occurrence of such events would seriously affect the assumptions and would create an unstable world environment in which progress toward a world 2010 at least would be delayed, if not precluded. The assumptions are:

- Neither general war nor a war between the United States and any other militarily equal state, nor a war among other major 20th or 21st century powers will occur before the year 2010.
- Neither worldwide economic collapse nor a major world depression will occur before the end of the 20th century, nor in the early years of the new century.
- No major scientific or technological breakthrough(s) will occur that will give one nation the ultimate power of intimidation over all other nations of the world.

Trends.

The environment described here for a period around 2010 is an aggregation of the plausible outcomes of seven basic and critical trends. They are lasting or enduring trends selected from the decades before the turn of the century that have a universal and worldwide influence on almost all nations. These trends, most cited by futurists and planners, are very likely to increase in importance during the close of the 20th and into the early decades of the 21st centuries. Most notably, these trends will have a significant influence on U.S. national security and defense policies. They especially will affect the size and the use of the active and reserve components of the U.S. military. Throughout the preparation of this study the author has observed, monitored, and analyzed these trends for inferences suggesting how each trend, consequence and plausible outcome affect a decline of superpower influence and support a new order of nations. The paragraphs below briefly describe these trends. Subsequent chapters describe the trends in more detail.

- Nations of the world are progressing toward a new international order and a devolution of power. The categories of nations that appropriately describe the order of nations in 2010 are: postindustrial, advanced industrial, transitioning industrial, industrial, and preindustrial.

- Global population continues to increase. Demographers estimate that by the year 2010 world population will have increased by 30 percent over 1991. The distribution in 2010 throughout the new order of nations of an estimated 7.2 billion population very likely will be:

Percent	Nation Status
47	Industrial
30	Preindustrial
16	Postindustrial
5	Transitioning Industrial
2	Advanced Industrial

- Interdependence among the world's nations continues to increase but in new patterns of economic arrangements and competition. The growth of interdependence along with new economic treaties and trade arrangements among nations by 2010 will have caused: a. general abandonment of many 20th century trade agreements, b. increases in the adoption of the free market and enterprise systems, c. creation of common currency throughout the world, and d. rises in economic growth for most nations of the world.

- Sociopolitical changes increasingly are affecting all nations of the world. By 2010, most of the world's nations can be expected to have experienced a sociopolitical reorientation. This change reflects their new status in the international order of nations as well as a general relaxation of world tensions. Nations and their leadership very likely will form new views of, and make modifications to political processes and social structures as new industrial, economic, and technological infrastructures come into being within most nations. The spread of free enterprise on a worldwide scale increasingly will promote a rise in capitalism along with an increase in privately owned and controlled industries. Moreover, the influence of a free market system, very likely, will encourage a growing preference by many people for representative government and the recognition of human rights. By the early decades of the

new century, most of the nations of the world can expect to undergo cultural and philosophical changes that, most likely, will alter their societies profoundly.

- Reserves of petroleum, primarily, and gases continue to decrease as sources of energy while the use of coal, nuclear, and alternative energy sources rises. By 2010, nations of the world will have become increasingly aware that fossil fuels could be depleted by or before the end of the 21st century. There is a very good chance that there will be about 40 nations that will have nuclear power plants to satisfy their energy needs in 2010.

- Science and technology continue to advance rapidly as do space exploration and use. Most nations of the world are benefiting from the continuing great strides in the advancements of science and the achievements of technology. All nations are sharing in this progress; even the poorest of the preindustrial states. By the turn of the century, the transfer of technology, including technical information and equipment, is very likely to be unimpeded to all states that have the economic and societal infrastructures to afford its costs, understand its complexity, and absorb the societal changes it causes. Almost all nations are profiting from the peaceful commercial and exploratory use of space. The cost-benefits of such development and activities in 2010 most likely will outweigh the uncertainties and risks of military weapon systems in space.

- Proliferation of conventional arms (including chemical and biological) and nuclear weapons continues. Despite the reduction of world tensions, almost every industrial nation will be armed with a range of conventional weapons, most of which will have been supplied to them by the 20th century superpowers before 2000. Many nations will continue to purchase or barter for the latest conventional high-tech weapons, which will be available in 2010 from new 21st century arms' suppliers. Additionally, by the end of the first decade of the century,

nuclear proliferation will have increased; as many as 24 or more nations most likely can be expected to have nuclear weapons in their arsenals.

A Decline of Superpower Influence.

The decline of superpower influence is measured within the context of 20th century notions and in terms of factors related to the interpretation of trends and events used in this study. As the reader compares the trends against 20th century notions and terms of superpower influence, the United States and the Soviet Union, in most instances, appear to have suffered a decline in economic, political, and military influence. Chances are good that the trends responsible for the decline of the superpowers and the devolution of power worldwide during the 20th century are:

- the increasing number of nations adopting free market economies,
- the increasing number of nations turning toward representative government and democracy, and
- the increasing proliferation of high-tech and nuclear weapons.

There are several other trends whose consequences have contributed also toward the superpower decline, the world power devolution, and toward the creation of a new world order of nations. They are:

- the increasing technological capability of the media to report events instantaneously worldwide via satellite;
- the increasing freedom of the media to report events occurring anywhere in the world, e.g., the freedom of reporting events happening in the Soviet Union during its collapse that were permitted by the Soviet leadership's introduction of *glasnost* as a step toward individual freedom; and

- the increasing willingness of nations and people worldwide to engage in information exchange.

Despite the declines in its influence, the United States in the world of 2010, as in the 20th century, remains the most powerful and influential economic and political nation of the world while its military is one of quiet military power, i.e., it serves a passive role, deterring conflict and preserving peace.

While the Soviet Union laid claim to superpower status during the latter half of the 20th century, it did so because of its military power, its nuclear weapons arsenal, and its dominance over satellite nations. As a result of its concentration on the development of military capabilities and the inefficiencies and corruptness of its centrally directed economy, the standard of living in the Soviet Union failed to increase, the morale of the Soviet people declined, the rate of technological advancement stagnated, and the nation was faced with a complete economic collapse. A move toward free enterprise and democracy by new liberal leadership in the late 1980s led the East European nations and several of the Soviet republics to seek independence.[7] An attempted but failed coup of the liberal Soviet leadership by ideological hard liners occurred in the early 1990s. This increased the pace of change in the Soviet Union. Led by the Russian Republic, a sweeping reorganization of the divided Soviet republics began; so also began the rise of ethnic nationalism, demands for freedom, and declarations of independence. The crumbling of the Soviet Union became a reality.[8] Before the mid 1990s, the Soviet Union, as it was known for most of the 20th century, will no longer exist.

By the mid to the late 1990s, several new independent national entities most likely will have been created from the republics and independent, ethnic autonomous areas of the former Soviet Union.[9] These entities will be created as loose alignments or associations from past nation states and ethnic groups of the former Union that have common interests, especially in economic security and growth. Chances are about even that they will be joined in the form of confederacies under

a loose commonwealth. By the end of the century, these entities or coalitions will have established and strengthened their new national identities as well as their place in the new order of nations. By the end of the first decade of the new century many of these coalitions of former Soviet republics and independent autonomous states very likely will have developed reasonably stable, free-market economic infrastructures through the economic help of Western nations. Throughout the coalitions, confidence in social reform and progress toward representative, democratic and social political systems also very likely will be achieved by 2010. These new representative governments will be more economically but less politically competitive than the former Soviet Union. Also, since their military forces will be fewer than the former Soviet Union's forces, they will not be militarily adventuresome on the world scene. Chances are good that these coalitions will accept the technical offers of the Western democracies to dismantle the portion of the former Soviet Union's nuclear arsenal located on their territories. These weapons, although under a central, provisional command authority of the commonwealth (the former Soviet Union in Moscow), will be located mostly throughout the former Soviet European sector and will pose a significant threat to world peace until they are disarmed. Previous clients and surrogates of the Soviet Union in the Middle East, Africa, Latin America, and Eastern Europe will be forced to find new sources of aid and arms or seize the opportunity to pursue self-directed peaceful destinies.

Summary Thoughts.

The 2010 environment, essentially, encompasses a relatively peaceful world. This does not mean that there will be no wars any place on the planet. It does suggest that in comparison to the 20th century, chances are good that there will be few armed conflicts in which U.S. forces will be involved. Equally important, chances are better than even that there will be few armed conflicts in which any former Soviet forces will be engaged outside of the former boundaries of the Soviet Union. Most significantly, chances are very high that there will

be no armed conflicts in which U.S. and any former Soviet forces will face-off against one another. There are, however, contingencies in the lower end of the spectrum of conflict and war where the interests of the United States and those of the new coalitions will be shared and where the U.S. and former Soviet military forces could be on opposing sides or on the same side. The environment of 2010 very likely will be one where world economic competition and tensions will be high and where armed conflict remains a possibility. Chances are slightly better than even that by 2010 most nations of the world will be experiencing economic growth and will be starting to achieve national goals of internal development. War, then, with its destructive potential for these nations, increasingly will become an unpopular activity for solving differences. Still, the notions of being armed, having modern high-tech weapons, and, for some nations, having nuclear weapons and a means to deliver them, remain psychologically attractive. Nations that are expressing a new self-directed economic and political individuality in the world of 2010 share these national attitudes, despite the somewhat low per capita wealth of some. These notions create a world environment of apprehension where U.S. national leadership must be alert and prepared to deter or terminate quickly crises or conflicts that are inimical to U.S. interests and world peace.

The environment of *A World 2010* creates many challenges to, and concerns for, a postindustrial United States as the foremost world leader. These challenges and concerns will require U.S. leadership to provide the utmost in national innovativeness as well as skills in strategic planning and decisionmaking. U.S. leadership must give careful attention to the trends and events and their probable consequences that lead into the early years of the 21st century. *A World 2010* provides a means with which the U.S. leadership can consider what might lie ahead and to ponder one futurist's view of that world.

Table 1[10] lists the probabilities of some world events and trends considered in this study that can be deduced or are inferred according to their relationship to elements of national

power: economic, sociopolitical, science and technology, and military. The probabilities for each event and trend are the opinion of the author. They are expressed as "H," "M," "L," or "IP"; where:

Nominal Term	Probability
H = High:	0.66 and above,
M = Medium:	0.65 to 0.34,
L = Low:	0.33 and below, and
IP = Improbable:	less than 0.001.

TREND OR EVENT	PROBABILITY
ELEMENT: Economic	
Competition in world trade	H
Regional economic agreements	H
Economic interdependence	H
U.S. dependence on imports	H
Economic agreement stability in 2010	H
Commercial use of outer space	H
Economic growth for most nations	H
Economic assistance programs	H
Restrictions on trade	H
Free enterprise	H
Trade wars	H
Economic cooperation with U.S., new Soviet confederacies	H-M
U.S. dependence on imported energy	M-H
Economic growth of new Soviet confederacies	M
Redistribution of wealth	M
Debt repayments	M
Cartel control over prices and supplies	M
Influence of 20th century international economic organizations	M-L
20th century economic agreements stability	L
Increase in disparity of economic growth among nations	L
ELEMENT: Sociopolitical	
Diffusion of international power	H
Ad hoc political alliances and agreements	H
Rise of nationalism	H
Cultural values and life-style shifts	H
Population migrations	H
National pursuit of self directed destiny	H
Democratization of governments	H-M
Increase in social investments	H-M
Improved human rights and quality of life	M-H
Sociopolitical assistance programs	M-H
Increase in political freedom worldwide	M-H
Political alliance cohesion in 2010	M
Spread of authoritarian governments	L-M
20th century political alliance cohesion	L
Influence of 20th century international political organizations	L

TREND OR EVENT	PROBABILITY
ELEMENT: Science and Technology	
Worldwide diffusion of science and technology	H
Transfer of technology	H
Diffusion of nuclear power as energy source	H
Research and development investments	H
Development of alternative energy sources	H
Ecological disaster (non-nuclear)	M-H
Nuclear power plant accidents	M
Disparity in distribution of technology	L-M
ELEMENT: Military	
Diffusion of high tech weapons	H
Arms control and disarmament	H
Ad hoc defense arrangements	H
Arms trade and sales	H-M
Cooperative U.S.-new Soviet confederacies in prevention of nuclear weapons proliferation	M-H
Nuclear weapons accident	M-H
Nuclear weapons proliferation	M-H
Use of armed forces	M-H
Military assistance programs	M
Stability of bilateral defense agreements	M
Development of new weapons systems	M
Utility of military forces	M
Conflict tendency worldwide	M
Low intensity conflict	M
Conventional conflict	M
Use of a nuclear weapon (nation vs nation)	M
Projection of military power	M-L
Retention and availability of U.S. basing, port facilities, and overflight rights	L-M
Stability of 20th century collective defense agreements	L
Military use of outer space	L
Weapons in outer space	L
Nuclear conflict (no U.S. involvement)	L
International terrorism	L-IP
U.S. and new Soviet confederacies strategic exchange	L-IP
Total war	IP

Table 1. The Probable Occurrence of Trends and Events in *A World 2010*.

CHAPTER 2

WORLD INTERNATIONAL ORDER[1]

A New Order of Nations.

In *A World 2010*, the future environment for the early decades of the 21st century is built upon an evolving hierarchy of nations that could exist around the year 2010. Essentially, in the context of this study and in 21st century terms, there are no superpowers, nor are there nations called "Third World." All nations are categorized in terms of their modernization and industrialization. This tends to create a status for each nation in the world community of nations. Theoretically, having status should increase each nation's self-worth, encourage each to plan and set national goals, and, finally, allow each an opportunity to pursue a more self-directed destiny. The author believes that the 20th century traditional descriptive modifiers for nations, e.g., more developed, developing, less developed countries, and the like, have not encouraged nations to reach their potential. Such modifiers for nations might well be inappropriate constructs to describe the nations of the world in the 21st century.

Nations of the world are progressing toward a new order. This is happening primarily because of the increasing economic and trade relationships in which nations have been engaging. Also, the decline of the international power positions of the 20th century superpowers–capped by the fall of the Soviet Union and the Communist Party–has encouraged many nations of the world to assert their individual concerns for, and interests in, developing their own futures. Only a few nations seek to fill the world power gaps created by the decline of the superpowers. Any success by these nations rising to fill the power gaps almost certainly would erode the structure of the new order of nations.

The order of nations in the 21st century can be divided or classified into five groups according to their progress in industrialization and modernization (see Table 2). They are postindustrial, advanced industrial, transitioning industrial, industrial, and preindustrial.[2] A description of each is below.

POSTINDUSTRIAL	INDUSTRIAL
Canada & United States	China
Europe	Cuba
Japan	India
Australia & New Zealand	Korea
Union of Soc. Dem. Rep.	Malaysia
	Pakistan
ADVANCED INDUSTRIAL	Philippines
Hong Kong	Turkey
Israel	Union of Sovgn.Rep.
Singapore	Venezuela
South Africa	Vietnam
Taiwan	
TRANSITIONING INDUSTRIAL	PREINDUSTRIAL
Argentina	All other nations of
Brazil	Africa, Asia, Latin
Chile	America, and Oceania
Costa Rica	not listed elsewhere.
Mexico	

Table 2. An Arrangement of Nations in 2010 by Industrialization and Modernization.

Postindustrial. Postindustrial countries have sociopolitical infrastructures that support predominantly information, service, and knowledge societies that have highly developed and efficient communication networks by way of earth and space systems. Their industries are predominantly science-based and technology oriented, using electronics, computers, optics, and robotics, as well as the intellectual technology of models and simulations. The largest single class of workers, about 80 percent of the work force,[3] is comprised of highly innovative and creative, multilingual, scientifically-oriented professionals and their supporting staffs. Postindustrial economies produce

information, services, and knowledge for export as well as for internal use. Their economies also support an abundance of automated and robotic, light fabricating specialty enterprises that encompass about 18 percent of the work force, as well as technoagricultural industries composed of a mere 2 percent of the work force. The postindustrial nations include the United States and Canada; the European countries; Japan, Australia and New Zealand, and the Union of Social Democratic Republics (USDR).[4] Most of these countries or regions support small, high-tech, sophisticated defensive armed forces with comparable or near-comparable weapon systems and capabilities. Almost all of the postindustrial countries are considered politically free, while others in the eastern Europe (Albania, Bulgaria, and Romania) that have made progress toward freedom can be considered partly free by 2010.[5]

Advanced Industrial. Advanced industrial countries have sociopolitical economic infrastructures that support highly modernized industrial and manufacturing societies. They are goods oriented and produce high-tech products and sophisticated automated and robotic manufacturing equipment. Their primary workers, about 60 percent of the work force, are innovative and creative technologists but are not necessarily scientific professionals. Their products are predominantly for export. This group includes Hong Kong, Israel, Singapore, South Africa, and Taiwan. External difficulties of both Israel and South Africa with neighboring countries continue to slow their progress toward developing into postindustrial countries. Moreover, 20th century South African internal issues have continued to hold back its economic advancement, despite continuing efforts by the government to extend freedom to all of its citizens. Except for Hong Kong, the advanced industrial countries support highly sophisticated, technologically-oriented armed forces. Hong Kong has no armed forces except domestic police, nor does it have Chinese or any foreign forces on its territory. Hong Kong is a special administrative zone of China since the late 1990s.[6] Although China likely will declare Taiwan a special administrative zone with very special privileges for retaining a semiautonomous status as a compromise to full reunification,

Taiwan very likely will ignore the declaration.[7] Israel is the only country of this group considered politically free; the others remain partly free.[8]

Transitioning Industrial. Transitioning industrial countries have sociopolitical economic infrastructures that support advanced industrial, manufacturing, and agricultural societies. They are products oriented and, primarily produce advanced, state-of-the-art machinery and machine parts and natural and synthetic food products, clothing, and chemicals, largely for export. People in their work force are about evenly divided (about 30 percent) among manufacturing and industry, agriculture, and extractive processes. The work force, in general, is lacking both intellectual ability and personal incentive for creativeness and innovation, except for the artistic talents expressed in their products. This group includes Argentina, Brazil, Chile, Costa Rica, and Mexico. Within the next several decades (i.e., beyond 2010), one or two of the countries in this group (e.g., Brazil and Argentina) very likely will progress to advanced-industrial status. They likely will shift more to automated and robotic systems. Their educational systems also will advance to produce a greater number of creative and innovative, scientifically-oriented graduates. There is a very good chance that in 2010, Argentina, Brazil, Chile, and Costa Rica will be considered politically free. Mexico,[9] whose preference is to remain oriented toward the south, will remain partly free in 2010, but within a decade could be expected to be politically free also. These transitioning industrial countries support well-trained armed forces that are equipped with advanced and sophisticated weaponry.

Industrial. Industrial countries have sociopolitical economic infrastructures that support modernized industrial, manufacturing, and agricultural societies. They produce industrial products of all kinds but are predominantly heavy-industry oriented. Their agricultural products are largely for internal consumption but agricultural exports are significant, especially by China. In general, the industrial nations are a mix of centralized governments supported by massive administrative bureaucracies and representative democracies.

Government workers, generally, are poorly educated and are managed by an elite managerial corps. Blue and white collar unions permeate many of these societies with varying success, as have attempts to unionize labor in others. An estimate of their work force would place about 60 percent in industry and manufacturing; 30 percent in agriculture and extractive processes; and about 10 percent in services.

This group includes China, Cuba, India, Korea,[10] Malaysia, Pakistan, the Philippines, Turkey, the Union of Sovereign Republics (USR), Venezuela, and Vietnam. Of these countries, only India, Venezuela, and the USR are clearly sovereign nations, and can be classed as politically free; only Vietnam remains "not free"; and the others, partly free.[11] The politically free industrial nations, almost certainly, may require a decade or more before they can develop an infrastructure that will enable them to progress to transitioning industrial status.[12] The remaining nations very likely will require an even longer time to reach that level. For countries such as India, upward progress almost certainly will continue to be constrained by growing population, social class structure, and religious practices.

The USR, however, has the potential to become a transitioning industrial country if: one, it develops economic ties and favored- and friendly-nation status with the United States, Europe, and Japan; two, it receives long-term economic support from the more advanced USDR, and three, it maintains close political relations with the European community of nations. Of more importance and the greater task, the USR almost certainly will need to modernize all members of its Union. This, however, will take time. The advancement of the USR very likely will to be hampered by imbalances in population growth, ethnic, religious, and other social problems. The decline of international political influence, created by its past affiliation with the Soviet Union, very likely will also slow USR progress in modernization throughout its country. Other obstacles to progress very likely will be (a) the reluctance of the populace to change or adapt to modernization, and (b) adherence to outmoded industrial and agricultural methods

that require a large percentage of the USR work force for manual labor. The populace and leadership also will be faced with understanding and accepting a new political ideology, i.e., democracy. Finally, progress in the USR will be impeded by its inability to provide the necessary energy needs throughout its vast populated territory unless it receives considerable foreign assistance.

The industrial countries support large armed forces, most of which are highly trained and equipped with a mixture of advanced, sophisticated, and modernized weaponry along with aging weapon systems of the 20th century. The USR and China, however, have weapon systems with near comparability to those of the postindustrial countries. For the USR (and the USDR), these weapons are a legacy of the former Soviet Union after arms reduction agreements with the United States. In theory, the nuclear weapons and missiles remaining in the USR (and the USDR) territories are under the temporary command authority of the commonwealth center of the USDR, USR, and the UIS. Since the mid 1990s, much of the Soviet arsenal has been reduced through the arms reduction agreements but around 2000 they will be controlled by the USR and the USDR. The USDR and USR, almost certainly, will remain formidable nuclear powers, as will France, the U.K., and China.

Preindustrial. Preindustrial countries have a mixture of sociopolitical and economic infrastructures that range from partly industrial to almost completely agricultural. They also include the least developed nations of the world, many of which require significant economic, food, and humanitarian aid from other nations and world organizations merely to survive. The wealth of the preindustrial countries, for the most part, continues to be lopsided in distribution, where the poor are getting poorer and the rich, richer. The populations of most of these countries are disproportionately large when compared to other countries of the world (except for China and India) and they are continuing to grow at rates significantly above replacement levels. The preindustrial societies include those countries that have taken least advantage of the opportunities

for industrialization or modernization of existing industries. Some have declined to advance by choice, others have declined because of their impoverished economies or because their countries lack natural resources as a source of national income.

Their work forces are divided among various industries, including tourism, (about 30 percent); agriculture and extractive processes (about 65 percent); and the remainder in services. They comprise the resource rich countries that are involved mostly in extraction. They can be subdivided further into nonindustrial countries that include countries desperately poor economically (such as Bangladesh and the poor countries of Africa) and those almost devoid of any natural resource base. There is a good chance that many of these nations will not survive through the 21st century without massive long-term infusions of external aid.

The preindustrial countries include the remaining countries (not previously mentioned) of Africa, Asia, Latin America, Oceania, the Union of Independent States (of the former Soviet Union). Within this group of countries, about two-thirds are rated as politically or partly free.[13] The wealthier, preindustrial countries support trained armed forces–generally, disproportionate in number to their needs–that are equipped with a mixture of antiquated 20th century weapons and advanced defensive weapon systems according to their ability to pay or obtain credit for arms. To the extent financially possible and as a status symbol, the poorer preindustrial (including the nonindustrial) countries also support small, poorly trained and ineffective armed forces that are mostly equipped with 20th century and earlier defensive weapons. There are still others that have no forces or weapons at all and very likely depend on protection from beneficent patron nations. Chances are good that a few of these nations, as a last resort for economic survival, will lease part of their territory for training areas to disbanded, renegade armed forces or guerrillas or even to the U.S. military.[14]

Summary Thoughts.

A new order of nations, as described above, almost certainly will contribute toward a devolution of international power. It also will contribute toward a continued decline of the remaining 20th century superpower. More importantly, new patterns of political and economic competition and cooperation among nations of the new order, likely, will contribute toward a new intensity of competitive divisiveness. Notwithstanding, many new international relationships and arrangements are likely to exist in the early decades of the 21st century. Despite a period of relative peace and calm, collusion on the part of some nations, along with some international economic market chicanery on the part of others, likely will not be uncommon during the early years of the new century. For better or worse, the superpowers of the 20th century were role models for many nations. Each had its followers. Each was sought by other nations for guidance and support: political, economic, or military. By 2010, nations of the world have not as yet adjusted to the absence of the competitive leadership of the superpowers. The devolution of power has brought about new economic and political relationships between all other nations of the world and the five postindustrial states.

The United States, the leader of the postindustrial states, in 2010 likely will find its 20th century international position of influence diminished. Other postindustrial states, most of which were once traditional U.S. allies linked directly by security commitments, very likely will become even greater competitors for political influence and economic markets than they were in the past. Moreover, the United States might find its need for national and economic security occasionally challenged by these conscientious competitors who are bent on grasping the international industrial influence previously held over the past half century by the United States. There is a very good chance that a few of the industrial and newly industrialized countries will make a rigorous and substantial effort to fill the industrial influence gap formerly occupied by the United States. The United States very likely will regain its international position in political and economic influence

through its status as the world's leader in services, information and knowledge.

The world of 2010, as described above, is a world of a new international order where more developed nations, formerly centrally controlled and communist, have become free societies with free-market economies. In comparison, in the 1960s through the 1980s, the less developed countries struggled to break the yoke of colonialism to become independent nations. They had an option also to choose the competitive leadership of democracy or communism as their form of government. Again, in a similar situation, nations and ethnic groups that were used as bargaining chips after World War II and became satellites of the politically dominant Soviet Union or were incorporated into other states, have become or seek to become independent. They also will have options as to how they want to be governed. Most are choosing representative forms of government in free-market economies.

Together, the world of 2010 might appear to be a relatively peaceful world. However, a world 2010 is a world where political stability is fragile; one that is fraught with threats of crises, armed conflicts, and possibly wars among, between, and within nations. One view of this scenario of the world in 2010 suggests that the world may be better off with the competitive leadership of a bipolar, or possibly, a tripolar superpower world, than with the ambiguity and divisiveness of power shared and dominated by the postindustrial nations. Still another view suggests that the world is multipolar and leadership is indistinct. In that same world there is a devolution of power, where power is transient, first in the hands of one world region or country, then another. Such a scenario very likely would create world conditions so unstable that even the 20th century superpowers would not have been able to maintain peace, reestablish order, or restore peace quickly.

A possible theory inherent in a new order of nations that likely promoted the 20th century decline of superpower influence, especially of the United States, is supported, in part, by the following plausible developments. If large-scale

production of goods has been the engine of economic growth and a source of international power for industrial societies of the past–then new centers of power arising from new or future industrial countries become increasingly probable. By 2010 the industrial countries, very likely, will enter into coalition building and begin forming new, formal and informal federations of industrialized states that possibly will be held together by international workers' unions. The international environment likely will become increasingly more involved in North-South issues and their complexities and less concerned about East-West issues and their associated rivalries of the past.

Again theoretically, as a society progresses from an industrial base to a technological service-information base, it likely may experience a gradual decline of international influence during the transition (e.g., a nation's economic and political influence would tend to peak as it achieves industrial capacity and to wane as its industrial base is exchanged for a technological service-information base which would erode as influence is transferred to other nations). Such loss of influence possibly might be irreversible or, at least, might never be recaptured as it previously existed. Furthermore, such a decline need not be accompanied by a loss of international leadership and its associated influence. An example of such leadership by the United States, primarily, as well as by other postindustrial countries, could be to assist the industrial and preindustrial countries toward the most effective resource conservation and distribution involved in the Law of the Seas treaty. Such acts of leadership are acts of an enabler nation. An enabler nation, although contributing toward a devolution of power, very likely would tend to increase international demand for the services and information that are available almost exclusively from postindustrial societies. Although this type of activity could be one role for the United States, it would not be a likely endeavor in which the Union of Social Democratic Republics (USDR) or the Union of Sovereign Republics (USR) could easily engage. Likely reasons for this could be the stigma attached to their past association with a declining Soviet empire in the 20th century and the internal

instability of the former Soviet republics in nation reconstruction during the 1990s.

There is a good chance that the USR will be ill content to remain an industrial country in the new order of nations; while the USDR and its 20th century rival, the United States, advance far beyond the USR's national capabilities. The USR leadership very likely will depend heavily on political and economic agreements with the European nations and the United States. Moreover, the USR leadership likely will depend on considerable assistance from the European Common Market to help them develop sufficient economic capabilities to become a transitioning industrial nation. The USR very likely will continue national introspection to avoid what could be gradual national fragmentation or dissolution. During the next 10 or more years, the USR will be forced to devote more of its national assets toward creating and managing a new international image so that it can maintain a positive USR presence on the world scene. Moreover, the leadership very likely will reassess the late 20th century political and economic ideological decisions for a quick change to a free-market system. A self-imposed USR withdrawal from the international scene during this readjustment period very likely would exacerbate a steady decline of its perceived international image.

Before the turn of the century, all Soviet Marxist support to governments and factions in the Middle East, Africa, and Latin America will have dried up. Internal development investments of the USDR and USR likely will take priority over external ventures during the end of the old and the start of the new centuries. Such a situation in Latin America, e.g., Cuba, almost certainly, will give that country opportunity to pursue a new self-directed destiny within the hemisphere and the new order of nations. Cuba, almost certainly, will begin to experience the problems associated with rebuilding its national infrastructure for representative government and a free-market economy. Cuba, possibly, may be offered help from the USDR and the USR but it may request assistance from the United States.

A description of the new order of nations is displayed in Table 3, where the characteristics of each type of nation can be compared.[15]

CATEGORIES:

SOCIETAL STRUCTURE	POSTINDUSTRIAL	ADVANCED INDUSTRIAL	TRANSITIONING INDUSTRIAL	INDUSTRIAL	PREINDUSTRIAL
Industrial orientation	Ultramodern, science-based high tech oriented for information, service, and knowledge industries; space	Highly modernized, automated and robotic 21st century manufacturing including the use of space	Modernized industrial manufacturing and agriculture mostly 21st century	Modern, late 20th century industrial manufacturing and agriculture	Partly industrial to almost completely agriculture
Work force (percent of work force)	Information . . . 33% Knowledge . . . . 32% Services . . . . 15% Light manufacturning . . . 18% Technoagriculture 2%	High-tech manufacturing 35% Light and heavy manufacturing . . . . . 25% Services . . . . . 10% Technoagriculture and agriculture 30%	Manufacturing . . 30% Light and heavy industry . . . . 30% Agriculture . . . 30% Services 10%	Manufacturing . 15% Light and heavy Industry . . . 45% Agriculture . . 30% Services . . . 10%	Light and heavy industry . . . . . 30% Agriculture and extractive processes 65% Services 5%
Political freedom	24 nations: 87% free 13% partly free	4 nations: 25% free 75% partly free	5 nations: 80% free 20% partly free	11 nations: 18% free 73% partly free 9% not free	123 nations: 30% free 30% partly free 40% not free
Military forces	Small active forces, large general pu ose reserve; high-tech trained; most advanced weapons in the world.	Large active highly mobile forces; small reserve force; sophisticated training, technology-oriented; advanced conventional and some nuclear weapons.	Small active and reserve forces; well trained defensively; advanced, sophisticated conventional weapons and some with modest nuclear weapons; Mexico and Costa Rica less capabilities.	Large (relative to country) armed forces; most are highly trained; mix of advanced and modern weapons; USR, and China weapons nearly the same as post-industrial nations.	Small active forces; poorly trained; mix of antiquated and advanced weapons, some with few to no forces or weapons at all.

Table 3. Some Comparative Characteristics of the New Order of Nations in 2010.

CHAPTER 3

WORLD POPULATION

World Population and the New Order of Nations.

Global population will continue to increase.[1] Projected estimates (see Table 4) indicate that by the year 2010 the world's population will be about 7.2 billion, up 33 percent over 1991. By 2025, the world's population can be expected to be about 8.6 billion, an increase of 75 percent over 1986. The largest increase will be in the less developed or preindustrial countries where the total fertility rate (TFR)[2] is about 4.2 children. The least increase will be in the more developed countries where the TFR is about 1.9, well below the TFR replacement level of 2.1 to 2.5, where population eventually stops growing, assuming no net migration. Movement of people across international borders by 2010, however, will have increased significantly.

	1986	1991	2010	2025
WORLD POPULATION	4,948.	5,384.	7,190.	8,647.
More Developed*	1,183.	1,219.	1,346.	1,413.
% of world population	23.9	22.6	18.7	16.3
Less Developed	3,765.	4,165.	5,844.	7,234.
% of world population	76.1	77.4	81.3	83.7

* The United Nations classification of " More Developed" includes all of Europe and North America, plus Australia, Japan, New Zealand, and the former USSR. All other regions and countries are classified as "Less Developed."

Table 4. Traditional Classification of Countries and Population Estimates (in millions).[3]

The data displayed in Table 4 indicate that by 2010, the world's population will reach about 7.2 billion and the less developed countries, in the traditional grouping, will represent more than three-quarters of the total population. When the nations are regrouped into the new order, previously described, the preindustrial countries by the year 2010 will represent about one third of the world's population. The population of the postindustrial countries will represent about 16 percent of the world's population. The postindustrial countries will include a new nation that was created after the collapse of the Soviet Union in 1991, the Union of Social Democratic Republics, USDR (as defined in Chapter 2). It will be marginally a postindustrial country. In the other new order classifications, the industrial countries will represent the largest group, about 47 percent and will include another new coalition of the former Soviet Union, the Union of Sovereign Republics (USR). The advanced industrial countries will only account for about 1.5 percent; the transitioning industrial countries, about 5 percent; and the preindustrial countries, about 30 percent. Table 5 displays world population figures arranged in the new order of nations for 1986, 1991, 2010, and 2025.

Demographic data projections by the year 2020 indicate the following significant likely trends: (a) Life expectancy in most countries will continue to increase.[4] In the postindustrial and advanced industrial countries, life expectancy could reach 80 years or older in 2010 in comparison to about 70-75 in the transitioning industrials, 65-70 in the industrials, and 55-60 in the preindustrials (all estimated). (b) Generally, physical well-being will improve. This almost certainly will expand the number of people available for the work force, those in need of services and sustainment, and those requiring living space. Within most nations in 2010 that are achieving a level of zero population growth or those with declining population, increasing numbers of older people (age 64-75+ years) will be either an economic welfare burden on societies or, as possible and prudently planned, an economic benefit because they will be absorbed into the work force. (c) For many nations, the median population age could approach 40;[5] this would be

	1986	1991	2010	2025
WORLD	4,948.0	5,384.0	7,189.9	8,647.0
POSTINDUSTRIAL	994.7	1,022.41	121.71	167.5
North America	267.0	280.0	331.0	367.0
Europe	493.0	502.0	520.0	518.0
Japan	121.5	123.8	135.8	134.6
Australia & New Zealand	19.1	21.0	25.7	28.8
Union of Soc. Dem. Rep.	94.1	95.6	109.2	119.1
% of world population	20.1	19.0	15.6	13.5
ADVANCED INDUSTRIAL	65.3	74.7	105.5	134.1
Hong Kong	5.7	5.9	6.4	6.4
Israel	4.2	4.9	6.1	7.2
Singapore	2.6	2.8	3.2	3.4
South Africa	33.2	40.6	66.0	92.0
Taiwan	19.6	20.5	23.8	25.1
% of world population	1.3	1.4	1.5	1.6
TRANSITIONING INDUSTRIAL	271.2	288.2	388.6	459.7
Argentina	31.2	32.7	39.9	45.2
Brazil	143.3	153.3	207.5	245.8
Chile	12.3	13.4	17.2	19.8
Costa Rica	2.7	3.1	4.5	5.6
Mexico	81.7	85.7	119.5	143.3
% of world population	5.5	5.4	5.4	5.3
INDUSTRIAL	2,397.1	2,614.5	3,389.4	3,941.7
China	1,050.0	1,151.3	1,420.3	1,590.8
Cuba	10.2	10.7	12.3	13.0
India	785.0	859.2	1,157.8	1,365.5
Korea	63.8	65.0	76.6	80.5
Malaysia	15.8	18.3	27.0	34.7
Pakistan	101.9	117.5	195.2	281.3
Philippines	58.1	62.3	85.6	100.7
Union of Sovgn. Rep.	180.2	184.4	210.4	229.3
Turkey	52.3	58.5	83.4	102.7
Venezuela	17.8	20.1	28.8	35.4
Vietnam	62.0	67.6	92.0	107.8
% of world population	48.5	48.6	47.1	45.6
PREINDUSTRIAL	1,219.7	1,384.2	2,184.7	2,944.0
Africa	549.8	636.4	1,089.0	1,549.0
Asia	560.5	609.8	898.1	1,150.9
Latin America	119.8	132.0	188.3	231.9
Oceania	5.9	6.0	9.3	12.2
% of world population	24.7	25.7	30.4	34.0

Table 5. Traditional Classification of Countries and Population Estimates (in millions).[6]

especially true for the postindustrial and certainly true for the advanced industrial countries. In 2010, the postindustrial and advanced industrial countries could expect to have a shortage of youth at the age of military recruits.

By 2010, most countries will have the potential to provide a relatively better quality of life for their people than they could provide in the past. That is, most people will believe they are better off than they were in the past but they may not believe that they are better off or richer than their neighbor. Thus, migration from the less affluent countries to the more affluent, across contiguous borders as well as to the more remote advanced countries, likely will continue–regardless of restrictions or other means to control or regulate migration. The postindustrial countries of the United States, Europe, and Union of Social Democratic Republics can expect significant cultural changes by the year 2010. These changes will come about due to past migration patterns and immigration policies existing over the last three or four decades (ca.1970-2010). Events in the 1980s and 1990s where restrictions on the movements of people were lifted by governments also have been instrumental in effecting cultural changes, e.g., the wave of movement in 1989 of East Germans to West Germany before unification, or the emigration of Soviet Jews to Israel from the former Soviet Union once freedom was given to the Soviet people.

Population and demographic trends could be significant factors in effecting a new order of nations as well as causing a devolution of power internationally. The postindustrial United States will have achieved zero population growth, if not decline, barring a continuation of legal and illegal immigration, during the late 1990s to the early years of the new century.[7] A decline in the number of available youth (ages 10-19 years) to the turn of the century can be expected; an increase in its population ages 40-69 years; an average population age approaching 40 years; and a life expectancy at birth approaching 85 years of age or older, will be continuing trends.

These trend projections, if valid, along with the U.S. status as a leader of the postindustrial nations, very likely will influence the labor-intensive (mostly heavy) industries during the 1990s to shift operations to robotics and automation; to relocate in foreign countries where a labor force is available, younger, and cheaper; to encourage increased temporary or permanent legal immigration quotas to meet the labor force needs; or to abandon heavy industry and enter computerized, robotic high technology businesses. Trends began in the 1980s to indicate relocation of such heavy industries–trends that are highly likely to continue through the 1990s and early years of the 21st century.[8] Consequently, the reduction or loss of the traditional U.S. industrial base (arms manufacturers included), most likely, would suggest a decline of U.S. industrial surge mobilization capability.

These demographics will have an impact on U.S. military forces. Despite an upturn in the number of males at the turn of the century, fewer male youths and more female youths likely will be available to the Army as recruits. The average age of male soldiers would be older, whereas the average age of female soldiers would be younger and retention for both, most likely, longer. The Army, however, increasingly would rely on a technology-intensive force as personnel availability decreased. Female soldiers likely will perform an increasingly wide variety of occupations and assignments that traditionally were performed by male soldiers. These will include assignments that are combat oriented, e.g., combat service support and combat support. Army presence overseas probably would decrease proportionally to a general reduction in personnel. The willingness of an aging and possibly more conservative U.S. population to commit Army forces to small internal wars increasingly will decline. This could be interpreted by some nations as disinterest, and very likely would lessen U.S. international influence as a leader of the industrialized world.

Summary Thoughts: The Former Soviet Union.

The consequences of population and demographic trends within the former Soviet Union were, in part, instrumental in effecting a decline of Soviet international influence and, eventually, the fall of the Union itself. The separatists' movements within the Soviet Union were encouraged in the early 1990s when it abandoned communism and sought a free-market economy. The various republics of the former Soviet Union, however, will have sufficient personnel throughout the remainder of their vast regions to maintain a substantial industrial base and an army. Also, the population of the republics, in general, will be growing older and the number of military age youths will be declining. Chances are very good that many youths will migrate to the more advanced republics or to European nations in search of high salaries and high-tech jobs.

Life expectancy in the non-Slavic republics can be expected to continue to decline toward the year 2010 in comparison to the longer life expectancy and higher quality of life in the Slavic republics. During most of the 20th century the former Soviet Union made similar high expenditures in military and space exploration, while diverting funds from investments in health care delivery.[9] By 2010 the USDR and the USR commonwealth members will have reversed that trend and will be providing the humanitarian services throughout the republics. There is a good likelihood that the Russian ethnic group, the dominant political and economic leadership of the 20th century within the former Soviet Union will be replaced, in part, in the new governments by members of non-Slavic ethnic groups. Chances are good that this will result in a greater sharing of government responsibilities and increased representation of all ethnic groups as well. More importantly, it very likely will result in less ideological and militarily competitive and adventuresome republics. The temporary retrenchment of these republics abroad during the 1990s very likely will continue only so long as internal requirements and constraints are demanding, i.e., until the house is in order. Chances are good that the leadership of the USDR will take advantage of

the abundant opportunities for its society to pursue technological equivalence with the other postindustrial societies

CHAPTER 4

WORLD INTERDEPENDENCE AND SOCIOPOLITICAL CHANGE

Interdependence and the New Order of Nations.

Interdependence among the new order of nations almost certainly will continue to increase toward 2010. The likelihood is good that the new economic partnerships that will be forming over the next several decades will be creating an increasingly competitive world economy.

The new order of nations almost certainly will evolve gradually into a world economy that, for most nations, will generate greater wealth. The resulting redistribution of the world's wealth will especially benefit the transitioning industrial and industrial countries, while simultaneously lessening the economic influence of the 21st century postindustrial countries. Inequality in the redistribution, however, likely will increase in the resource-rich preindustrial countries–with the rich becoming richer faster than the poor become rich. Foreign capital investments will be sought by the transitioning industrial and industrial states from the postindustrial and advanced industrial countries. Such arrangements will become increasingly more acceptable, will create a new capital flow, and will be a positive step toward increasing free enterprise in these countries. Worldwide economic stagnation is unlikely in the 2010 scenario.

The resources-rich preindustrial countries very likely will require economic assistance due to poor financial management, new sources of competition, and because (they believe) their resources are beginning to show signs of depletion. Such aid, in part, will be provided competitively by the industrial countries in return for bilateral, preferential access agreements and, in part, by the postindustrial nations,

especially the United States to sustain some vestige of economic influence. This intense competition for scarce natural resources, needed by almost all the modernized countries, will keep the cost of these resources high. The uneven natural distribution of these resources, found mostly in the single industry, preindustrial countries, makes the resource-poor preindustrial countries even poorer. Without continued economic aid (emergency and survival) from the International Monetary Fund, the World Bank, and charitable organizations in the form of money, credit, food and other goods, many of the poorer preindustrial countries will face the prospects of internal upheaval, bankruptcy and complete collapse and, eventually, disappearance as nations.[1] These nations likely could survive their increasingly dire situations provided supportive economic aid, once given, is continued. The application of agro-technology likely could provide both food and employment for their populations as well as their survival as nations. The destiny of these countries will lie more in the elimination of war and strife than it will in the unavailability of food as a source of famine and extinction.[2]

Despite the opportunities for high economic growth in the industrial countries, some economic instability will exist due to continued population expansion and the inability or unwillingness of some of these nations to repay long-standing debts.[3] Some very likely will form new, regional economic organizations to moderate or eliminate growing economic instability. The infrastructure of these organizations actually will create economic and quasi-political communities that either will cooperate with, or compete against, one another, the transitioning industrial, advanced industrial, or postindustrial countries or even the multinational enterprises that operate in almost all nations. Chances are good that Japan/China/Hong Kong will form an economic and industrial cooperative movement that likely will rival all other international and regional organizations for traditional trade markets, e.g., those of the European Economic Community (EEC), the South American Economic Cooperative, the Latin American Economic Community, and the Association of South East Asian Nations (ASEAN). The growing economic relationship of

Israel and South Africa also can be expected to make inroads into these markets. Chances are better than even that because of the level of economic growth of the Union of Social Democratic Republics (USDR) and the Union of Sovereign Republics (USR) by 2010 the central commonwealth will be encouraged to request, in their behalf, membership in the European Economic Community (EEC). Chances are also even that the central commonwealth, the USDR and the USR very likely will be rejected by the EEC. Because of this rejection, the central commonwealth very likely will form the East European Economic Community (EEEC) as a competitor of the EEC. The EEEC will include the USDR, the USR, the UIS, and any East European democratic nation that seeks membership. Chances are very good that the EEEC will be supported by the North American Economic Market (the United States and Canada), the EEC, and Australia and New Zealand, primarily to keep democracy alive and to avoid collapse of the free market economy in the USDR and USR.

The world's economy in 2010 could operate with an interdependency that has fewer economic (trade) restrictions among nations, although some industrial countries will still rely on traditional embargoes and protectionism. Information to accelerate economic growth will be readily available to all nations by telecommunications services provided by proprietary space satellites of the postindustrial and advanced industrial countries (as well as by multinational corporations). The purchase of the telecommunications technologies will include a package-deal composed of equipment, training, and long-term maintenance assistance. Such arrangements will overcome the attempts of a few industrial countries to control the transfer or limit the employment of these technologies. Thus, many newly industrialized countries could leap over early stages of industrialization and enter the world's markets with products produced with the most advanced industrial technologies and processes provided that they incorporate them into their economies.[4]

Trends in the world's economy very likely will contribute significantly to the support of the structure of the new order of

nations as well as a devolution of power. In retrospect, the so-called growth of interdependence among 20th century nations was in itself, a shift or diminution of power status from the 20th century superpowers to those nations that possessed less power status or to the newly industrializing countries. This is especially true if interdependence is viewed as an instrument for international leverage. Such leverage had been used with other nations artfully by the 20th century superpowers. For example, this type of leverage was used to acquire such needs as critical resources or military basing, overflight, and port facility rights in exchange for economic aid, military assistance, or some form of protective security.

Increasingly, a role reversal between the "haves" and "have-nots" very likely will occur that could well relegate the postindustrial countries to a status of dependent bargainers–especially for scarce resources–and the nations possessing the resources to a position of control or power. Thus, increasingly, the formerly "have-not" nations could demand from wealthier nations most any form of payment or exchange they desire, short of provoking war. For example, the industrializing countries and resource-rich preindustrials could demand modernized industrial, mining, and processing equipment or entire plants; high-tech systems and material; or even advanced military systems. Interdependence, then, increasingly will become less of an unequal dependency arrangement among nations, especially between the postindustrial and advanced industrial nations and between the transitioning industrials and the preindustrials. The United States–a 20th century superpower that formerly dealt from a position of strength in political, economic, and military affairs–increasingly in the 21st century will be unable or unwilling to use this strength adversarially, short of war, as the lesser countries enter a new economic order for the redistribution of wealth and its adjunct, power.

The international economy can expect new trade and gold flow patterns to develop by the year 2010. These patterns very likely will displace the economic primacy of the 20th century emerging postindustrial countries, especially that of the United

States and Europe. Within the new order of nations, regional and international trade can be expected to encounter barriers such as embargoes, trade wars, and protectionism to counteract any economic instability. New regional economic institutions will almost certainly come into being. There is a good chance that common regional interests will exclude the 21st century postindustrials from membership in these institutions. An economic integration effort in the 2000s by the transitioning industrial nations, for example, could make the Latin American region self-sufficient in minerals and energy needs. Moreover, these nations could engage in broad industrialization undertakings throughout Latin America to reduce imports, spur exports, and, in general, raise the regional industrial level while excluding the presence of the "Colossus of the North" and accepting its dollars. There is a very good chance that such an arrangement likely will appeal to and encourage the participation of Cuba (after Castro). Since Cuba no longer would be supported by the former Soviet Union, it likely will be searching for peaceful means to bolster its economy while nurturing the change from communism to democracy. A large influx of exiles and displaced Cubans almost certainly will return to Cuba by the turn of the century and raise Cuba quickly in the order of nations. By the year 2010, the debtor, transitioning industrial countries, very likely, will be increasingly financially able to begin principal and interest payments on their remaining debts, if they so choose.

Sociopolitical Change.

The constantly occurring sociopolitical changes that are taking place within and among various countries in the world today increasingly will affect all nations of the new order. Chances are good that most nations will be able to experience and absorb these changes over the next several decades in an orderly and beneficial fashion. The increasing freedom of unconstrained, real-time information and knowledge exchange along with the ease of international communication very likely will be a significant pacesetter around the globe for sociopolitical change. During the next two decades, many

nations will be experimenting with representative government for the first time in their histories as nation states. Other nations will be regaining lost sovereignty, a few still struggling for it. By the year 2010, most of the world's nations could well experience dramatic sociopolitical reorientation as a result of their new status in the order of nations.

As these nations build new industrial, economic, and social infrastructures, they probably will form new views of and make modifications to their internal political processes. Interests in, and changes toward, political freedom and free economic markets very likely will develop in many nations. There is a very high likelihood that many nations will assume new national identities in the community of nations as well as establish new international relationships more compatible with and advantageous to their needs and interests. Along with these changes there is a good chance that there could arise a new growth of nationalism. There is a better than even chance that such nationalism could lessen the impact of any world cooperative movements, e.g., the New International Economic Order and the Non-Aligned Movement. A new move to nationalism very likely will adversely affect the peacekeeping efforts of international organizations, such as the United Nations. Moreover, as interests of the alliances, national planning, and social investments conflict, the new nationalism very likely will seriously weaken the bonds or threaten the survival of long existing alliances such as NATO, the Rio Pact, ASEAN, and others. The Warsaw Pact, now disbanded, is an example of this. By 2010 the likelihood of others changing, e.g., adopting a new mission other than collective security, or alliances disintegrating is very high.

Another driver of sociological change in the new order of nations has been the relocation of heavy industries during the past several decades. These industries have left the postindustrial and advanced industrial nations and relocated throughout the world in nations possessing new marketing opportunities, production capabilities, and less expensive labor. Although the industries are labor intensive, they very likely will be operated by robotics, thus employing fewer

humans. This will exacerbate employment problems in these countries. The industries likely will be under new domestic ownership or part of a multinational corporation or conglomerate. The out of country migration of heavy industries has been due, in part, to the economic attractiveness of newly industrializing countries and, in part, to displacement by the rapidly growing service and information industries on an international scale. This relocation not only will encourage new trade and economic alignments but also will create new competition. Moreover, it likely could result in new international political arrangements as well as new military alliances. There is little likelihood that loss of heavy industry by the United States or other postindustrial countries will cause them to lose the capability of a mobilization surge if such were required. By 2010, the postindustrial countries will have developed superior plastic and other materials to accommodate military and other needs.

The inclination toward, and the development of, free enterprise in many nations were suppressed politically during most of the 20th century; such leanings or aspirations were but whispers of dreamers or conspirators. The trend toward the abandonment of centrally controlled government in mostly agrarian and industrial countries increasingly will promote a rise in free-market economies,[5] as well as preference and desire for more representative government.[6] Moreover, this same trend very likely will bring about a realization of human rights, civil liberties, and social justice, which in many nations have been unattainable by past generations. The scrapping of communism and central planning by the Soviet Union and other eastern bloc nations, followed by their change from communism and central planning to democracies and free-market economies in the 1990s, is a fulfillment of this trend's forecast. Overall, the economic opportunities available to all nations by the year 2010, almost certainly, will foster new national expectations.

The general decline of influence, i.e., loss of political and economic clout of the 20th century superpowers and the rise

of a new order of nations may be attributed to a number of indicative sociopolitical related trends and plausible events:

- The growing interdependency of nations (notably the superpowers of the 20th century), especially a dependency for critical resources, very likely will increase the political obligations, accommodations, and compromises that one nation must make to other nations.
- The increasing exclusion of former superpower participation and membership from cooperative movements, alliances, and other international relationships among nations traditionally aligned with one or the other superpower during the 20th century likely will decrease the political and economic effectiveness of a superpower concept in the 21st century.
- The unification of East and West Germany in 1990 and the uniting of North and South Korea by 2005 very likely will have broad implications from which many new trends will emerge. Not only will these mergers affect the economies of the 21th century postindustrials, but almost certainly they will contribute toward the decline of their sociopolitical and military influence as well. There is a good chance that the effects of the mergers will carry over well into the 21st century and lead to other successful mergers.
- The increasing expectations for greater and more rigorous roles in international economic and political activities by the transitioning industrial, industrial, and some of the preindustrial countries are fairly certain to go unfulfilled as many turn toward free-market economies and democracy. Chances will be about even that the United States will be unable to help these fledgling democracies beyond providing assistance to build a democratic infrastructure or serving as a role model. Such interest by the United States alone very likely will help only in raising the sociopolitical expectations of these nations even higher. Without

substantial economic assistance from the postindustrial nations including the United States, many of these nations very likely will return to autocratic rule and possibly centrally controlled governments. Such consequences very likely will contribute steadily toward the decline of the political and economic influence of the 21st century postindustrial states.

- Many industrial and preindustrial countries have become disillusioned during the late 1980s and through the 1990s (and probably will remain so into the next century) by the inability, unwillingness, and the lack of interest of the 20th century superpowers as well as by the 21st century postindustrial countries to solve serious world problems. These problems involve food distribution, large-scale starvation, environmental degradation and pollution, the spread of disease, the proliferation of conventional and nuclear weapons, and an imperfect control over nuclear weapons. Any instances of disinclination to take action or unwillingness to make international investments to solve these problems by the postindustrial nations likely will discourage the industrial and preindustrial countries to invest in research or to find solutions by themselves.

- Increasing changes in the dominant cultural and ethnic make-up of the 20th century superpower nations or 21st century postindustrial nations almost certainly will be reflected, over time, in their national and international plans, strategies, and policies early in the new century. For example, the United States by the year 2010 could be approaching a population composition that is nearly 40 percent black, Hispanic, and Asian. The white, non-Hispanic influence likely will no longer dominate U.S. national and international interests and policies. Chances are better than even that such cultural and ethnic changes will result in an imbalance in U.S. interests, plans, strategies, and policies on a worldwide scale, largely favoring Latin American and Asian countries.

Similarly, the former Soviet Union before *glasnost* had ethnic problems too, but they were held in check through Communist domination and military suppression. After *glasnost* and during the disintegration of the Soviet Union; the creation of a central commonwealth; and the establishment of the USDR, USR, and UIS; ethnic problems likely will resurface. There is a good chance that potentially serious ethnic problems, e.g., violence, will arise by the turn of the century. There likely will remain a fear by many former Soviet people of a resurgence of Russian nationalism that is repressive and expansionist. The republics of the former Soviet Union very likely will continue to experience generational and attitudinal changes, e.g., their youth demonstrably expressing a desire for freedom, human rights, democracy, and free market economies. The republics, as they better understand democracy and representative government, will experience ethnic changes in leadership also, e.g., from the Slavic ethnic group to a non-Slavic, traditional and younger ethnic group.[7] Such cultural and ethnic changes were almost immediately evident in the early 1990s when the fall of the Soviet Union occurred. They almost certainly will bring additional changes in the national and international policies of the new national entities created from the former Soviet Union.

Summary Thoughts.

The increasing erosion of international superpower preeminence through economic and sociopolitical changes well into the new century is quite probable. The erosion lays the cornerstone for the devolution of power, an era of a new order of nations, and very likely a shared preeminence of the postindustrial nations. The decline of 20th century superpower influence probably will be proportional to the number of nations sharing and competing for 21st century preeminence. The possibility of the rise of new economic powers, e.g., Germany and China, contributes substantially to an inherent freedom in the 21st century new order of nations. Such a possibility very likely will suggest a willingness of nations to trade off military power for global economic influence. The economic

interdependence and sociopolitical change within the new order of nations leaves unanswered the issue of international alignments. The superpowers of the 20th century had their followership. Nations were free to choose between communism and democracy then. The gamesmanship in the new order of nations very likely will be economics: money and credit, goods and services, and information and knowledge; almost certainly, everything to fight over.

CHAPTER 5

WORLD ENERGY, SCIENCE, TECHNOLOGY, AND SPACE EXPLORATION

World Energy and the New Order of Nations.

Sometime before the end of the 21st century, barring any major discoveries of oil in China, in the former Soviet Union, or from offshore drilling, there is an even chance that conventional oil reserves of the world could be moving toward depletion.[1] If this trend is recognized then, around the year 2010, we can expect that the cost of pure oil and oil with added extenders very likely will become increasingly prohibitive for any practical use. The new order of nations with more industrial countries probably will continue to remain dependent on oil at least through the early decades of the new century. The source of oil during this period most likely will be from several suppliers, such as the 20th century Organization of Petroleum Exporting Countries (OPEC), if it remains in existence; an OPEC-like cartel and splinter cartels; or individual oil-rich countries. To replace oil as a source of energy production, the use of coal, gas, nuclear and renewable energy sources almost certainly will increase substantially over the long term–especially, coal.[2]

Toward the year 2010, most of the postindustrial, advanced industrial, transitioning industrial, some of the industrial, and a few preindustrial countries increasingly will expand or begin their use of nuclear power as an energy source (see Table 6). Despite legal, technical, high-cost setbacks and notable accidents (the U.S. "Three Mile Island" incident and the Soviet Chernobyl catastrophe), there is little likelihood that nations will abandon existing or planned nuclear power plants as a source of energy. Nor is there much of a chance that demonstrations of social disapproval, e.g., those of the 1980s and 1990s that

slowed nuclear power plant development (particularly in the United States, Canada, Europe, and Japan), will discourage governmental and industrial support for nuclear facilities. New facilities under construction and older plants under repair very likely will be completed early in the new century. Some existing plants, however, likely will be shut down and decommissioned around 2000 and again around 2010 since the life span of reactors is 10 to 40 years. Notwithstanding, in the United States alone, the share of electricity inputs from nuclear sources by 2010 likely will reach 25 percent or more.

The share of electricity generation provided by all renewable sources (hydropower, geothermal, wind, solar) as

Postindustrial	Transitioning Industrial
Austria	Argentina
Belgium	Brazil
Bulgaria	Chile
Canada	Mexico
Czechoslovakia	
Finland	
France	
Germany	
Hungray	
Italy	
Japan	**Industrial**
Netherlands	China
Poland	Cuba
Romania	India
USDR	Korea
Spain	Pakistan
Sweden	Philippines
Switzerland	USR
United Kingdom	Vietnam
United States	
Yugoslavia	
Advanced Industrial	**Preindustrial**
Israel	Egypt
Singapore	Iran
South Africa	Iraq
Taiwan	Saudi Arabia

Table 6. Estimate of Nations Possessing Nuclear Power Plants in 2010.

well as by nuclear sources can be expected to continue to increase in the postindustrial, advanced industrial, and transitioning industrial countries. At least a third of the industrial countries will have preferential bilateral agreements with cartels or the oil-rich countries. They will continue to rely on petroleum as their primary source of energy. However, along with inefficient utilization, they will show little concern for its eventual depletion. Eight industrial countries, likely, will possess or increase their use of nuclear energy. The remaining industrial and the preindustrial countries will use coal followed by gas and oil as their primary sources of energy. The resource-rich preindustrial countries also can each be expected to have at least one nuclear power plant, used more for desalinization than for energy.

Competition, especially among the industrial countries, for non-fuel scarce minerals, vital to industrial production, will grow increasingly keen–creating situations with high potential for precipitous international crises. Although no non-fuel mineral depletion problems are projected for at least the first 50 years of the new century, production of the non-fuel minerals will continue to be highly energy intensive and could result in problems of meeting world mineral demands.

The increasing demands for energy, primarily the fossil fuels, by the industrial and newly industrialized countries during the early decades of the 21st century very likely will approach a warning, short of crucial, stage. Only then can the recognition of the need for moderation in the use of fossil fuels be expected. Likewise, the need for alternative and sustainable energy sources by almost all nations will begin to become a reality.

For most of these nations, their search for culpability for their energy problems, more than likely, will be imputed to the 19th and 20th century industrialized countries, especially the United States, Europe, and the former 20th century Soviet Union. The United States not only will be faulted by the industrial nations but also will be assigned the brunt of the responsibility for its scientific, technological, and economic disinterest as well as neglect toward the development of new

energy alternatives for the world's industrial needs. Although the Union of Sovereign Republics (USR) increasingly will provide nuclear energy for much of its industrial growth, most of the USR in 2010 will still depend on fossil fuels, primarily oil and gas. The USR and the Union of Social Democratic Republics (USDR) probably will sacrifice their European influence as they become increasingly protective of their oil reserves by exporting less at a higher cost to Europe and other nations.

Science and Technology for the New Order of Nations.

Most societies of the world are benefiting economically (limited only by their ability to finance) and socially (limited only by their capability to absorb) from the almost constant flow of scientific and technological innovativeness and discovery that will emerge by the year 2010. After the turn of the century and by the year 2010, the creations of science and technology will permeate extensively throughout almost all nations of the new world order. The impact of these creations on the many different world societies will vary considerably. Increasingly, the diffusion of science and technology within the societies can be expected, in some ways, to alter many societal characteristics and behavior patterns. Some societies will accept the diffusion enthusiastically since they will perceive it as creating new opportunities and benefits; while others will seem to reject or retard the diffusion since they will perceive it as a threat to their societies. Thus, the diffusion of science and technology throughout societies likely will create a dialectic conflict.[3] In general, innovations in science and advancements in technology serve all mankind and, in the long term, their attributes can be expected to cross virtually all cultural barriers.

If the innovations of science and the advancements of technology are absorbed throughout a society, the chances are good that they could improve economic growth, the general quality of life, educational opportunities, and the standard of living. For the postindustrial, the advanced and transitioning industrial, and a few of the industrial nations, the opportunities

for economic growth provided by the diffusion of science and technology within their societies will be abundant and rewarding.

For some of the newly industrialized and industrial countries, including the non-European regions of the USR, diffusion of science and technology likely will be perceived by the people and their leaders as threatening and devastating to their livelihoods and the productivity of the lands they work. Some will consider it dehumanizing to their well-being and an infringement on their self-image. Imbalances, however, in the distribution of skills and trained workers to accommodate 21st century science and technology increasingly will be reflected from nation to nation in the rate of national economic growth. This will be especially true if the more technologically advanced nations continue only to provide appropriate technologies and deny the transfer of advanced and high technologies. Moreover, diffusion could change or even replace traditional work values, affect societal morality, and create severe unemployment problems for some cultures, especially those of the newly industrialized and a few of the preindustrial countries.

For the preindustrial nations, especially those with subsistence economies, diffusion will continue at a slow pace, as it did during the 20th century. For some of the preindustrial nations, this pace will allow assimilation of new technology by their societies and will be unlikely to exceed their social limits of technological and economic growth. Many of the other preindustrial countries, however, very likely will be unable economically to afford, skillfully to use, or intellectually to absorb and understand 21st century science and technology. These preindustrial nations, largely, will continue to depend only on appropriate technologies provided by benevolent nations. This situation could foster, if not encourage, the more adept members of these preindustrial countries to emigrate, legally or illegally, to other nations in search of economic well-being and a higher standard of living. Thus, the 20th century manpower and brain drain will continue. The loss of one nation's skilled craftsmen and intellectuals to another

nation is an undesirable situation that likely would contribute toward a decline of the influence of the more advanced countries, especially if a postindustrial country (e.g., the United States) is their destination.

The postindustrial countries will continue to lead the world of 2010 in the advancement of science and technology. With few constraints, they will share these advancements as well as those involving space exploration and use with many other nations of the world including the wealthy preindustrial nations. The postindustrial societies, sparked by many achievements over the past several decades and fired by the growing rewards (intellectual and monetary) of creativeness, will be engrossed in the development of probably even greater achievements in the technologies and advances in the sciences. Specifically, their endeavors, interests, and investments will concern the following technologies and sciences.[4]

Technologies:

- Power: energy, propulsion, laser
- Space: satellites, vehicles, medicine
- Electronics: information, communication, computers, robotics, artificial intelligence
- Materials: design, construction, composition
- Food: agro-chemical, synthetic, preparation, storage, genetic engineering
- Medical: biogenetics, bionics, genetic engineering
- Management: command, control, design, training
- Intellectual: simulators, simulations, models

Sciences:

- Physical: physics, chemistry, mathematics

- Environmental: terrestrial, oceanographic, atmospheric, space
- Engineering: electronics, civil, mechanical, metallurgical
- Life: biological, medical, behavioral, social

The advanced industrial societies of Hong Kong, Singapore, and Taiwan very likely will continue to be the primary innovative leaders in the development of commercial applications and product merchandising of advanced technologies, especially high-tech, computerized systems. Israel, South Africa, and the transitioning industrial societies likely will pursue more pragmatic uses of scientific and technological advances. They will export robotics and automated equipment, largely to the industrial countries. The transitioning industrial countries, for the most part, can be expected to be more methodically motivated toward gradual advancement than driven by creative inspiration or prompted by incentives until and unless educational improvements and advancements are made within their countries.

The international demands for, the expanding utility of, and the potential worldwide benefits from science and technology will continue to increase the need for transnational information exchange among the scientific, business, and industrial communities. Restriction of the free flow of such information or products, by one nation or by several collectively, very likely will impede world economic progress and deny potential benefits to others. The use of such information selectively by some nations for military purposes, e.g., to develop new weapons or improve others, almost certainly will continue. The benefits of the free flow of information to the world's nations, however, very likely will outweigh the risks of such developments, compromise such endeavors, or allow the development of counter weapons by adversary nations. Moreover, world public opinion quite likely will reflect disfavor toward the perpetrating nation(s). Although the protection of highly sensitive military scientific and technological information will remain of utmost importance to the postindustrial countries

especially, denial or restriction of the export of such information will become increasingly difficult.

The transfer of technology to other nations from the postindustrial and the advanced industrial countries increasingly can be expected to flow unimpeded by the year 2010. The governments of most of the postindustrial and advanced industrial societies can expect to experience decreasing control over technology transfer as well as a loss of technological superiority. Another reason for unimpeded flow will be that the exported technology will include inseparable compatible and integral technological information (software) with hardware, the knowledge and possession of which are essential for the most effective use of the technology. Because of the increasing availability of dual-use technological information, the military establishments of the postindustrial, especially, and the advanced industrial countries will be as dependent on high technology as any of their potential adversaries. Comparable technological vulnerability almost certainly will encourage the development of potentially more effective strategies and operations for the use of military forces and associated military technologies.

The intense pursuit of science and technology into the early years of the 21st century by the postindustrial and the advanced industrial societies very likely will continue to be economically, politically, and socially transforming for most nations of the world. In general, the space activities of the postindustrial countries will be designed for peaceful purposes. These activities almost certainly will become increasingly more practical, i.e., commercially and industrially oriented. The results of the postindustrials' efforts not only will advance them in constant improvements in the internal use of information and services, but also in the export of information and services worldwide. Almost certainly, science and technology will influence, significantly, and could well shape, the international behavior of most of the nations of the world.

Space Exploration and Use by the New Order of Nations.

Space sciences and technologies will flourish in the early years of the new century, as will space exploration and use, especially in the postindustrial societies. The cooperative use of space for communications increasingly will be available to almost all nations of the world. Low-cost, state-owned, stationary communication and information satellites very likely will be commercially within the means of most preindustrial countries. The acquisition of knowledge and information relative to the planet Earth (weather, atmosphere, environmental pollution, resources, and more) and its moon increasingly will become available to governments and industry. The use of space very likely will become a commercially competitive endeavor of not only the postindustrial countries, but also a pursuit of many of the other industrialized countries. Such endeavors very likely will result in the development of services and commodities marketable throughout the industrialized new order of nations, e.g., shuttle travel for people and things to and from space, and in space to space platforms. Such enterprises very likely will also include providing of crude or processed resources (minerals) from space-based sources such as an asteroid or planet to Earth. New opportunities developing around 2010 to 2020 for industrial processing and manufacturing space-based facilities likely will be available for special processes and the production of specialty items. Chances are better than even that space-based medical care centers, and a variety of laboratory and manufacturing stations, will become available around the year 2010.

By 2010, all nations will have access to satellite communications systems through independently or collectively owned private-sector or state-owned satellites. Early in the first decade of the new century, the first orbital manned or robotic space platform can be expected to be available for automatic facilities and manufacturing purposes at an estimated rental of $4 to $6 million per month (1991 dollars). As the benefits and advantages of space-based industrial activities are realized

and the costs are reduced, the number of operational space stations can be expected to increase as will manned exploratory planetary missions. Sometime in the early decades of the new century the United States will attempt manned missions to the planet Mars and will establish low-Earth orbit manned, modular space stations.[5] A U.S. manned moon station could exist as well.[6] The need for sharing exploratory findings of manned and unmanned planetary excursions and asteroid encounters will be increasingly important, especially for locating and exploiting new sources of critical minerals. Sharing the costs for the peaceful use of space by groups of nations or by private-sector industries will make space activities more affordable, increase incentives to participate, and provide an increasing sense of global unity in space endeavors.

As for other uses, such as military, space will remain the singular most effective forward observation post for all nations that have space technology. The chances are good that by the year 2010 all the world will be in clear view–from the depths of the oceans to outer space. Most of the postindustrial nations almost certainly will have a military space capability should the need arise; as will the industrial nations of China, India, the USDR, and the USR. The cost-benefits of the peaceful development and utilization of space during the late 1990s and the early years after 2000 probably can be expected to far outweigh the uncertainties and strategic risks of the U.S. space-based ballistic missile defense–the Strategic Defense Initiative (SDI) efforts of the 1980s and 1990s.[7] The knowledge gained, the opportunities created, and the capabilities achieved from the SDI efforts in space-based defense very likely can be expected to encourage increasing private-sector investment. The SDI example likely will facilitate economically beneficial cooperative and peaceful space activities within the new order of nations. Around the turn of the century, many U.S. space-related technological achievements likely will be shared with other nations. Global sharing and cooperation likely will provide, in the long term, new opportunities for the economic growth of many nations within the spectrum of the new order. Sharing and cooperation very likely will favor the more wealthy

postindustrial countries more than others, in terms of military, other public, and private-sector applications of space.

Summary Thoughts.

Most of the manufacturing and heavy industrial facilities that will be in the new industrial countries and in those that are modernizing likely will incorporate the latest in up-to-date automated and electronic equipment and processes. The industrial facilities will be more energy intensive and less labor intensive than the old industrial base they will be replacing. For some nations hydroelectric or fossil fuel energy sources very likely will be replaced by more efficient nuclear energy where it is available. Consequently, a great potential for serious national problems of unemployment will be created that almost certainly will have national and international impact. Moreover, new problems and patterns of industrial environmental damage and pollution can be expected to arise in those countries and regions where clean energy sources are not available. Chances are good that there will be Arctic haze and acid rain from the heavy industrial pollutants of the USR and China. There will be human health problems related to hazardous wastes from high-tech industries or atmospheric damage to the ozone layer. Also there will be new problems related to the disposal of nuclear wastes from industries (including spent nuclear power plants) and the military. The source of military nuclear waste is an accumulation from late 1990s U.S./Soviet arms reduction agreements prior to the total disintegration of the USSR. Meanwhile, other regional pollution problems and patterns can be expected to abate–such as acid rain in North America, areas of Europe, and possibly Japan. Technology, over the long term, however, can be expected to reduce or eliminate many of the environmental problems associated with industrial toxic wastes and possibly even nuclear wastes. Despite innovative work programs, e.g., work sharing or 4-day work weeks, the growing problem of unemployment in most nations of the world almost certainly will not find easy remedy except, possibly, by new capital investments in yet unheard of industries.

In the past, scientific and technological advancements were selectively monopolized and protected by the 20th century superpowers as well as by other major industrialized nations. This created a technological gap among the developed, the developing, and the less developed countries.[8] Almost certainly, if a reluctance to share the means for scientific and technological development equitably continues into the 21st century, it will very likely contribute toward a decline of influence of the postindustrial countries in terms of economic, political, and military power and status. There were several other things also that contributed to the loss of political and economic influence of the superpowers during the latter half of the 20th century, e.g., the fixation of the United States and the former Soviet Union on their perceived threat to each other–militarily and ideologically; their proclivity toward arms races and their general preoccupation with building up their military establishments; and their relative disinclination to support peaceful scientific and technological programs adequately in any cooperative fashion.[9]

Many of the other nations of the world, especially the industrials, will continue to mirror the military images of the 20th century superpowers as they advance into the 21st century. In the early decades of the new century, increasingly these nations will perceive real and imagined military threats to their economic progress by other nations. They very likely will increase their arsenals with the most advanced military weapons they can afford through arms sales and transfer. These likely will be acquired from those nations continuing in the arms manufacture and trade business from whom they also will be acquiring the latest industrial technology to advance their economic growth.

Advancements in science and technology, whether space-based or land-bound, increasingly can be expected to be shared by most all nations. The transitioning industrial societies are likely to be more pragmatic in the use of innovations than driven by creative inspiration. The more universal use of technology and its transfer–so carefully regulated during the 1980s and 1990s by restrictive measures

to retard the rapid economic and military growth of some of the industrial and newly industrialized countries or to protect sensitive military information from reaching others–will create a healthier, more viable and competitive world economy. The general exploitation of technology, however, could create new national and international problems.

CHAPTER 6

WORLD MILITARY STATUS

Proliferation of Arms.

Many nations of the world in the early decades of the 21st century almost certainly will be keenly interested in maintaining a semblance of a peaceful attitude toward their neighbors. By 2010 they will have modernized their industrial infrastructures–many in a new status within the new order of nations. For many, this change also will be accompanied by national benefits and increasing economic growth. Most nations very likely will attempt to moderate the new surge and growth of nationalism. Despite the continuing legal and illegal sales of conventional weapons, many will try seriously to avoid armed conflicts with their neighbors or competitors. Most 20th century collective and bilateral political and military alliances or agreements, if neither dissolved nor abrogated, will give way to new economic agreements with new and different signers. Notwithstanding, there remains a good chance that because of the increased competition for scarce resources needed by new and old industrial states, virtually all but the very poorest nations will invest in a conventional military establishment, at least commensurate to their ability to pay. Others, in addition, likely will invest in a very modest nuclear capability. There is a good chance that most nations, if they have nuclear weapons, will have either chemical or biological weapons or both in their arsenals as well. As each nation perceives threats to its national security and growing economic assets, so will grow its arsenal.

Most nations, except the very poorest, very likely will demand the most advanced conventional systems they can afford to buy with cash or credit or by barter. They almost certainly will find a broader as well as different source of arms suppliers available than existed before the turn of the century.

Hence, the potential for conflict, almost certainly, will be high and continue to grow. There is a good chance that the proliferation of nuclear weapons will continue despite the increased number of signatories to the Nuclear Non-proliferation Treaty. This hypothetical table is based on the criteria that some nations perceive a need to have nuclear weapons in their arsenals and have the capability of producing their own or acquiring them surreptitiously. Their need might arise from a real or imagined threat, or a belief that possession of nuclear weapons raises their international status or just because their neighbor has them. Chances are better than even that by 2010 the number of nations acquiring a military nuclear capability could approach 20 or more (see Table 7). Thus, there is, at most, an even chance that a nuclear weapons accident, nuclear blackmail, or a limited nuclear conflict between small nations will occur within the early decades of the 21st century. Chances are almost certain that if proliferation of nuclear weapons is not halted, not only will the potential for conflict increase, but so will the direct or indirect involvement of other nations as well.

POSTINDUSTRIAL	INDUSTRIAL
France	China
Japan	India
United Kingdom	Pakistan
United States	Korea
Germany	USR
USDR	Vietnam
ADVANCED INDUSTRIAL	PREINDUSTRIAL
Israel	Egypt
South Africa	Iran
Taiwan	Iraq
	Libya
TRANSITIONING INDUSTRIAL	Saudi Arabia
Argentina	UIS
Brazil	
Chile	

1= substantial, 2000 or more; 2= significant, up to 1000; 3= moderate, up to 500; 4= modest, up to 100; 5= very modest, up to 50; ?= unknown.

Table 7. Hypothetical Estimates of Nations Possessing Nuclear Weapons in the Year 2010.

Military Status of the New Order of Nations.

The military status of the world's nations within the new order of nations in 2010 is summarized as follows:

The Postindustrial Societies. The United States, Canada, the European countries (including the Union of Social Democratic Repub ics, USDR, i.e., the former Soviet European sector), Australia and New Zealand, and Japan very likely will support small, high-tech, sophisticated armed forces in 2010. The forces of the United States, Canada, and most of the European countries (i.e., those formerly from the Western bloc, NATO, but not those formerly from the Eastern bloc, the Warsaw Pact) very likely will include both defensive and offensive conventional and nuclear capabilities. The postindustrial nations rely on volunteers to staff their professional military forces.

The forces of the postindustrials almost certainly will be trained and equipped to deploy rapidly worldwide for operations on land, air, and sea as well as in and from space. There is a good chance that although these nations will support active high-tech forces that are small in number, the full strength of their military power will be vested in a highly trained and quickly mobilized reserve component that is large in number. The active forces are perceived to be capable of resolving most contingencies that threaten national interests while the reserve forces are perceived to be fully capable of meeting more demanding contingencies, but are less rapidly deployable. Overall, none of these nations pose a realistic or logical threat against one another. Although not entirely intentional, these nations serve as, what might be called, the vanguards of global peace.

The forces of Australia, New Zealand, and the remaining European nations (those formerly from the Eastern bloc), while not totally unlike the forces of the other postindustrial countries, likely will not maintain significant offensive capabilities. The postindustrial nations, with the exception of New Zealand and the former Warsaw Pact nations, are the world's producers and

suppliers of software for high-tech military equipment and weapons.

The postindustrial nations that very likely will possess nuclear weapons capabilities include the United States, the United Kingdom, France, the Union of Social Democratic Republics (USDR), Germany, and Japan. Germany and Japan have moderate nuclear weapons with delivery capabilities at or below 500; whereas, France, United Kingdom, United States, and the USDR have a substantial nuclear capability of 2000 or more weapons and missiles.

Despite the likelihood of the USDR possessing a near-military comparability with that of the United States, the USDR leadership of the 21st century is likely to be more concerned with resolving its internal economic, ethnic, and social problems than with maintaining a one-upmanship game with the United States. The USDR also is concerned with establishing itself in the world economic market, stabilizing its economic competition and territorial issues with the USR, and, through the commonwealth center, supporting the nation-building efforts of the Union of Independent States (UIS).

The Advanced Industrial Societies. Israel, Singapore, South Africa, and Taiwan in 2010 most likely will support highly sophisticated, technologically oriented armed forces. The advanced industrial society of Hong Kong has no armed forces except domestic police and China has not placed any military forces in Hong Kong. The forces of Israel, Singapore, South Africa, and Taiwan include both defensive and offensive conventional capabilities. While Israel and South Africa, additionally, possess significant nuclear capabilities, i.e., up to 1000 weapons with delivery systems, Taiwan has only a moderate capability of up to 500 nuclear systems. Their operational capabilities are limited in range and are considerably less than those of the postindustrial nations. Although their forces are highly mobile and they can conduct land, sea, and air operations with great efficiency, their capabilities for military space operations are only modest in

comparison to the postindustrial countries. Their principal military strength is in the mobility and rapid strike capability of their active forces that are large in number compared to their reserve components. All of the advanced industrial nations rely on conscription for their forces. The advanced industrial nations of Israel, South Africa, and Taiwan are world suppliers of technologically sophisticated weapons.

The Transitioning Industrial Societies. Argentina, Brazil, Chile, Costa Rica, and Mexico in 2010 most likely will support well-trained armed forces that are equipped with advanced and sophisticated weaponry. Of these nations, Argentina, Brazil, and Chile have volunteer active forces fully capable of defensive (primarily) and offensive conventional operations. They have a modest nuclear weapons operational capability, i.e., up to about 100 weapons with delivery means. All of their operations are limited in range to within the southern hemisphere. The size of their active forces is small and their reserve components even smaller. Costa Rica has a well-trained, volunteer security and defense paramilitary force. Mexico has highly capable and well-trained elite active defensive conventional forces; they have no nuclear capability. Mexico's elite forces, additionally, are supported by larger, less well-trained, and cumbersome conscripted troops that exist only to absorb a large portion of the unemployed population.

The principal interest of the transitioning industrial countries almost certainly will be to continue increasing their economic growth. Their investment in a military establishment, primarily, serves only to protect their national and economic interests as they perceive threats within their sphere of economic influence. Since these five nations are bound together within a Latin American Economic Community, their military arrangement serves as a watchdog over other Latin American political and economic activities, especially where nations not of the hemisphere interject their interests or influence. Although they have little interest in projecting their military power beyond the hemisphere, their militaries are capable of land, sea, and air operations, while their military space activities, essentially, include only shared intelligence and communications. The

transitioning industrial nations depend on a mix of volunteers and conscripts more regulated by political whim than by military necessity. Argentina, Brazil, and Chile are world suppliers of advanced high-tech conventional weapons systems.

The Industrial Societies. China, Cuba, India, Korea, Malaysia, Pakistan, the Philippines, Turkey, the Union of Sovereign Republics (USR), Venezuela, and Vietnam in 2010 most likely will support large armed forces, most of which will be highly trained and equipped with a mixture of sophisticated, advanced and modernized weaponry along with aging weapon systems of the 20th century. China and the USR possess substantial numbers of nuclear weapons and delivery means, i.e., 2,000 or more. India and Pakistan have a significant nuclear weapons operational capability, i.e., up to 1,000 weapons with delivery means, while Korea has a moderate capability of up to 500 nuclear systems and Vietnam has up to 100 nuclear weapons, a modest number in comparison. Cuba, Malaysia, the Philippines, Turkey and Venezuela have no nuclear capabilities.

The industrial countries rely on conscription to acquire their troops, except Cuba, India, Korea, and the USR which rely on volunteers. The number of forces and weapons for the industrial countries are commensurate to their perceived need for an offensive posture that they believe will assure protection of their interests and noninterference in the supply of their industrial resources. As such, they tend to be somewhat aggressive in their relationships with the resource supplier nations as well as with the other industrial nations.

The industrial nations, in general, are the world suppliers of modernized conventional weapons to selected client nations, many of which are the resource supplier nations. The competition for arms trade and transfer among the industrial nations is keen. Where possible, they station small contingents of armed forces on supplier nation territory to protect their interests and provide military training to client states in order to signal all other nations that they are the controlling force of the distribution and price of selected resources.

Of the industrial nations, the most formidable forces by 2010 are those of China followed by the USR where their capabiiities are of near comparability to those of the postindustrial nations. Most of the industrial nations, including China and the USR, however, have reduced the overall numbers of their military troops–although the size of their forces remains formidable–in order to support their labor intensive economies and to advance their economic growth. The size of the military and the number of nuclear weapons in 2010 of the USR and the USDR (a postindustrial nation) were reduced in the 1990s by arms control and disarmament agreements with the United States.

The USR possesses the most significant military and exploratory space capability of the industrial nations. This capability, essentially, is a residual advantage gained in the late decades of the 20th century and exists in cooperation with the USDR and with the support of the United States. In 2010, USR internal economic development investments have moderated its military space ventures. The USR supports its space image through occasional exploratory space spectaculars. China and India have a modest military space capability. By 2010 India likely will have distinguished its nation through exploratory medical feats in space. The remaining industrial nations use space only limitedly for intelligence and communications.

The Preindustrial Nations. The remaining countries that have not been previously mentioned in Africa, Asia, Latin America, and Oceania will support, in general, mostly forces that are small in number, but there are a few that support forces very large in number. These forces are trained in 19th and 20th century tactics and equipped with a mixture of antiquated 20th century weapons in some countries to advanced 20th to 21st century conventional offensive and defensive weapon systems in others. There also are a few that are poorly trained and are equipped with even older weapons. The very poorest of these preindustrial countries, especially those in Africa, have no organized forces or weapons at all. Chances are good that these poor nations by 2010 will be in the process of dissolution

and amalgamation, i.e., restructuring for the purpose of the creation of new states.

For a few, particularly those with high-demand strategic resources, their military status very likely will be reinforced by allowing foreign troops to be stationed on their territory for the purpose of military assistance. In return for providing military training and protection, the providing nation most likely will receive preferential resource purchase and the opportunity to monitor the disposition of the country's resources.

Indigenous guerrilla forces will persist in a few countries, e.g., in Africa, Asia, and Latin America. Most are small in number, poorly organized, and modestly equipped with sophisticated conventional weapons. Many of the preindustrial guerrilla forces continue to be trained in, and supported by, foreign industrial countries. These very likely will be industrial countries in need of scarce resources and who will be willing to exchange these services for illegal resources.

The military status of the preindustrial republics and ethnic groups that make up the UIS very likely will present a different situation than the other preindustrials. The UIS situation very likely was created in the mid-to-late 1990s and most likely will continue to evolve during the next two decades of the 21st century. There is an even chance that when the Soviet Union began to crumble in the early 1990s, certain dedicated, highly trained and knowledgeable military units formed unofficial paramilitary organizations that withdrew into remote areas, later defined as the UIS. Hard line, civilian Communists likely will be included in this clandestine organization. The military units very likely will be equipped with a variety of the most advanced conventional, chemical (and possibly, biological and nuclear) high-tech weaponry.

Within the range of forces in the preindustrial countries, there is a good chance that about five of the countries will possess a very modest nuclear weapons capability by 2010, i.e., up to 50 weapons with delivery systems. The most likely are Saudi Arabia, Libya, Iraq, Egypt, and Iran, the resource-rich

countries. There is a small to slightly even chance that the clandestine units in the UIS will possess an unknown number of nuclear weapons and will have mobile missile launch systems. Chances are better than even that these nations also will be armed with regional and global threatening ballistic missiles that will be high yield conventional, chemical, or nuclear warheads. Any of these nations so armed will be capable of altering the regional and global balance of power.

Summary Thoughts.

The continuation of the proliferation of conventional (including chemical and biological) and nuclear weapons almost certainly will contribute toward an increase in competition, divisiveness, and a potential for conflict, as well, within the new order of nations. The belief by some nations of an unwillingness or an inability of the 20th century superpowers to prevent proliferation likely is incredulous to others. The belief by many nations that proliferation adds to deterrent strength likely is considered unfounded by others since such weapons would be in the hands of stable governments as well as governments with unreliable leadership or clandestine paramilitary organizations. That some nations can develop technologically advanced conventional and nuclear weapons by 2010 (or even before the turn of the century) by using indigenous scientific and technological capabilities will remain a clear probability. The greed of other nations and their arms merchants to sell such capabilities will remain an almost certainty.

The proliferation of conventional and nuclear weapons over the next several decades, the resulting decline of the 20th century superpowers and the disintegration of one, nonetheless, must be considered to have been the responsibility of the 20th century superpowers themselves. The adversarial relationship of the United States and the former Soviet Union as well as the inclination of each toward one-upmanship in their arms race competition during most of the 20th century had transcended beyond their need to protect

their security interests and the security of the world. Essentially, the 20th century superpowers had divided almost all other nations or client states into two armed ideological camps. There would have been no new world order of nations, however, were it not for the existence of the superpowers in the 20th century; nor would there have been a collapse of the Soviet system of government. By 2010, political and military adversarial positions almost certainly will be accommodating more economic competitiveness than politico-military threats. However, despite the likelihood that the United States could assuage any of the past adversarial differences that existed between the 20th century superpowers, the chances of the use of nuclear weapons will remain a possible global threat. Chances are good that by 2010 many nations of the new order will be achieving an economic growth unprecedented in their histories, while at the same time possessing a capability by which they could destroy their economic competitors by military means rather than by peaceful economic strategies. Most nations are aware of this reality, but they assign blame to the 20th century superpowers. Most certainly, they believe that had the superpowers been more inclined to provide economic guidance and assistance instead of arms, the prospect and intent to use them likely would not exist.

An increase in nuclear weapons proliferation throughout many of the world's nations likely will change their national and international political perspectives. Possession of nuclear weapons very likely will increase a nation's assertiveness in its regional area and in the international arena as well. Additionally, proliferation likely would lessen any other nation's or international organization's means to modify the behavior of these new nuclear armed nations. By 2010, there is a slight chance that ballistic missiles and nuclear weapons in the hands of small states, e.g., preindustrial and newly industrial, could warp their traditional power perceptions and prompt one or more of these nations to attempt an upset of regional power balances by threatening their use.[1]

The military capabilities of the 21st century new order of nations are portentous. They almost certainly exceed those of

any other era in the history of the world. The new era of a devolution of power is one where 20th century developing countries become the newly industrialized countries of the 21st century and they are heavily armed. It is a new order of nations where the industries of the technologically advanced countries migrate with all their hazards,[2] yet they bring a free market economy and democracy. It is a new order of military power where almost all nations are armed with conventional weapons and more nations than ever have nuclear weapons in their arsenals. Gone in the 21st century is the competitive leadership of the superpowers with their nuclear deterrence–an era where small to major wars could be fought under a nuclear umbrella. Where can another rising world power be found in the 21st century? Japan by 2010 "clearly will have the basic technological and economic wherewithal to compete with the United States,"[3] as will possibly China, but sometime beyond 2010.

CHAPTER 7

NATIONAL CHALLENGES

National and Global Challenges.

The national challenges relative to the new order of nations in the world of 2010 almost certainly will confront every nation of the globe–from the very richest to the very poorest of nations. Nearly every endeavor of nations will be faced with new decisions and choices and with problems that have many to few answers to no answers at all. Nations in 2010 will look nostalgically for guidance, for leadership, and for role models of the past. The rage of nationalism, free market economies, the trial of democracy, the cry and the struggle for independence over the past decades has brought the nations of the world into the new order of nations and new challenges for the future.

What now in 2010? The competitive leadership of the superpowers of the past gave nations options from which to choose. It provided nations the role models they needed to emulate and the guidance they needed to make choices in their decisionmaking. Which nation or nations will fill the gaps left by the rise and fall of the superpower concept? The world has watched the growth of two nations almost from the beginning of the 20th century in a competitive leadership that divided the nations of the world into unfriendly opposing camps. Was it the destiny of one to fail? The world has witnessed the actual disintegration of one of the two superpowers by the closing years of the 20th century. The concept of superpower has been replaced by the advanced societal concept of the postindustrial nation.

The postindustrial nations that have come into being during the closing decades of the 20th century can regard the next decade as an *intermezzo*, an interlude, or a pause in time for

reflection, so to speak. Canada, United States, Europe, Japan, Australia and New Zealand, and the Union of Social Democratic Republics are the postindustrial nations. As the 21st century begins, these nations must spend time by themselves, then together to reassess their national and global plans, policies, and goals without sacrificing their economic competitive freedoms. Cooperatively, they can guide the nations of the world through peaceful competitive leadership toward addressing national and global challenges without sacrificing their status in the new order of nations.

U.S. National Challenges.

Surmounting national challenges in the long term likely will tax the intellectual capacities of U.S. national leadership, their innovativeness and creativeness, as well as demand the most of U.S. planning and decisionmaking skills in a broad spectrum of activities. The United States will no longer be bound in its 20th century title of superpower. With its connotation so closely linked to military power, the concept of superpower almost certainly will be considered as irrelevant in the 21st century.[1] The postindustrial United States in the 21st century new order of nations will truly be able to meet the challenges of its destiny as a leader of nations and a leader of people. The challenges, as deduced from the 2010 scenario, can be expected to fall into several categories, the foremost of which is a national educational system, followed by those of a national economy, a national security and defense, and national science and technology.

National Education. The principal challenges to a national education system that would be the most beneficial for the nation and prepare the people best for the work environment of the world of 2010 are:

- to create and implement a national education policy that does not infringe on States' rights, but encourages adherence to common standards that ensure equal access to quality education nationwide.

- to establish comprehensive national education programs that will be dedicated to provide service and support to the United States, while preserving its culture and heritage, and that will be commensurate to the responsibilities of the world's primary postindustrial leader.

- to adjust all programs, over time, for the preparation of learners to support the needs of a national sociopolitical and socioeconomic infrastructure that is predominantly service, information, and knowledge oriented.

These challenges, very likely, will be met by the following national actions: the national education policy will recommend accelerated, yearlong, nongraded, abilities-oriented, nonformal educational programs. Public schools will include pre-kindergarten to grade 16 (equivalent to an undergraduate college degree or technical school certificate). Further, programs will be open ended for life-time learning and retraining and will offer a wide range of education opportunities.[2] To accommodate this program schools will operate on a 12-month basis. Throughout all public schools, the education programs for each curriculum and level and for every subject likely will integrate the learning and participative use of computers, computer technology, and the intellectual technology of models and simulations. Advanced learning techniques (ALT) and computer assisted instruction (CAI) almost certainly will be used for basic skills in reading and writing and especially in mathematics. The depth of all instruction will be commensurate to the learning level for each curriculum. ALT and CAI also will be applied to the sciences (including technology), history (ancient to modern), languages and cultures (beginning in pre-kindergarten), philosophy (Aristotle to modern), and logic (practical to abstract). Introduction to these subjects would begin at the earliest grade possible at an appropriate level and speed. For example: American students from pre-kindergarten through the secondary school years would be exposed to at least six foreign languages and cultures. Upon graduation from public school, most students would have a general familiarity of other

countries that very likely will prepare them appropriately for the work force of the postindustrial society.

Special learning facilities most likely will be available and appropriately designed and equipped to provide wraparound audiovisual and other sensations for realistic learning experiences that will nurture innovativeness and creativity. The overall national education programs also will include specially designed technical and vocational schools that will be equipped with the most advanced technology appropriate for producing a work force fully capable of supporting the needs of computerized, automated and robotic, light fabricating specialty enterprises as well as those of the technoagricultural industries.

National Economy. Inferences within the 2010 scenario suggest that the United States almost certainly will be confronted with more challenges to its economy and management in the foreign sector than in the domestic sector. Since the transition of the U.S. economy from industrial to postindustrial has been an evolutionary process, unfolding mostly during the 20th century, adjustments in the domestic economy (private and public) to accommodate the postindustrial society likely were evolutionary also. The reality of the 2010 scenario is the impact and demands of a growing global free-enterprise economic environment on the U.S. national economy.

The scenario describes a new order of nations whose economies and their management or mismanagement very likely will influence the U.S. economy and its markets. Other postindustrial nations, however, will exist in 2010 that will be in heavy competition with the United States. Although they will not be unfriendly, they almost certainly will seek to further their own economic interests and objectives independently. All the postindustrials, however, will be trying to make wealth essentially in the same market areas: knowledge, information, and services. Almost certainly the marketing of products and services in a high-tech, global society will be highly competitive and will demand new economic strategies. Global

environmental issues very likely will be up front in these new strategies. Problem areas of these issues (e.g., reforestation; solid waste disposal, especially, nuclear; sufficiency of potable water; rebuilding the ozone layer) almost certainly will be of prime concern to almost all countries that are buying as well to those who are selling. Resolution of these problem areas very likely will be slow. Chances are good that by 2010 there will exist an effective international environmental protection agency.

The trade relations that very likely will develop by 2010 between the United States and other nations of the new order can briefly be described as follows. The 2010 scenario describes the principal products produced by the advanced and transitioning industrial nations. From them the United States will import many high-tech products for its service, information, and knowledge industries. Moreover, the United States, despite its own domestic capabilities, very likely will import considerable amounts of natural and synthetic food products, clothing, and chemicals for the general public's consumption from these same countries. From the principal products of the industrial nations, the United States will import its needs in heavy industrial products (e.g., construction products, transportation vehicles) and its additional needs in agricultural products. The United States, in return, can be expected to export to these nations services, information, and knowledge and related products as well as automated and robotic products.

The challenges to the U.S. national economy, more specifically, are primarily to preserve a high economic growth rate; maintain a low-trade deficit; manage capital flow; encourage world free-enterprise economies; discourage trade restrictions, protectionism, trade embargoes, and trade wars. Above all else, the United States must reclaim and maintain a leading edge in world economic power. The United States very likely will build its global economic strategy based on consideration of these economic goals.

These challenges could be met, in part, by the following national actions: the creation of additional incentives through the Overseas Private Investment Corporation to promote investments abroad by U.S. industries and financial institutions in the industries and markets of the industrial nations (e.g., in advanced technology programs, joint private commercial space programs) and in the preindustrial nations. The United States should encourage the International Monetary Fund and other national and international institutions to continue to support debtor nations. They should be supported through financial assistance programs as well as through socioeconomic guidance programs (e.g., assistance in restructuring domestic economies, loan extensions, international investments, and guidance in social/political reform).[3]

As part of an economic development strategy, the United States also should encourage and provide incentives for new and expanded private contributions. For example, private U.S. foundations could provide funds to preindustrial nations for culturally and environmentally appropriate research and exploration in technologies, which might result in the emergence of a new pattern of industrialization for these nations.[4] Further, the United States could develop regional economic integration programs to help industrial and newly industrial nations to reinvest capital to reduce unemployment and achieve their full potential. It could begin programs in the United States and in-country to train indigenous professional people in marketing and service and how to use new information more effectively. As a general rule, the United States should provide more economic development aid than it provides emergency relief to the industrial and preindustrial countries. Moreover, the United States, in the world 2010 setting, likely will continue to provide cooperative industrial assistance to the leadership of the Union of Social Democratic Republics (USDR) and the Union of Sovereign Republics (USR). The United States has given this aid since the mid 1990s in an effort to improve the economies and the dealings of the USDR and the USR in a global free market. Such activity.

almost certainly, would create a better understanding of and relationship among nations.

National Security and Defense. The inferences of the world 2010 scenario are that the postindustrial military establishment is comprised of active forces that are small in number, highly mobile, have high-tech sophisticated arms and ancillary equipment, and are fully capable for land, sea, air, and space contingency operations. The scenario also infers that the postindustrial nation has a reserve component that is large in number, less mobile, equipped much like the active force, and fully capable for land, sea, and air contingencies inappropriate for the active forces. Additionally, discussion in world 2010 suggests that, primarily because of growing independence and nationalism, basing rights and overflight rights have been reduced or denied to the United States by some of the industrial and the preindustrial nations.

The principal challenges to the U.S. national security and defense that are detectable in the world 2010 scenario are:

- to acquire and train appropriate manpower to staff a professional postindustrial military establishment, i.e., active and reserve forces and their civilian support;
- to devise superior national defense and military operational and strategic concepts to compensate for universal access to technology;
- to recommend and obtain appropriate advanced weapon systems and other necessary means to support U.S. national and military strategic concepts; and
- to select and retain, where possible, relevant basing facilities on land or afloat and devise means for the rapid deployment of forces to accommodate political needs within the national and military strategies.

These challenges to U.S. national defense likely can be met, in part, by the following national actions: the military must create professional incentive recruitment programs, not unlike those used by the 21st century American service, information,

and knowledge industries, to acquire superior professional manpower commensurate to the needs of the 21st century U.S. postindustrial society. The quality of military personnel should be no less than that of the personnel of American industries. By 2010, the national education programs likely will be producing sufficient high-quality graduates for all levels and divisions of the postindustrial society including the military for national defense. The high standards of excellence in performance, competency, and moral and ethical principles expected of personnel entering the work force of the U.S. postindustrial society should be the same for the military establishment. A need for universal military service or draft will be unlikely so long as military pay and other benefits remain comparable to those of the postindustrial industries. This construct does not rule out the possibility of universal or national public service to raise the level of education and ideological understanding of the general U.S. citizen. Such programs might not necessarily include military service. The military, however, must also devise and provide specialized training programs for its active and reserve forces that are designed for the new century force. Such training not only will be appropriate for the anticipated contingencies that might arise in a world 2010 environment but also will be constant in its challenges to the high-caliber personnel of the military. Training programs, for the most part, likely will be high-quality cost-effective simulations.

National Science and Technology. U.S. scientific innovations and technological achievements during the 20th century have been prime movers. They have influenced the changes that have moved the U.S. society from industrial to postindustrial. Almost certainly, the momentum of discovery will continue in the United States and very likely will increase in the new century. World leadership in science and technology, however, is not held by the United States alone but shared competitively with the other 21st century postindustrial societies, especially Japan. Many of the most significant achievements of the past have related to the national interests of these individual postindustrial nations and were adamantly protected. With the advent of communications

satellites and the increasing dissemination of information and knowledge along with increasing worldwide use of computer technology, national interests had to give way to the sharing of these advances with all nations having a science and technology infrastructure. The inferences of the world 2010 environment are that these benefits, which emanate mostly from the postindustrial and advanced industrial nations, will be accessible to all nations. Almost all nations very likely will have the appropriate infrastructures to use the advances except the very poorest of the preindustrial nations.

The challenges to U.S. national science and technology (S&T) are many and are important to the U.S. national interests and security. The following list is incomplete but suggests some of the foremost challenges to U.S. science and technology (S&T). They are:

- the competition for world leadership in S&T;
- the lack of comprehensive programs to manage the free flow of U.S. S&T information and knowledge;
- the broad transfer of S&T related to conventional and nuclear military capabilities that is legitimately transferred with other information and knowledge;
- the proliferation of nuclear S&T as the use of the nuclear energy sources increasingly replaces fossil fuels;
- the significant number of world problems related to S&T that have not been solved (e.g., pollution, alternative energy sources, bioengineering and genetic engineering hazards, space clutter, nuclear waste disposal, closing the ozone gap, computer vulnerability), and
- the management of space utilization (industrial, commercial, medical, telecommunications, and so forth).

These challenges probably can best be met by establishing new national departments specifically designed to address related challenges and by the following U.S. actions:

- develop comprehensive national S&T policies and strategies to attain U.S. leadership in a world where information and knowledge are shared by almost all nations (this includes strategies and appropriate programs for dissemination and exchange of U.S. scientific and technological information with selected countries that most benefit the United States);

- encourage worldwide participation in the pursuit of the peaceful use of S&T on earth as well as in space;

- assist all nations in the development of S&T for the benefit of mankind and, especially, to aid the preindustrial countries in the acceptance and assimilation of S&T into their societies;

- lead in the development of cooperative worldwide programs in a search for alternative energy sources;

- support and increase effective industrial and commercial uses of space (e.g., medical, communications, weather and weather modification, terrestrial and extraterrestrial mapping);

- take global responsibility for leadership to rectify environmental pollution (e.g., acid rain, nuclear contamination hazards, industrial chemical pollutants, potential bioengineering hazards, space clutter);

- support programs to perfect artificial intelligence which will increase the utility of robotic devices;

- develop programs designed to perfect (1) genetic technology where organisms are used to increase agricultural capabilities for the production of food; (2) mining extraction processes to obtain pure metals, and to develop means for recycling and recovering scarce minerals; and, (3) in medicine, alteration of animal or human cells to eliminate genetic diseases;

- create new national programs to perfect unique means for the most effective utilization of the space environment for national, commercial, and other purposes; and,

- assist the industrial and preindustrial countries to develop S&T infrastructures and encourage their efforts in experimentation to further global peaceful goals.

Summary Thoughts.

What then in 2010? As the 21st century approaches, nations of the world will be entering into a new era of global concepts that envelop a new order of nations. Challenges and issues of the new era most likely will create new global responsibilities and demand new leadership. Many nations within the new order very likely will be in need of a source of sound guidance to build and maintain new national economic, political, technological, and sociological infrastructures. These nations most likely will look to the United States or to other postindustrial or advanced states for this guidance. There is a good likelihood also that by 2010 many of these same nations will begin to face the critical global environmental issues of the next century, e.g., deforestation, desertification, drought, famine, and starvation. Failure by nations to resolve these crucial issues very likely will involve their very survival as nations and peoples.

What will be the source of this leadership and guidance in the economically competitive 2010 world of nations? Which nation or nations will sacrifice a modicum of economic wealth and growth, if need be, to help other nations become more successful as free market economies? Could a source of global leadership be provided by a coalition of the postindustrial states where they would share the responsibilities in global management (as well as the costs and losses)? Such a source of global leadership, however, very likely would be perceived as elitist management. Could another source emanate from unilateral actions of Japan, Germany, the European community, or the United States? There is little likelihood that the United States, the only remaining nation of superpower lineage, will seek the role of global leadership. Under such circumstances, U.S. domestic politics and economy very likely would conflict with foreign

policy. The United States might also be perceived by other nations as a colossus of the world (a reputation that might be hard to shake). The complexities of new political and economic relationships within and among the new order of nations almost certainly will create new global responsibilities for national leaders. The most likely source of global leadership that would be acceptable to most nations would be from the United Nations (U.N.), provided that the U.N. is well supported financially by all nations.

Will the United States by 2010 be able to educate, train, and retrain its people commensurate to the demands of a postindustrial society? Other postindustrial nations, such as Japan, the Baltic states, and few other states in Europe, have moved ahead in the 20th century in teaching multiple languages. Although they have not moved as rapidly in teaching other cultures, they are beyond the United States in marketing and sales techniques for the global economic era of the 21st century. Educators do not have the luxury of time to reorient the American education system for the new order of nations of the 21st century. The leaders of the first decade of the next century in business, industry, academia, government, and the military of 2010 are more than half way through an American education system that should be preparing them with the knowledge and skills that will keep the United States first among all nations. There is very little likelihood that the United States will ever be recognized by most nations as other than the most advanced nation of the world. There is a very high likelihood that American leaders can develop national education policies that will enable American educators to bring the education system on line with the needs of the 21st century postindustrial society.

Will the national economy of the United States recover sufficiently from the deep recession of the 1990s to meet the challenges of a global free-enterprise economy? Throughout the 1990s and the early years of the 2000s, the United States very likely will continue policies to encourage all nations of the world to become democracies and to develop free-market economies.The United States very likely is the only nation of

the world that would be willing to make the sacrifices necessary to do this. Chances, however, are better than even that such policies in the long term will be self-defeating especially if U.S. foreign economic assistance, in any form, overwhelms domestic economic needs. U.S. global economic strategy must be built upon and support its national economic strategies in order for the United States to maintain the leading edge as a global economic power.

Will the national security and defense of the United States be placed in jeopardy because of the ready access all nations have to technology? Since all nations will have the opportunity in world 2010 to share the advantages of the most advanced technology, including weapons technology, the burden very likely will fall on the U.S. military to devise means to circumvent any possible harm to the nation's security and defense and its interests. One way for the military to do this would be to develop superior military doctrines and tactics, coupled with carefully integrated national military strategies. Once such doctrines and tactics are conceived, advanced military training programs could be formulated to amplify the power of the new doctrines. This would assure decisive actions whenever and wherever the use of these strategies might be required. As the new strategies are devised they, almost certainly and increasingly, will challenge research and development to produce new and innovative technology, weapons, and weapon systems that will be appropriate for specific strategies and contingencies. The choice and combination of weapons, systems, and the technology involved, along with the manner of their employment within national and military strategies will provide the key elements of surprise essential to the success of any U.S. engagement with any adversary.

CHAPTER 8

THE IMPACT OF THE NEW ORDER

U.S. National Security.

The likelihood of the United States progressing into a world 2010 environment as described in the new order of nations in this study is very high. Almost certainly, U.S. perceptions of national security and its needs in the 21st century will be different than those of the 20th century. Despite U.S. and Soviet nuclear disarmament in the early 1990s, by 2010 the United States very likely will be confronted with near equivalency in nuclear weapons in both the Union of Social Democratic Republics (USDR) and the Union of Sovereign Republics (USR). Chances are better than even that by 2010 there will be an additional 20 or more nations possessing varying numbers of nuclear weapons in their arsenals. The United States very likely will have to consider as well the numbers of mobile and other nuclear armed missiles that are unaccounted for somewhere in the former Soviet Union. There is a better than even chance that most of these weapons will be distributed throughout the territories of the Union of Independent States.

The forecasts of the consequences of the trends addressed in this study are directed toward constructs that, at a cursory reading, suggest that the United States is less than a first-rate power. This view would be based on the irrelevance of the concept of a single dominant superpower replacing the former bipolar superpower world after the disintegration of the Soviet Union in the 1990s. The view might be supported also by considering the United States as just another country sharing the title of postindustrial with several other nations. This is not a valid view of the United States. The decline of superpowers is measured against 20th century terms and the perceptions of power that developed after World War II. What a superpower

was and how a superpower acted was what other nations expected a superpower to be and what they believed it should do or not do. Such perceptions, then, allow for the nebulous notions that superpowers could be either benevolent or tyrannical, good or evil.

The United States in the 21st century almost certainly will be accepted by all nations as the leading postindustrial nation. It will be thoroughly enmeshed in world activities politically, sociologically, economically, and especially scientifically and technologically. The United States, however, will be less involved militarily, in many respects, since it will have adopted a policy of a quiet military strategy for the 21st century. Although 20th century U.S. economic, political and military influence likely will have declined globally, its influence in the first decade of the 21st century almost certainly can be expected to be strong and any further suggestion of decline would appear to be remote. In the world of 2010 the United States will share its global leadership responsibilities with other postindustrial nations. Because of its stability and preeminence as a nation, the United States almost certainly will be recognized as the leader of the postindustrial countries.

The United States since the mid-1990s has been actively pursuing the building of democracies as old world nations exchange authoritarian governments for the new wave of democracy and free market economies. Its relationship with the USDR since the mid-1990s to 2010 has been one of measured economic support for the USDR leadership while they build democratic and economic institutions. The United States since before the turn of the century, along with other stable Western democratic nations, continues to provide not only economic help, but also industrial and political management assistance. Believing that the willingness of the new nation states of the former Soviet Union to cooperate in arms control, disarmament, troop withdrawals, and reductions in force are genuine movements to establish world peace, the United States by 2005 has retired, disposed of or dismantled over 60 percent of its military force, including personnel.

The 2010 world environment very likely could be one of apprehension. Nations in 2005 to 2010 in general, including the United States, very likely will still be quite well armed. They almost certainly will be engaged in highly competitive economic activities as well. Many nations may well be struggling with domestic governmental and economic reforms. The possibility of armed conflict likely will exacerbate the real or imagined anxieties of these nations. Almost all nations of the world of 2010 will be armed and some will possess nuclear, chemical, and biological weapons. Almost certainly, by 2010 the devastation caused by wars will have escaped the corporate memory of most nations of the world.

The progression of the world toward the 2010 environment very likely will require societal changes within the United States. The spirited economic competition in the new order of nations most likely will demand a creation of new means to produce and market new services and information. Almost certainly as a first step, the U.S. populace will have to accept and comprehend the realities and responsibilities of being citizens in a 21st century postindustrial society. This they must do to understand how they are going to live, work, and play in that society and to know why they might want to defend that society. Responses to these challenges will be a test of demographic influences on national attitudes and integrity. As a second step, the U.S. leadership will have to consider what national challenges and security threats are likely to come about in the world 2010 environment for which the United States would want to be prepared. Almost certainly, the United States will have to address its societal infrastructure and its institutions as to how world 2010 and the new order of nations will affect them. What must be preserved? What must change? Equally important, the United States will have to consider how its position of world leadership will be affected and how its national security strategy must be adjusted in the new international environment. This very likely will require continuous scrutiny by the U.S. leadership. Along with the likelihood of military conflict somewhere in the world that might involve the United States, reformulation of U.S. national security and military strategy very likely will demand high

priority. These things must be done by the turn of the century if they are to be implemented by 2010.

Evolution as a Postindustrial State.

The evolution of the U.S. society from advanced industrial to postindustrial actually began some time after mid-20th century. One way it can be tracked is by observing U.S demographic and scientific and technological changes over time into the 21st century. Demographics in the United States increasingly have depicted an aging population with fewer available young males, age 18-24, than females and a population declining in number in absolute terms.[1] The American work force from mid-century on, as well as becoming on the average older, became increasingly more professional, innovative and creative, and more scientifically and technologically oriented. More private enterprises and government agencies during that time became involved in science and technology based service, information, and knowledge industries. These industries increasingly demanded international mobility and multilingual capabilities and almost certainly will continue to do so. Mobility and multilingual demands, in turn, increasingly will become dominant features for the 2010 work force. Chances are better than even that the 2010 work force will be expected to travel and reside abroad for marketing, training, and maintaining products for up to six months in different countries around the world. From the mid-20th century on, U.S. heavy industries have become fewer, as light, automated and robotic fabricating enterprises have replaced them and very likely will continue to do so. The United States gradually evolved as a postindustrial society, with all of the national and global implications of a information and service society. Because of its former status as "Number One" superpower, as well as being on the "forefront" of high-tech knowledge going into the 21st century, the entire nation will have to demonstrate a dedicated resolve to achieve the "Number One" position of leadership of the postindustrials and the new order of nations in *A World of 2010*.

New International Order: New Security Threats.

U.S. national security threats will change as the 21st century approaches and as nations of the world fall into their new status positions in the new international order of nations. The inferences of *A World 2010* suggest that U.S. national security threats by the year 2010 almost certainly will be different than those that confronted the United States in the 20th century. Almost certainly, the manner by which the nation confronts threats to its security and provides for its defense also will be different. Military traditionalists likely will have disappeared from the 2010 scene. Those who view security and defense as an integral part of a strong economic and political infrastructure that is sustained by superior national and military strategies very likely will dominate the U.S. defense rhetoric.

The defense posture for U.S. national security will be designed to meet the needs of a 21st century postindustrial society. The U.S. military will not become the world's primary peacekeeper or peace enforcer. These very likely will be shared principal responsibilities of the postindustrial and the advanced and transitioning industrial countries under agreements with the United Nations. The inferences of the world 2010 scenario indicate that the U.S. military force will be recognized as the model military force of the world. Strategically, it will continue to be nuclear armed but with fewer nuclear weapons. The strategic weapons held by the United States in the years 2000 to 2005 likely will be the result of arms control and disarmament agreements made between the former Soviet Union and the United States with the concurrence of the USDR and the USR. The agreed number was accepted by the nations involved as the minimum believed to achieve a stable deterrent.

The military establishment of the United States very likely will not be a large force. It more than likely will possess sophisticated high-tech conventional capabilities as well as the most advanced nuclear weapons system. The active U.S. force most likely will be trained and equipped to deploy rapidly

worldwide for land, sea, and air operations as well as appropriate operations in and from space. This force will be backed by a large reserve component that is adequately trained for comparable operations. Essentially, the 2010 U.S. military force and its potential for effective combat capabilities will continue to serve as a deterrent to any intensity or level of attack or threat against U.S. national security interests.

The world of 2010 scenario suggests that the new leadership of the former Soviet Union in the USDR, USR, and UIS have turned to internal economic development. They also have turned away from the political and military adventuresome and aggressive acts that occupied the former Soviet Union of the 20th century. This national attitude supports the rationale for the reduction of the U.S. military described in the world of 2010 scenario. U.S. national and defense leadership must keep in mind that there is a good chance that the USDR, and USR in 2010 also retain military forces that have capabilities nearly comparable to U.S. capabilities, including nuclear weapons. A discontinuity of the trend toward peaceful economic development by the USDR and USR remains a possibility. This likely could result in the long term in a replacement of the their leadership by aggressive factions. This almost certainly would require U.S. military planners to be prepared with appropriate contingency strategies. Chances are better than even that a threat to the United States from the USDR or USR could be lessened by continued U.S. support to assist these new nations in their economic development. If the United States were to give this support, it likely would improve the relationship between these two nations and the United States including the mutual understanding of their cultures. The development of a cooperative spirit between these nations, especially if they were to cooperate in the prevention of nuclear conflict between other nations possessing nuclear weapons, likely would decrease any real or imagined mutual fear of the nations involved.

Summary Thoughts.

The United States within the new order of nations most likely will continue to be the foremost military power of the world. Its apparent loss of military influence during the 1990s, as inferred in the world 2010 scenario, very likely was due more to the withdrawal of overseas forces, the reduction in the numbers of troops, and the decrease in the dollars for defense expenditures, than to any loss of military capability or actual loss of military influence. U.S. forces in the first decade of the 21st century very likely will be a small, fully capable force that can manage and win the types of armed conflicts that likely will threaten U.S. national security. The U.S. military image within the new order of nations and the 2010 environment very likely will be one of quiet military power.

Unlike the national security strategic systems of the 20th century, that were designed primarily to protect and counter threats to weapons, the strategic systems in 2010 will be designed to protect U.S. citizens, property, and institutions. The leadership likely will confront the 2010 threats in a manner appropriate to maintain and protect its position of world leadership as well as regain its influence that was impaired in the late years of the 20th century. Another consideration for the U.S. leadership, inferred in the 2010 scenario, is that U.S. plans of the 1980s and the early 1990s for developing a strategic defense initiative (SDI) have not and likely will not have happened. The United States likely will remain vulnerable in 2010 to some degree to the threat of a missile attack that is beyond the capabilities of its ground-based antimissile systems, even though the systems very likely will be supported by superior space warning capabilities. Additionally, U.S. leadership must be aware of the diminishing probability of large, massive land warfare operations, similar to those of World War II. They must also be aware that the decline of heavy industrial capabilities very likely will render 20th century national industrial mobilization an archaic and obsolete concept, i.e., an anachronism in the context of the U.S. postindustrial society in the world 2010 environment. The likelihood of new, light high-tech industries that can switch

rapidly from consumer to military production is high. Such industries could produce impervious armor (e.g., plastics), or produce weaponry that does not fire bullets (e.g., sound or electrical beam systems with effects that range from lethal to incapacitating).

The likely and important threats, fears, and serious problem areas of national security interests that confront the U.S. leadership in the world 2010 scenario are:

- Trade wars and wide-spread protectionism.
- Loss of economic influence to Europe, Japan, and the Organization for Economic Cooperation and Development (OECD) nations.
- Loss of the 20th century industrial base and national mobilization capabilities.
- The buildup of the economy of the USDR and the USR.
- USDR/USR/Japanese cooperation for resources.
- New bilateral economic and political arrangements between China and Japan, China and Europe, Japan and Taiwan, Israel and South Africa, USDR/USR and Europe, and USR and China.
- New collective economic and political agreements of Japan, Australia, and New Zealand; Cuba and the Central American and Caribbean states; Argentina, Brazil, and Mexico.
- Expanded European interests in the industrial and preindustrial countries.
- The tenure of the USDR or USR leadership and a possible return to the more traditional and aggressive leadership of the former Soviet Union.
- A failure of science and technology to develop alternative energy sources to support national needs.
- A concerted USDR or USR effort to regain hegemony in East Europe.

- Universal transfer of critical science and technology.
- Unmanageability of the constant accumulation of space clutter.
- Widespread (worldwide) experimentation in bioengineering and genetic engineering.
- Worldwide interest in the accumulation of nuclear, industrial wastes and other solid wastes and their disposal.
- Loss of U.S. military overseas-basing and overflight rights and port facilities
- Reduced worldwide U.S. military presence.
- Excessive reduction of U.S. military forces, military installations, and special-use property at home and abroad.
- Denial of access to or restrictions on the freedom of use of commercial and military lines of communication.
- Expanding arms trade by an increasing number of conventional and sophisticated arms suppliers[2] who will replace those of the United States, the USDR, the USR, and Europe.
- Increased proliferation of sophisticated subnuclear precision weapons and ballistic missiles.[3]
- Increased presence of nuclear weapons in the Middle East and Southeast Asia.
- The increased general proliferation of nuclear and chemical weapons worldwide.
- The possibility of preemptive military actions of one nation to forestall or preclude the production of nuclear and chemical weapons by another.
- Degradation of U.S. collective security agreements.
- Increased Japanese militarization and a nuclear armed Japan.

- Continued destabilization in the Middle East by Islamic fundamentalists and other radical factions.
- Reduced access to critical and strategic resources.
- The probable increase in aggressiveness by industrial nations that will be unable to muster supporting infrastructures to advance to more modernized status in the new order of nations and who harbor deep vexations and hostilities toward other nations.

The world 2010 scenario confronts the United States with a multiplicity of threats to its national security interests but only if they are thought of in 20th century terms and situations. Unlike the threats of the 20th century, which were predominantly political and military in character, those in the early decades of the 21st century likely will be political and economic in character. Nonetheless, although these threats likely will be tempered in comparison to military threats, they almost certainly will demand considerable attention and innovativeness on the part of the U.S. leadership. Moreover, to meet the world 2010 threats and maintain an emphasis toward long-term world peace, the United States will have to interchange its reliance on strategies of military force as power to a reliance on strategies of economic influence as power.

CHAPTER 9

U.S. MILITARY FORCES

Implications for the U.S. Military.

The scenario of a world 2010 proposes suggestions relative to the U.S. military that very likely will be appropriate for the military forces of the 21st century postindustrial society. These same suggestions very likely will have implications as well for the land forces of the United States. The world 2010 inferences include broad comments about the U.S. military related to its size, mobility, equipment, weapons, and the environments in which it will have full operational capabilities. Many of these comments apply as much to land forces as they do to air, sea, and space forces.

Inasmuch as the world 2010 scenario does not make a clear distinction between the military services, any one of the following three possible configurations of a U.S. military appropriate for the U.S. postindustrial nation could exist:

Unified. The U.S. armed forces in the year 2010 could be unified into one U.S. defense force. The chances of this occurring by the year 2010 are good considering the scenario's suppositions that the U.S. military is a small and elite fighting force capable of land, sea, air, and space operations. Such a force would be fairly certain to remedy the problems of communication among forces. Almost certainly, for such a configuration, the elimination of redundancy of missions, equipment, weapons and manpower requirements and the ease of communication among forces would be relevant to a postindustrial society that has modernized and slimmed down its institutions as one result of long-term deficit reduction programs.

There is a better than even to good chance that throughout the 1990s the U.S. Congress will slash the Defense budgets as it increases expenditures in the social and environmental programs of the nation. Unwilling to be convinced that any significant threat to the United States and Europe will remain after the disintegration of the Soviet Union and the waning of communism throughout the world, the U.S. Congress likely will force the withdrawal of overseas forces, the reduction of the active forces, and the discontinuance of old and new defense contracts. A unification of the armed services very likely would be in accord with the mood of the Congress through the turn of the century. Chances are better than even that a small, elite force will be in accord with the characteristics of the challenges and threats to national security over the short term to 2010.

Three Elements. The U.S. armed forces in the year 2010 could be comprised of three elements: a land/air fighting element, a sea fighting element, and a space capable element. The chances of this occurring by 2010 are better than even, and essentially for the same reasons as a unification to one defense force. The choice to retain a separate naval element likely would reflect the U.S. leadership's interpretation of the 2010 challenges and threats. For example, the leadership likely could decide that there is a need for an extended military arm to deploy land forces and to replace the loss of U.S. overseas-basing and overflight rights and port facilities. They also might decide that a need exists to use the presence of U.S. naval forces in any U.S., USDR, or USR (or others) cooperative arrangement to preclude the employment of nuclear weapons that have proliferated into the industrial and preindustrial nations. The U.S. space element would serve primarily intelligence and other required war-fighting needs as well as have limited antiballistic missile defense capabilities.

Unchanged. The U.S. armed forces in the year 2010 could remain basically unchanged from their configuration of the 20th century–a land army, a navy, an air force, and a space command. The probability of the armed forces remaining unchanged is less than even considering the world 2010 suppositions that the active military force of the postindustrial

societies is a small and elite active fighting force; and the elite force is supported by a large reserve force capable of handling contingencies beyond the mission requirements or capabilities of an elite active force.

Implications for the U.S. Army.

Significant implications for the land fighting forces that can be derived from any of the above configurations likely will have some similarity to projections of the U.S. Army into the context of the world 2010 scenario. Many of the notions described here about a land army can be applied to the navy, air, and space forces. The paragraphs below highlight some of the likely implications for the Army that can be expected in the world 2010 environment.

The Individual. The Army by 2010 almost certainly can expect to experience a shortage of available 18-35 year old males who will be physically, mentally, and morally suitable for a 21st century force. For this reason primarily the Army will enlist and commission more qualified older men, ages 25-40 years, and younger women, ages 18-30 years. To acquire the numbers and quality of personnel needed, the Army will continue to face keen competition with postindustrial businesses and industries for high quality individuals, even more rigorous than in the 20th century. The Army, moreover, will have to develop employment strategies as well as match salaries, benefits, and other professional satisfactions of career status for its active and reserve components that will be comparable, at least, to those of the average American postindustrial business and industry. Most of the active Army's soldiers likely will have college degrees or equivalent experience and training. They very likely will be offered cost-free opportunities to earn specialized higher technical and academic degrees. On the average, the world 2010 soldier will be fully capable of comprehending and operating automated, robotic, and computerized systems. Moreover, the 2010 soldier will be highly competent to participate in multilingual computer and video teleconferencing networks, as well as to

teach and train others in the use of specialized military-oriented high-tech equipment and weapons. Additionally, the world 2010 soldier will be required to become proficient in the logic of planning, evaluating, and designing appropriate military tactics and strategies through extensible, computerized military gaming programs, systems, and models. The 21st century Army will be challenged to develop its small elite forces into cohesive fighting units fully capable of effectively fulfilling a variety of combat missions when called upon.

An Elite Active Force. The world 2010 Army can be expected to have experienced the effects of long-term national deficit reduction programs. The results of these programs likely will force the Army, during the period prior to the year 2010, to develop and adhere to programs emphasizing a reduction of the active force and an economy of force. The quality of Army personnel, almost certainly, will be the Army's first priority since they will be responsible for developing the Army's strategies and plans necessary to fulfill its missions. Training and education will be the Army's second priority, inasmuch as the employment of appropriate strategy and the effective use of weapons will be the means by which conflicts will be suppressed or won. The Army will have to develop advanced training methods using computerized high-tech, multimedia simulators and other computer-assisted instructional methods to create highly effective elite fighting units. The United States by 2010 will have experienced a loss of overseas training areas as well as basing rights and the Army will have lost training facilities throughout the United States. As a replacement, simulators likely will be used for a variety of global environmental conditions in which armed combat might occur in the world 2010 scenario.

High-tech equipment and weapons will be the Army's third priority. To function effectively as an elite fighting unit, the Army's equipment will have to be light and durable; low maintenance; sea, air, and space transportable; and energy efficient. The Army will require weapons that will be mostly manportable, with built-in automatic range and target seeking

capabilities, self-energizing, and have variable incapacitating to lethal capabilities.

The Reserves. The Army Reserve Components in world 2010 will continue to have a close relationship with the Army's active force as they did in the 20th century. The Reserve Components, however, will be considerably larger in numbers than the active force; at least a ratio of three-to-one. They will maintain training and readiness for call-up operations anywhere in the world where a major conflict might occur that is beyond the missions of the active elite force. Chances are better than even that the Reserve Components can achieve sufficient training for combat unit replacement and a good chance for individual replacement in all combat situations and for all types of units. The reserves likely will be responsible for international training and exercises with the Europe, the USDR, USR, and other national peacekeeping forces as appropriate for the exercise situation. Almost certainly, the world 2010 Reserve Components, principally, will be involved in national security assistance and nation-building programs. Security assistance agreements likely will be short term with negotiable renewals. Sales of weapons and ancillary military equipment to those countries with U.S. security assistance agreements very likely will be minimal and in measured quantities. Beyond their contingency missions, the Reserve Components very likely will fulfill these obligations in the world 2010 environment and most likely will assume the responsibility by providing small units to these programs.

Summary Thoughts.

The world 2010 environment presents a plausible surprise free scenario that is highly likely to come about as the trends of the 20th century continue into the next century. The trends leading to this environment will create change and very likely will demand discarding old traditions and beliefs and adapting to new situations and challenges. The U.S. leadership will almost certainly have a different outlook on international relations as this world environment comes into being. The

leadership almost certainly will have to readdress its 20th century alliances and agreements. They almost certainly will make new commitments where previous agreements did not exist and find ways to create ad hoc alliances for crises and conflict situations as they surface. The U.S. leadership most likely will restructure the relationship between national security and national defense. They almost certainly will develop national and military strategies so that the U.S. military forces, active and reserve, are used most efficiently for 21st century missions during peacetime and war.

The application of military force as an instrument of national power also would be reassessed and the use of the Army almost certainly would be highly selective. Moreover, U.S. contingency strategists and planners in 2010 must assume that potential adversary forces possess the high-tech weaponry of 2010 and that their military knows how to use these weapons. They must also be aware that an adversary very likely will have capabilities analogous to those of the U.S. forces. Aware of these possibilities, U.S. strategists and planners, then, must devise strategies and operations that have high potential for defeating an adversary through the element of surprise. The strategy would include an operational plan where surprise combinations of high-tech weapons and advanced technology would be used against an adversary. Although the world 2010 environment suggests few instances of wars, global economic competition very likely will be so great that the chances for the occurrence of conflicts across the spectrum of warfare will be better than even. Chances are good that the entrance of the USDR, the USR, and the UIS into the world family of nations will appear to bring more instability into the world affairs of 2010 than relief that a great Communist nation has fallen apart.

There appears to be no need for the United States to apply military force as an instrument of national policy in the world 2010 scenario, except where U.S. forces might serve in a world peacekeeping capacity with other nations. The reason that the world 2010 scenario was created was to alert planners and decisionmakers that situations exist where they can, in some ways, manage in the years prior to 2010 to make the future

environment more acceptable to the United States, its allies, and its friends.

ENDNOTES

CHAPTER 1. Background and Process

1. This futures study essentially forecasts a surprise free scenario. It describes a plausible world that has a high probability of forming over the next 10 to 20 years. The exact year is not important. The scenario is based on plausible alternative consequences of strategic trends and events that will influence U.S. interests and their defense along a continuum into the future. A surprise-free scenario is designed as a base-line description of a future to be used for constructing alternative world environments or scenarios that can be used for long-range planning.

2. The nations in the various camps, once immutably aligned with one or another in these camps, no longer remain bound to past alignments and are free to change. The names and characteristics of camps appeared to the author to be a convenient and an appropriate means as a lead into a description of a new order of nations. The world 2010 scenario is not necessarily the only scenario that could be created for this futures study. Other futures writers have chosen either a decidedly pessimistic or optimistic scenario about the world environment 20- to 30-years from now. In establishing an approach to a world 2010 environment, the author considered the Malthusian theory of 1798 (T. R. Malthus, *An Essay on the Principle of Population*). The Malthusian theory remains the position of the "catastrophic" or neo-Malthusian theorists, e.g., D.H. Meadows (*The Limits to Growth*), who predict scarcity, misery, doom, and collapse of society. The "cornucopian" theorists hold an opposing position, e.g., Herman Kahn, who predict that human ingenuity and innovative technology will permit indefinite improvement of human well-being, and that the earth's carrying capacity is essentially boundless. This scenario, "A World 2010," falls between these two theories. Although it favors the cornucopian theory, this scenario recognizes that within some nations and regions of the world there could well be misery and the eventual collapsing of nations.

3. *Freedom Review* (formerly, *Freedom at Issue*), published by Freedom House, prepares an annual report comparing the yearly listings of gains for freedom throughout the world. The report, entitled "The Comparative Survey of Freedom," describes the political and economic systems of nations as these systems relate to each nation's political and civil freedoms. Some analysts and theorists, e.g., Herman Kahn, hold the opposing position and scale political systems from a democratic multiparty to an absolute one-party and nonparty. Economic systems are scaled from capitalist to socialist with various mixes between. The January-February 1991 analyst and reporter was R. Bruce McColm.

4. There also exist groups that are essentially non-nations that, in various ways, are influential in the affairs of nations, e.g., those based on political fundamentalism, ethnic, or religious principles and those that are economic cartels or criminal organizations. This report does not discuss these groups. Additionally, discussion on the effects that multinational corporations would have on trends and the effects they would have on national policy is not included.

5. The methods described here for forecasting and creating strategic visions are derived from the processes of the "Cone of Plausibility." The methods using the cone were introduced by Charles W. Taylor in *Alternative World Scenarios for Strategic Planning*, 1988 and revised edition 1990, and in *Creating Strategic Visions*, October 15, 1990, published by the U.S. Army War College.

6. A trend is in constant forward motion in time. It makes something(s) happen or occur. The happening or occurrence is a single or alternative consequence, outcome, or interaction. A consequence or consequences may occur simultaneously or sequentially, i.e., horizontally or vertically. An outcome may be one or may be more than one and create alternative outcomes. Interactions with one or more other trends create new patterns of happenings. Consequences, outcomes, or interactions, generally continue the movement outward in time and create new consequences, outcomes, or interactions, or they create new trends that again move into the future. Collectively, they leave an audit trail backward in time to their origin.

7. Within the period from 1986 to 1991, the USSR leadership surprised the world by adopting the notions of *glasnost* and *perestroika*. These notions began a move toward democracy and a capitalistic system. Also, these notions quickly led various republics of the USSR to separatist movements and demands for freedom. These actions were followed by declarations of independence. Estonia, Latvia, and Lithuania were the first republics to withdraw and become independent. After an attempted but failed government coup, the liberal leadership abolished the Communist Party and the Soviet Union began to crumble.

8. The word "Socialist" in the Union of Soviet Socialist Republics (USSR) would have been replaced with "Sovereign" had a treaty among the various Soviet Republics been signed before the attempted coup. The treaty establishing the Union of Soviet Sovereign Republics (USSR) was not signed by the republics because of the coup attempt and the increase in fragmentation of the Soviet Union. Adequate governmental infrastructures and institutions remained intact to prevent anarchy in the Soviet Union as one-by-one the republics left the Union for independence. Chances are good that before the turn of the century Moldavia, a former Soviet republic, and Romania will be reunified. Chances are also good that Chinese irredentists will take advantage of the turmoil beyond their western

borders to reclaim territory they believe is historically theirs. Chances are that irredentists of India, Iran, and Japan very likely will do likewise.

9. There exists a possibility that the remaining former 11 republics (Estonia, Latvia, Lithuania, and Moldavia are excluded) of the Soviet Union will form three new national entities that will be tied together in the center by a commonwealth or loose confederation. For the purposes of this study three hypothetical combinations will be created. One, the largest, will be addressed as the Union of Sovereign Republics (USR). The USR could include the former Soviet republics that believe they have common interests. Another, about half the size of the USR, will be addressed as the Union of Social Democratic Republics (USDR). The USDR would include former Soviet republics that believe they would like social welfare programs within a democratic government. The balance of the former Soviet population includes the former autonomous areas and ethnic groups. These likely will group together as free and independent states that, collectively, might be identified as the Union of Independent States (UIS). Other likely configurations of the former Soviet Union, e.g., an economic community, will be defined in the appropriate chapters as needed.

10. Adapted from Charles W. Taylor, *A World 2010: A Decline of Superpower Influence*, 1986, p. xi.

CHAPTER 2. World International Order

1. Nations of the world have been variously grouped in the past: industrial and agrarian; developed and developing or underdeveloped or less developed; more developed, developed, and less developed. Sociologist Daniel Bell (*The End of Ideology*, 1961) has added the postindustrial state; Herman Kahn and Anthony J. Wiener (*The Year 2000: A Framework for Speculation on the Next Thirty-Three Years*, 1967) conceived five classes in the year 2000 according to arbitrarily predicted levels of annual income (see below); Willis W. Harman (*An Incomplete Guide to the Future*, 1979) used the term transindustrial; while Yoneji Masuda (*The Information Society As Postindustrial Society*, 1981); and John Naisbitt (*Megatrends*, 1982) have replaced postindustrial with, they believe, a more accurate descriptive term, the information society. Sociologists and demographers have also referred to the First, Second, Third, and Fourth worlds as categories. Leon F. Bouvier ("Planet Earth 1984-2034: A Demographic Vision," 1984) classifies nations into four types: service/information societies, new industrialized nations, developing nations, and least developed nations.

Levels of Income and Industrial Development in the Year 2000*

a. Preindustrial	$50 to $200 per capita
b. Partially industrialized or transitional	$200 to $600 per capita
c. Industrial	$600 to perhaps $1,500 per capita
d. Mass consumption or advanced industrial	Perhaps $1,500 to something more than $4,000 per capita
e. Postindustrial	Something over $4,000 to perhaps $20,000 per capita

*(Kahn and Wiener, p. 58.)

2. The categories of nations in this report are an attempt to "fine tune" what could be realized as early as the year 2010; the transition is already occurring for some nations. The categories differ especially from Kahn and Wiener in that this author believes that there will be few, if any, nations acquiring an infrastructure to transition from the preindustrial to "partially" industrialized and that a clearly recognizable transition, more than likely, will be between the industrial to the advanced industrial societies. That nations will be aligned in new political and economic orders in the future is almost certain, that the new alignments will occur by the year 2010 and be recognized by all nations is less certain. The author of this study believes that the first decade of the century is the earliest that evidence of the new order will be recognizable and that full transformation of a new world paradigm probably will reach fruition around the year 2025, if it occurs at all. The groupings of the world's nations, however, are likely to be somewhat different at that time than arranged in this study and likely will depend on how world leaders manage, alter, or otherwise change the course and the consequences of world trends.

3. This is adapted from Graham T. T. Molitor, "The Information Society: The Path to Postindustrial Growth," in *Communications Tomorrow*, edited by Edward Cornish, 1982, p. 85. This is also adapted from Masuda, pp. 29-33.

4. The term "Union of Social Democratic Republics (USDR)," in this study, replaces the "Soviet European sector" used in the publication *A World 2010: A Decline in Superpower Influence* in 1986. The earlier document described this area as sufficiently advanced to be a near

equivalent to a postindustrial and free-market country. The author believes that by 2010 there is a very good chance that the USDR will be an independent confederacy, loosely separated from the predominantly industrial (to preindustrial) confederacy of the Union of Sovereign Republics (USR). The author also believes that chances are better than even that the USDR and the USR will have close economic ties with one another as well as with the Union of Independent States (UIS). These three will be part of a temporary commonwealth arrangement centered in Moscow. This type of arrangement will allow the USDR to provide the USR and the UIS with economic assistance and agricultural products in exchange for essential items. This will especially help the USDR and the USR leadership to raise its nation to a higher status in the new order of nations and the UIS in building a national infrastructure to unite its peoples.

5. This is adapted and projected from R. Bruce McColm, pp. 5-12. Annually (since 1973) *Freedom Review* publishes a comparative survey of freedom of nations of the world. Nations are rated against scales for political and civil freedoms, with a political free baseline of a fully competitive electoral process where those elected clearly rule, and a civil liberties baseline where freedom of public expression for political change is not closed and where courts protect individual expression. *Freedom Review* includes a partly free category where there is overlapping of either political or civil freedoms. McColm's comparative survey presents only an estimate of the current year's situation and the progress made toward freedom; it does not forecast the probability of freedom. Such projections for the world 2010 are those of the author of this study and are based on the author's estimates of the economic and political potential of nations. Although Albania and Bulgaria are unlikely to achieve the status of postindustrial states, they are symbolically carried along with the Eastern bloc nations to complete the general notion of the world 2010 scenario.

6. There is another possible projection regarding Hong Kong. Some Asian analysts believe that China does not and will not have the capability to manage the intricacies of the Hong Kong economic structure. They suggest that before 1997, when Hong Kong will reunify with China, most of the lucrative assets of Hong Kong will have departed the territory, and China will move in to expropriate an empty shell.

7. Bouvier, "Planet Earth," assumes that Taiwan and Hong Kong will be part of China in 2034. He also would include China and Korea (North and South united) as close to the service/information borderline, p. 29. A Delphi forecast survey conducted in 1984-85 at the U.S. Army War College, which used defense-oriented respondents, found that of 124 panelists, 88.7 percent forecast that Taiwan would accede to unification with China but would retain, by agreement with Beijing, its democratic and capitalist systems during the period 2005-2010 (p. 15) or at the earliest, 2000-2005 (p. C-4). The balance of the panelists believed that this would occur but later than 2030 (4.8%) or would never happen (6.5%) (p. 15). Charles W. Taylor,

Pilot Delphi Project, Part I: Project Summary, unpublished, 1985, pp. 5 and C-4. (This work is referred to hereafter as *Pilot Delphi*.)

8. *Freedom Review* rates South Africa as being partly free, p. 18. This writer doubts that South Africa can achieve clear political or civil freedom by the year 2010. South Africa probably will make positive strides toward freedom during the next decade or so. However, the racial issues in South Africa are so deep rooted and complex that it will still remain partly free in 2010.

9. Taylor, *Pilot Delphi*, pp. 15 and 22. This Delphi forecast survey found that of 128 panelists, 93.8 percent forecast that a populist revolution would occur in Mexico that could result in a markedly left-wing regime, hostile to the United States coming into power during in the period 2000-2005 or even as early as 1995-2000.

10. There is a good chance that North and South Korea will be united before 2005 as a new democratic nation. It is hardly likely that they will be able to develop a stable democracy before 2010.

11. The Philippines have been under the democratic leadership of President Corazon C. Aquino since 1986. As of 1991, President Aquino's apparent intent has been to continue building a free and Western-like democratic society. Insufficient evidence of the permanency of the Aquino government still exists to assign the Philippines a descriptor of "politically free." However, despite the sincere efforts made by the Aquino government, the 1985 Delphi forecast was that 100 percent of 135 panelists believed that a leftist regime could gain control of the Philippines and demand that the United States abandon its military installations early in the period 2000-2005. (*Pilot Delphi*, p. 15.) After the 1991 catastrophic volcanic eruption devastated the Philippines and the American military facilities there, the United States abandoned its airbase which was beyond repair. Continued use of the slightly damaged U.S. naval facilities there has been denied by the democratic government of the Philippines. Chances are good, however, that the American government will continue to provide economic and other aid to the Philippines so long as it remains a growing democracy.

12. The former Soviet Union, while under separatist pressures during the 1990s, gave broad leeway to the republics to join or function independently. Chances are good that Estonia, Latvia, and Lithuania will be unable to survive independently and will join the USDR. The hopes of these nations would be that they would be in a better position economically at some future date at which time they could again claim independence.

13. Some of the smaller preindustrial and perhaps some of the nonindustrial states, very likely will be absorbed into new or larger states beyond 2010 based on the world's configuration of United Nations'

countries. Less than half of the preindustrial countries are rated politically free.

14. It can be considered a fair likelihood that during the draw down of U.S. forces in the 1990s, U.S. training areas have been reduced (sold or leased for 99 years) both in size and number.

15. Taylor, *Alternative World Scenarios for Strategic Planning*, Revised Edition, 1990, p.19. Table 3 has been adjusted to accommodate world events and new trends since 1990. Table 3 is an adaptation and broadened views of Graham T.T. Molitor, "The Information Society: The Path to Postindustrial Growth," in *Communications Tomorrow: The Coming of the Information Society*, edited by Edward Cornish, 1982, p. 85; and also from Yoneji Masuda, *The Information Society as Post-Industrial Society*, 1981, pp.29-33.

CHAPTER 3. World Population

1. This study uses demographic data projected 15 or more years that have been extracted from the *1991 World Population Data Sheet* by Carl Haub, Mary Madieros Kent, and Machiko Yanagishta, Washington: Population Reference Bureau, Inc., April 1991, and other official international population projections. The world's total population of circa 7.2 billion for the year 2010 is from this data sheet. The numbers are relative and are not crucial to the analysis of this study. They are used merely to establish a probable view of the world and its new order of nations in 2010 when trends of the latter half of the 20th century continue into the next century. (See Leon Bouvier, "Projections: Always Right, Always Wrong," *Intercom*, Population Reference Bureau, Inc., November/December 1983, pp. 8-9, for a discussion on numbers used in projections.)

2. Haub and others, *1991 World Population Data Sheet*. Total Fertility Rate (TFR): The average number of children a woman will have if current age-specific birth rates will remain constant throughout her child bearing years (roughly ages 15-49). Depending upon mortality levels, a TFR of 2.1 to 2.5 is considered "replacement" level. At this level, a population will eventually stop growing.

3. *Ibid*, Haub and others.

4. Bouvier, "Planet Earth," projects the overall average of life expectancy at birth will be 70 years in the year 2034, pp. 21 and 25.

5. *Ibid.*, Bouvier believes that the median population age could approach 45 or 50 in the year 2034 and uses West Germany as an example (although he believes that East and West Germany will be united before or

early in the 21st century); also, that the declining number of youth will increasingly require the nation's reliance on intelligent robots or on immigration of youth from those countries having surplus populations, p. 26.

6. Preindustrial regions include estimates of all regional countries not identified in Table 5 listings. A population estimate of the Union of Independent States is included in Preindustrial Asia. Population estimates of the USDR and USR are included in the Postindustrial and Industrial categories, respectively. Source of data is from various official 1991 population projections.

7. See Bouvier, *Peaceful Invasions: Immigration and Changing America*, 1991, pp. 45-56.

8. Although this forecast supports the trend of a gradual reduction of the heavy industrial sector of the U.S. economy over the long term, there is an opposing view that the deindustrialization of America is a myth, and that "even in those industries most severely affected (e.g., steel, autos, machine tools), there is rarely any suggestion that imports will make the United States completely or overly dependent on foreign sources of supply." Barry M. Blechman (*Alternative Strategic Environments, 1994-2004*, 1985, p. II-34).

9. Bouvier, "Planet Earth," p. 29.

CHAPTER 4. World Interdependence and Sociopolitical Change

1. This is adapted from American Council of Life Insurance, "Collapse of the Global Financial Superstructure," in its *Trend Analysis Program (TAP 23)*, Washington: Summer Issue 1983, pp. 15-18.

2. Constance Holden, "Simon and Kahn versus Global 2000," *Science*, Vol. 221, No. 4608, July 2, 1983, pp. 341-343.

3. The more prominent view of these nations is that the Latin American debtor nations will continue to be held responsible for the repayment of their debts, that they likely will be given numerous extensions over the long term, and that under no circumstances would their debts be forgiven.

4. Although some nations will take these leaps into advanced technologies, such leaps probably will be the case for only newly industrializing countries by 2010. Kenneth B. Taylor has found that by the mid-1980s there was little evidence to show that the less developed countries were making use of telecommunications technology ("The

Economic Impact of Emerging Global Information on Lesser Developed Nations," in *The Global Economy*, 1985, pp. 155-158).

5. Bouvier, "Planet Earth," p. 18, believes that neither "capitalism as we have known it for the past 200 years and communism as it has developed over the past 65 years" will prevail through the 21st century and that the "developing nations' demand for a New International Economic Order will meet with some success in the next 50 years."

6. *Ibid.*, Bouvier, pp. 18-19, projects "democracy, as distinct from capitalism, will survive and thrive as it ceases to be bound by capitalist ideology" and assumes the "democratic world's emerging social consciousness and will spread to include a greater sharing of the wealth with less advanced nations." Additionally, Bouvier suggests that both democracy and communism may be replaced by Ward's "Sociocracy" (from Bouvier, p. 35: Lester Frank Ward, *Applied Sociology*, New York: Arno, 1974, reprint of original published in 1906).

7. Joseph Adamek (*Centrally Planned Economies in Europe: Economic Overview 1985*, 1985, p. 11) states:

> . . . And it is on Asia and Siberia that the Soviet Union will rely to stimulate economic recovery: in Azerbaidjan, Armenia, Kirgizia, Tadzhikistan, Turkmenistan, and Uzbekistan. It is no coincidence that demographic trends pinpoint as the high population growth area of the Soviet Union that area to the immediate south of Siberia, a region which houses the Soviet Union's natural resources but one which has in the past been plagued by chronic labor shortages.

CHAPTER 5. World Energy, Science, Technology, and Space Exploration

1. Theodore J. Gordon, "The Year 2050: Reflections of a Futurist," *The Lamp*, an Exxon publication, Vol. 63, Spring 1981, p. 30. John Gever and others in *Beyond Oil: The Threat to Food and Fuel in the Coming Decades*, 1986, believe that world oil production will peak around the year 2000 and that substitutes cannot fully offset the decline in petroleum before 2025. They also believe that U.S. oil and gas virtually will be exhausted by 2020. The actual date of the depletion of oil is not important; the reason for even mentioning it at all is to emphasize the point that one day there may not be oil to depend on. The substitutes and synthetics may not be efficient enough replacements unless science and technology are provided funds in the new century.

2. U.S. Department of Energy, *The National Energy Policy Plan: A Report to the Congress*, 1983, pp. 21-23.

3. This is adapted from Margiotta and Sanders, *Technology, Strategy and National Security*, pp. 110-111.

4. This is adapted from Charles W. Taylor, *Scientific Innovation and the Future Army*, 1980, and *Technological Achievements and the Future Army*, 1981.

5. U.S. Congress, Office of Technology Assessment, *Soviet Salyut: Soviet Steps Toward Permanent Human Presence in Space–A Technical Memorandum*, p. 35. The National Commission on Space in 1985 proposed a $700 billion space program to manned settlements on the Earth's moon and on Mars and up to 1 million space travelers a day by 2035 in its "Pioneering the Space Frontier: Our Next 50 Years in Space" report. The Business-Higher Education Forum in its report ("Space: America's New Competitive Frontier," April 1986) recommends greater emphasis on space activities by academic institutions, business, as well as the Federal Government. The Forum also urges broader support for the NASA proposed space station, and a permanent manned platform by 1994-95. The European Space Agency (ESA) proposes an unmanned space platform and a man-tended free-flyer laboratory by the end of the 1990s. The USDR and the USR very likely will attempt a previously planned Mars station in the early 2000s cooperatively with the United States.

6. *Ibid.*, p. 43.

7. For this scenario, the assumption is made that the Strategic Defense Initiative (SDI), which commenced with President Reagan's announcement of March 1983, would not be successful and that appropriations for its research would be discontinued by the year 2010. This is based on a strong probability of the United States, the USDR and the USR reaching a substantial strategic nuclear weapons disarmament agreement in the 1990s. Also they will have to reach some form of an acceptable arms control agreement before 2010, thereby reducing the need for SDI and retaining deterrent capabilities. Well before 2010, SDI efforts, very likely, will have exerted their influence on the future through the benefits of discovery. A successful SDI likely would be destabilizing for the world 2010 scenario since it probably would increase conventional arms competition worldwide.

8. This is adapted from George Aseniero, "Technology and Development: NIEO's Quest for Technology Transfer," chapter 8 in *Transforming the World Economy?*, 1984, p. 221.

9. During the latter half of the 20th century, significant and comprehensive advances in science and technology were made by the United States (primarily); the Western European nations, and Japan. The late Soviet Union trailed these nations in original, innovative scientific and technological developments. Former Soviet science depended more on the external acquisition of science and technology than on its own internal

developments. Nonetheless, the former Soviet Union made sufficiently sizable steps forward to be defined as a superpower; its status as such being confined to its influence as a military power and less to its influence as an economic power. For most of this period, a disproportionate measure of the gross national products of these nations (except Japan) was channelled into the exploitation and improvements of military scientific innovations and their technological applications. Opportunities for basic scientific research and technological development benefiting mankind, essentially, received only moderate government support in the Western nations and, largely, were funded by proprietary interests and by academia. It would appear that a new U.S. and USDR, and USR arms race would sap the energies of these nations and, increasingly, they would cede economic power to Japan and to other postindustrial countries.

CHAPTER 6. World Military Status

1. See Arthur F. Manfredi, and others, *Ballistic Missile Proliferation Potential in the Third World*, Washington, D.C.: Congressional Research Service, The Library of Congress. ca. April 23, 1986, p. 6.

2. Joseph Ladou, "Deadly Migration, Hazardous Industries Flight to the Third World," *Technology Review*, Vol. 94, July 1991, pp. 46-53.

3. Herman Kahn, "Some Comments on Multipolarity and Stability," Discussion Paper, HI-3662-DP, New York: Hudson Institute, July 1983. pp. 1 and 3.

CHAPTER 7. National Challenges

1. There is little likelihood that the United States would enter the 21st century as the world's only superpower. There is also very little likelihood that any other nation of the world has all of the characteristics, conceptually or realistically, to be accepted by other nations as a superpower. In *The Rise and Fall of the Great Powers*, p. 446, Paul Kennedy can visualize as many as six superpowers existing. Would the world tolerate the postindustrial nations being called superpowers or are they only economic powers?

2. Adapted from Masuda; for a transformation of the educational system in the postindustrial society, see Masuda, pp.66-68.

3. The Third World external debt is the principal obstacle to their progress and there is less than an even chance that much of that debt will ever be repaid.

4. Adapted from Kempe Ronald Hope, "Self-Reliance and Participation of the Poor in the Development Process in the Third World," *Futures*, Vol. 13, No. 6, December 1983, pp. 455-462.

CHAPTER 8. The Impact of the New Order

1. Charles F. Gallagher, *The Shape of Things to Come*, American Universities Field Staff Reports, No. 33 General, CFG-4-79, 1979, p. 1.

2. Evidence of these arms transfers is discussed by Richard F. Grimmett in *Trends in Conventional Arms Transfers to the Third World by Major Supplier, 1978-1985*, Congressional Research Service, The Library of Congress, Report No. 86-99 F, May 9, 1986.

3. Manfredi, *Ballistic Missile Proliferation*, pp. 5-6.

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APPENDIX
ESTIMATIVE SEMANTICS*

NOMINAL AND ORDINAL SCALE FOR DESCRIBING FORECASTS

NOMINAL	ORDINAL (%)
Sure Chance, Certain, In All Likelihood	100
Very Good Chance, Almost Certain, Very High Likelihood	90 - 95
Good Chance, Fairly Certain, Most Likely, Good Likelihood	75 - 85
Better than Even Chance, Very Likely, Fair Likelihood	60 - 70
Even Chance, Likely, A Likelihood	45 - 55
Less than Even Chance, Less than Likely	30 - 40
Small Chance, Hardly Likely, Little Likelihood	15 - 25
Poor Chance, Unlikely, Very Little Likelihood, Probable	5 - 10
Slight Chance, Possible, Improbable	4 - <1
No Chance, Not Likely, No Likelihood, Impossible	0

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* Adapted from Sherman Kent, Intellengence Analyst

ABOUT THE AUTHOR

CHARLES W. TAYLOR, a faculty member of the U.S. Army War College, is a strategic futurist with the Strategic Studies Institute (SSI). His futures research extends over 25 years and includes major contributions in the form of narrative long-range forecasts as well as in methods and designs of forecasts for studies requested by the Deputy Chief of Staff for Operations and Plans, Department of the Army. He is the author of a number of futures studies including *The Technical Report to Forecast 90*; *A Concept of A Future Force*; *The Relationship of Forecasting to Long-Range Planning*; the *Pilot Delphi Project*, a forecast of strategic issues to the year 2030; *A World 2010: A Decline of Superpower Influence*; *Alternative World Scenarios for Strategic Planning*; *Creating Strategic Visions* and others. Mr. Taylor is the originator of the "Panel Consensus Technique," a widely recognized contribution to participative decisionmaking, problem solving and forecasting. He is a member of the American Academy of Political and Social Sciences, World Future Society, Population Reference Bureau, Association of Electronic Defense, Military Operations Research Society, and The Planning Forum.

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