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Chapter Nineteen
Images of the Future for Our Time

by
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Images of the future are often powerful drivers of social change, becoming the focus of critical discourse and decision making, sometimes a topic of intense ideological conflict, and often a basis for both individual or collective social action. In this chapter, I describe six images of the future that are playing an important role in shaping thinking and action about the human future and in molding the emerging future itself as it becomes the present.

A Sustainable Future

Although environmentalism may have begun as a social movement with the publication of Rachel Carson's *Silent Spring* in 1960, it did not become a permanent part of the human agenda until after the publication in 1972 of *The Limits to Growth*. Using computer simulations and Forrester's (1971) system-dynamics perspective, the authors of *Limits* made a startling prediction for the time: Unless changes are made, both population and industrial growth will stop in the 21st century (Meadows et al., 1972: 126).

The authors reached this prediction by analyzing worldwide data from 1900 to 1970 on total population, industrial output per capita, food per capita, pollution, and the amount of nonrenewable resources remaining at any given time. They used their computer simulation model to calculate future changes in these variables until the year 2100.

Their "standard" model predicts overshoot and collapse of the world system. Growth in food, industrial output, and population occur exponentially until the depletion of nonrenewable resources forces a slowdown. The industrial base collapses, "taking with it the service and agricultural systems" (Meadows et al., 1972: 125). The death rate rises because of lack of food and health services. As a result, the population declines. Human life becomes short and more brutish.

Limits, however, does not conclude with the computation of the standard model. Rather, its authors make other predictions contingent on different assumptions about policy, i.e. about how the human community will behave. Then, they run their computer model into the future again and again to see what the possible consequences would be. But even with favorable assumptions, each time

overshoot and collapse still occur. They may occur later than in the standard model, but they nonetheless occur as the world system hits one limit or another and then recoils into decline.

But there is one important exception. The authors find a combination of assumptions that results in a stabilized world system. *If* the global human society restricts industrial growth, stops population growth, recycles and finds substitutes for nonrenewable resources, gives priority to food production, and makes both production and consumption environmentally sound, then a good and long life for all human beings can be achieved within a world system that is sustainable far into the future. If it does not do these things, however, then there will be disastrous consequences: Human needs will not be adequately met, death rates will go up, life expectancies will go down, and human suffering will increase.

I do not want to give the impression that *Limits* was without flaws as a scientific study. In fact, its publication was followed by a wave of criticism. It was attacked for having inadequate data; for not disaggregating its data by regions (thereby producing possibly different futures for different parts of the globe); for lumping all kinds of diverse wastes together as "pollutants"; for not separately treating different kinds of nonrenewable resources; for failure to take into account human adaptability, ingenuity, and changes in human values; and for giving a spurious appearance of precise knowledge (Cole et al., 1975).

Hundreds—perhaps thousands—of additional studies of the population and the environment also followed *Limits*'s publication, including a follow-up study by the authors of *Limits* themselves (Meadows et al., 1992). Despite its flaws, *Limits* contains a message that is basically sound. That message has been received and acted upon, just as it has been revised, updated, and made more accurate and convincing. Nearly everywhere, human consciousness has been raised about the importance of preserving the life-sustaining capacities of the Earth, now and indefinitely into the future. Today, people are increasingly aware that human behavior is affecting the environment and that all human beings have a stake in preserving it. Impressive gains have been made by governments, corporations, and nongovernmental organizations in learning about environmental problems and in taking action to solve them. Environmentalism has become a common human cause, "the first truly worldwide movement" (Milbrath, 1996: v).

Earth Day is now widely observed throughout the globe. The United Nations Conferences on Environment and Development held in Rio in 1992—the Earth Summit—involved representatives from most of the countries of the world. Ecological economics sensitive to the true costs of production, distribution, and consumption is now challenging classical economic thinking. As a result of education and international cooperation, the techniques of family planning have spread and the rate of global population growth has slowed, in many places industry is being restructured for sustainable production, efforts to create sustainable agriculture and fisheries are being made, and recycling of materials is increasingly part of the normal routines of daily life.

Additionally, work is being done to prevent damaging climate changes, to reduce the per capita production of carbon dioxide (especially in developed countries), to decrease air pollution, to slow the rate of ozone depletion, to prevent coastal and marine degradation, to stop land erosion, to reverse deforestation and habitat loss, to preserve biodiversity, and to diminish the production and spread of toxic chemicals and hazardous wastes (Marien with Jennings, 1996; Tolba and El-Kholy, 1992).

There is, however, no cause for complacency. The present cacophony of voices speaking about the environment, the complexity of many of the issues, and the occasional disagreements about both the problems and the solutions among environmental experts themselves create confusion and encourage inaction. Also, although the rate of population growth has slowed—and continues to slow—the global population is still increasing and could reach as high as 9 billion people by 2050, adding more than 2.5 billion more people to the 6.4 billion people on Earth at the beginning of 2005—or, to put it another way, adding as many people as the total human population of the Earth in 1950. Moreover, anti-environmentalists exist and their voices, often amplified by the money of special interests, may continue to gain in stridency (Milbrath, 1996).

Yet, certainly, we can find cause for hope in the efforts and accomplishments of the past 30 years. Even though its actions have often been slow and inadequate, even steps backward for steps forward, the human community has demonstrated that it can act collectively to preserve—and even to enhance—the life-sustaining capacities of the Earth. Most important, there is now a growing global consensus that the future of all humankind depends on it.

A Future of Technological Revolutions

One of the most important drivers of change throughout history has been human technological innovations and applications. People invent new tools and incorporate them in their efforts to achieve their goals. Moreover, human society has never before in its history experienced such immense, diverse, and rapid expansion of knowledge and technological development as is now taking place. Thus, assessing the effects of technology on society is a major method of studying the future.

Coates et al. (1996: 1) see four technological drivers of change that will shape the world of 2025. Such drivers are information, materials, genetics, and energy technologies. Many of the mind-boggling images of the future for which futurists are infamous, of course, come from considering the possibilities of technological innovations, some of which, perhaps most, will never be realized. Yet others, however fantastic they may now seem, will become realities and will transform future life styles, even if not always exactly as predicted. Moreover, as they do so, popular conceptions change, tending to unobtrusively reduce what once seemed incredible and freakish to the mundane and normal.

Coates et al. (1996) give a series of scenarios for technological and related developments from 1995 to 2025. They do so by dividing the peoples of the globe into three parts, World 1—advanced or affluent nations, World 2—mid-range or middle nations, and World 3—the poorest or destitute nations. Some developments universally affect the peoples of all three worlds, while others affect the three worlds differently. Coates et al. give far too many assumptions and forecasts for me to adequately summarize them here, so I'll give just a sample of developments as illustrations of their work.

For information technology by the year 2025 in World 1, they envision that machines will not only transform data into information, as at present, but that machines will be able to transform information into knowledge and may be on the verge of transforming knowledge into wisdom. Computers will be embedded in all kinds of devices and settings and will function unobtrusively

with associated sensors and actuators. For example, houses will be smart, perhaps containing up to 250 mechatronic devices to carry out various functions from controlling water and sewer systems to lighting, security, entertainment, and telecommunications. Workplaces, also, will be smart and, although much more work than at present will be done in the home through telecommuting, so, too, will cars, highways, transportation systems, and traffic flows be mechatronically controlled as people move between home and work.

Some of the devices will interact with people, but not usually by means of a keyboard or mouse. Instead, the devices will respond to the human eye, voice, and pointing finger. Some will be "knowbots" (knowledge robots) that will have humanlike form and the ability to talk, listen, and read. Multi-lingual compact interactive video discs will explain to human operators how to install equipment and make repairs. In the United States digitization will allow all the available databases to be aggregated into "The Database" which will be open to use by everyone. Computers, mostly based on photonics rather than silicon microprocessors, will be "5,000 to 10,000 times faster than they were in 1990" (Coates et al., 1996: 46). Personal communicators and a worldwide network will telelink people with each other and with machines anywhere in the world, allowing corporations, for example, "to operate in all places at all times at all distances with minimum delay and minimum movement of people" (Coates et al., 1996: 48).

Also, in the United States information technology will account for between 40 and 53 percent of the Gross Domestic Product (GDP) and 64 percent of the workforce, while manufacturing, having gone the way that agriculture did in the mid-20th century, will account for only 18 percent of the GDP and only 4.1 percent of the workforce. "In 1995, there were 70 billion minutes of international telecommunications traffic" and by 2025 there will be 1.3 trillion (Coates et al., 1996: 50).

By 2025, most trips to the "doctor" may be to computer-automated health centers in shopping malls and at work-sites. Urinalysis, blood and other tests, and interviewing about a person's health history will be done by machines. Additionally, the healthcare computer system will instantly provide diagnosis and propose alternative treatments giving the patient-client probable outcomes in each case based on past experience from up-to-date monitoring systems. Linkages of human diseases and disorders to the human genome will be identified and about half of all genetically-based diseases and disorders will be under control. Early genetic intervention will prevent the occurrence of many diseases. Personal medical histories will be on record, under the control of the patient in a smart card or disc (Coates et al., 1996: 6).

Education, too, will be transformed by information technologies. In World 1, it will be universal, lifelong, and individually-tailored. Much education will take place in the home in interaction with machines programmed by Video University, either on-line or from stored materials.

Of course, changes will not occur without reaction, some aimed at turning back the clock to earlier ways and beliefs. For example, there will be strong resistance to "seeing art, health, literature, and political interactions as mere information." And some people will try to return to the past, for example, by living on "hobby farms" where a family can make a living by farming, striking "a felicitous balance between old-fashioned agriculture and the use of modern information as their planning tool" (Coates et al., 1996: 51, 52).

Coates et al. give many additional developments that they foresee between the present and 2025, most of which are reasonable and based on their long experience assessing technology (e.g., Coates, trained in philosophy and chemistry, once served as assistant to the director and head of

Exploratory Projects, Office of Technology Assessment of the U.S. Congress). Yet it is difficult to evaluate many of their forecasts, because often the authors do not give supporting evidence for them. Some of their forecasts may, in fact, be too conservative.

A Future of Longer and Better Human Lives

Perhaps the most stunning human accomplishment in the 20th century has been the increase in the length of human life. Life is, after all, the most important human value, the most precious of possessions. For without life, humans can be nothing and can do nothing. Death is oblivion.

Although data are fragmentary, prehistoric people probably lived on average about 18 years, with only a small chance of living beyond the age of 40. In most ancient civilizations human life expectancies at birth were somewhat higher, ranging from about 20 to 30 years. By the Middle Ages in England, life expectancy may have reached as high as 33. In Breslau, Silesia, where records are available, life expectancy was 33.5 years at the end of the 17th century. Even as late as 1850 in the state of Massachusetts in the United States, life expectancy was only 38.3 years (Bell, 1997a, volume 2).

But then large gains occurred. By 1900 in the United States, for example, life expectancy at birth was up to 47.3 years. And by 2004 it had risen to 77 years (75 for men and 80 for women), an increase of about 30 years of individual life within the last one hundred or so years. Moreover, life expectancies are even higher in a number of other countries, including Australia, Canada, France, Greece, Hong Kong, Italy, Japan, Norway, Singapore, Spain, Sweden, Switzerland and other countries where women now can expect to live well into their 80s.

Although not all regions of the world have yet reached these high levels of life expectancy, the trend toward longer lives has occurred nearly everywhere. The average length of human life has generally increased, even in some of the least developed countries. Also, there is reason to hope that the trend may continue, although it may be threatened by the spread of AIDs, as in the case of sub-Saharan Africa, by the breakdown of social order, as in Russia for a period (where life expectancy for men slightly decreased in the 1990s), and by the outbreak of violence in particular places as war in Iraq and genocide in the Sudan. Yet two broad sets of possibilities exist for continued improvement.

First, we can bring the benefits of modern disease prevention, medical practice, public health, and nutrition to people who do not now adequately receive them. Such people include those living in less developed countries where life expectancies remain relatively short. They also include the poor classes of every society, including those that are most developed. Such people, who often are members of underprivileged groups defined by social class, race, religion, or ethnicity, are literally denied some portion of life itself.

In the United States, for example, despite their considerable gains in life expectancy during the last hundred years, African Americans could expect to live shorter lives than white Americans. In 2000, African American women at birth could expect to live 74.9 years compared to 80 years for white American women, while African American men could expect to live 68.2 years compared to 74.8 years for white American men. Note that fully 11.8 years of expected life separate white women from African American men (Arias 2002:2).

We could add 30 to 40 years to the average longevity for people in the poorest societies by eliminating famine (at present there is plenty of food on Earth to feed everyone but it is maldistributed), by providing up-to-date medical technologies to further control infectious and contagious diseases (3 million children a year could be saved by immunizations alone), by providing safe water to drink (1.2 billion people are affected), by reducing unwanted pregnancies and by delivering proper preventive and curative medical care for people of all ages including pregnant women and young children (the lives of one million women who die every year from preventable reproductive health problems could be saved) (Brown et al. 1992: 4-5). Moreover, such gains in life expectancy would be additional years of active life, mostly free of illness and disability.

Second, we are today increasing the length of individual human lives by attacking the process of aging itself. We are discovering how to extend the biological limits of 100 or so years of the currently presumed "normal" span of human life. For example, Gordon et al. (1979: 3-4) forecast life-span extending technologies, such as dietary control or supplementation, that actually slow down cellular aging processes, and they foresee others that slow the aging of key organ systems, that slow "programmed aging" such as hormone-induced aging, and that regenerate human tissue. Such technologies and, eventually, further advances in genetic engineering may allow control of the fundamental rate of aging itself.

Breakthroughs in the present barrier of the human life span, however, are not likely to produce rejuvenation, that is, making the old any younger. Rather, they retard the aging process. Thus, they will be of greatest benefit to people who have not yet aged. Their effects will appear only slowly, probably not until well into the 21st century, as young people who begin to receive benefits from such technologies reach older ages (Gordon et al., 1979: 6). Before the year 2200, the average length of human life could reach as high as 180 years.

It may seem that it is a contradiction to celebrate the achievement of longer individual lives while, at the same time, expressing alarm at the increase in total number of people on Earth. Obviously, other things being equal, the longer people live, the larger the total population (as long as babies continue to be born). But other things are not equal. Older women move beyond their child-bearing years and have no more children. Thus, having relatively more old people rather than young people in the population suppresses a multiplier effect of population growth, i.e., of children begetting children who beget more children.

Also, keeping people alive, especially reducing the infant mortality rate, contributes in another way to a reduction in the birth rate. Under conditions of low life expectancies, women know that they must have many babies in order to have at least one or two survive into adulthood, partly to insure that there will be someone to take care of them if they should survive into old age. Once women know that children born to them have a good chance of living into adulthood, then they choose to have fewer children. Thus, the birth rate no longer must constantly race against the death rate.

There are other benefits to an aging population, especially if, as seems most likely, additional years of life will be years of vigor and good health. Personal and social development can continue throughout life and may reach new heights. Cultural evolution can benefit from the contributions of the old, experienced, and the wise. Given the facts that cultural heritages continue to grow and that proper socialization and adequate education, therefore, take longer and longer, great contributions cannot be made until later in life in some fields of human endeavor. This may be

particularly true in creatively managing the great events of history and in shaping the morality of nations.

The morally right choice is to endeavor, first, to bring additional years of healthy life to those people now living who, through no other reason than the accident of where and to whom they were born, now face relatively short lives. Justice would be served by the equal and good opportunity for all people everywhere to live out the full human life span and to lead lives of satisfaction and quality.

Second, since human life is the most fundamental of all human values, to endeavor to extend the human life span beyond what is now possible would be of potential benefit to all humans. Thus, the research and knowledge of the present generation would give a gift to future generations of years of additional life. The cost of making room on Earth for a larger percentage of older people is relatively small compared to the benefits it would bring.

The Future Globalization of Human Society

Taking a long view of human development, we can identify a master trend toward an increase in the scope, frequency, and intensity of social interaction. This is not to say, of course, that decreases in social scale have never occurred. There have been periods of social contraction, collapse, and chaos. Moreover, such periods may—most surely will—occur again in the future. But the long-term, non-repetitive movement of the time series throughout the long, old road of human development is clear: Human society has increased in geographical and social scale, is still increasing, and is becoming a complex set of criss-crossing social networks many of which are global.

Since the late 1980s when part of the communist world collapsed, there have been several visions of the global future that have influenced scholars, policy makers, and the public alike. Indeed, the most general is the belief that the communist world has, indeed, collapsed. Some of it, of course, has, notably in the former Soviet Union and Eastern Europe. But it is worth remembering that about a fifth of the Earth's population still lives under a regime in China that considers itself Marxist, despite the obvious trends toward aspects of a market economy, and that Marxist thought remains with us, despite the failure of the regimes that ruled in its name (Bell, 1991).

A related vision is Fukuyama's (1989, 1992) "end-of-history" thesis that, at least in its original version, seems to be questionable. The end of the cold war has not meant that humankind has reached some end point in its ideological evolution. Yes, there is considerable worldwide support for democratic political systems and market economies. For example, there have been recent examples of societies, perhaps as many as 30 in the 1970s and 1980s, that have adopted democratic systems. By 1999, Dahl (1999: 6) judges that 86 countries are democratic out of a total of about 192, vastly more than ever before in world history. And, as we all know, many former command economies, especially in Russia and Eastern Europe, have turned more or less to market systems, although not always with completely satisfactory results.

But evolution will continue. In the case of political institutions, future developments may diverge as the principles of democracy and public liberties are creatively applied in practice in different cultural settings and as new visions of—and demands for—justice are incorporated. In the case of the market system, we have certainly not seen the last of developments of international

finance and corporate structures, the expansion of the knowledge industries, the spread of cyber-economies, and the multinational, governmental sponsored industrialization of space. Most important, there is considerable truth to the view that late-industrial culture, as Slaughter (1998: 376) claims, is "the most rapacious, self-centered, humanly and environmentally destructive system yet seen on Earth." Both political and economic changes—and ideological justifications of them—will be necessary if humans are to create sustainable human futures.

Another vision of the future global order is given by Singer and Wildavsky (1993) who see the emergence of a two-zone post-cold war world, zones of peace and zones of turmoil. Many societies are already part of the zones of peace, wealth, and democracy. In them life expectancies are long, birth rates are low, women are achieving equality, and civil discourse as an ideal predominates. Moreover, in such zones people tend to care about protecting the environment, creating and maintaining cooperative global interconnections with other peoples, and ensuring the well-being of future generations. Among some groups, there are signs of supporting practices of moderation and sufficiency. Although the struggle to control the future is by no means finished in such zones, the winds of change during the past century have blown toward these social characteristics.

But many human societies remain in zones of turmoil, war, and development, where life is cheap and where peace, harmony, and civil discourse are no more than distant dreams. In such zones, the struggle to control the future is often furiously violent. But there are, according to Singer and Wildavsky, signs of hope: A process is well under way in these zones that will result in most of the world's societies becoming just, orderly, peaceful, democratic, and wealthy. But such a desirable world will be a long time coming. These authors envision a 21st century in which "billions of human beings are doomed to have their lives cut short or mutilated by poverty, tyranny and violence" before the process is complete (Singer and Wildavsky, 1993: xiii).

A different vision of the future world order is given by Huntington. His clash-of-civilizations thesis caused a sensation when it was first published in *Foreign Affairs* in 1993. More recently, he has elaborated his thesis in a book, *The Clash of Civilizations and the Remaking of World Order* (1996). In it, he attempts to discredit both the end-of-history and the two-zones visions of the future, mentioned above.

As superior to these and other views, Huntington (1996: 13) offers his own vision: The "central and most dangerous dimension of the emerging global politics" will be "the conflict between groups from differing civilizations." He views civilizations as being "the ultimate human tribes" and he views "the clash of civilizations" as "tribal conflict on a global scale" (p. 207).

Huntington expects the most intense conflicts to be between Muslim and Asian societies on the one hand and the West on the other. At the micro level, he views the most violent fault lines as those between Islam and its Orthodox, Hindu, African, and Western Christian neighbors. At the macro level, he believes that the rise of China is "the potential source of a big intercivilizational war of core states" (p. 209). He does not, however, see a major war as inevitable. Like many a futurist, he claims that it all depends.

There is much that is commendable in Huntington's work. For the most part, he bases his future world on sound scholarship, accepted historical facts, and detailed understanding of current political realities. Certainly, given a sufficient amount of stupidity, ignorance, bad luck, focus on the wrongs of the past, or narrow-minded, short-term, ethnocentric, and wrongheaded calculations

of self-interest, the future of the world could very well be dominated by the death and destruction of clashes between civilizations.

It is tempting to read works such as Huntington's as purely negative, giving us a picture of a coming world dominated by aggression, violence, torture, genocide, terror, revenge, hatred, war and all the other ills of destruction that these horrors bring. Such a lose-lose world is not one, to speak the obvious, that offers much hope for a long and good life for all people in the future. Yet such a doomsday vision may have one positive result: It provides strong motivation for us humans to work toward something different and better, toward positive, idealistic images of the future that do offer such hope.

A vision that is both more hopeful and realistic than Huntington's is the continuation of the long-term trend toward the increase in the scale of society. It may take a long time in coming, as Singer and Wildavsky contend, and it certainly won't come without deliberate efforts by many of the world's people. But it appears to be what an increasing number of informed people of goodwill are dedicated to achieving.

It is a vision of the continued development and spread of supraregional, democratic governance and public liberties, as in the case of the European Union, within which are many smaller semi-autonomous local units. A vision that includes the creation of a global police force of "peace soldiers," international arms control, and the suppression of local armed conflicts. A vision that sees the eventual emergence of a panhuman element to people's identities and global institutions of justice and welfare. A vision of the incorporation of all the people on Earth into an inclusive, single, though culturally multi-layered, global society in which they share an equality of citizenship. It is, in sum, a vision in which humans learn to live in peace with each other, while cooperating to create a win-win world in which individual happiness and social harmony are maximized both for people now living and for future generations.

In recent decades, human society has moved in this direction. For example, supraregional and global organizations have grown rapidly. Boulding (1993) describes three aspects of the international system. The first is the international order based upon the interactions of the 185 or so existing states. By the early 1990s, there were about 2,000 intergovernmental organizations in existence and nearly 62,000 bilateral and multilateral treaties in force, most of them dealing with non-military matters.

The second is the United Nations and its many agencies, including 50 worldwide information systems. These include such agencies as the Food and Agriculture Organization, the International Civil Aviation Organization, the International Court of Justice, and the World Health Organization, as well as a variety of permanent and ad hoc activities directed at conflict resolution and peacekeeping.

The third aspect of the international system is to be found in transnational nongovernmental organizations. In 1909, such organizations numbered only 176. By the early 1990s, they exceeded 18,000. Such organizations involve a wide range of interests and activities in nearly every field of human endeavor from business, industry, science and the arts to religion, education, culture and sports. Such organizations are significant because they link ordinary citizens across national and regional boundaries and, compared to governmental bodies, they tend to have "longer time perspectives, a more complete historical memory, and an incipient planetary identity. Without

suspending familial, national, and regional attachments, they work on behalf of world interests" (Boulding, 1993: 179).

And this is not to mention the phenomenal growth of electronic mail and the internet that by the beginning of the 21st century linked tens of millions of people from nearly all the countries on Earth. The density and speed of social communication across the Earth have now reached their highest levels in history and are still growing rapidly. The "world wide web" has become an ordinary, everyday reality.

Additionally, Weiss (1988) describes some efforts to define and fulfill planetary obligations and to secure certain planetary rights through the use of subnational, national, and international law. A supranational concern for justice and the rights of future generations can be seen, to cite only a few examples, in the Law of the Sea Convention, the Geneva Convention on the High Seas, the Outer Space Treaty of 1967, the 1972 Stockholm Conference on the Human Environment, the 1972 London Ocean Dumping Convention, the Moon Treaty of 1979, the World Soil Charter of 1982, the 1985 Vienna Convention for the Protection of the Ozone Layer, and the 1987 protocol on the use of chlorofluorocarbons and halons. In May 1999, *The Hague Agenda for Peace and Justice for the 21st Century* was confirmed by an international group of conferees. It included a variety of proposals, from preventing the proliferation of small arms and campaigning for peace education to banning landmines and stopping the use of children as soldiers. The above examples, of course, exist in addition to the many transnational corporate entities that make up the worldwide financial and economic system and subsystems. Although they primarily pursue their private interests rather than those of the public, they contribute heavily to the growing global networks of communication, exchange and influence, neighborliness and teamwork—processes that Mead (1934) long ago identified as tending to create a universal society that includes the whole human race (Bell, 1996).

The Future World as a Moral Community: Universal Human Values

Along with this growing global society has been a parallel development in the creation of global culture and morality. Although the West has importantly contributed to it, the emerging global culture is not a Western imposition on the rest of the world. It is, rather, an amalgam of traits from many cultures of the world, Western and Eastern as well as Northern and Southern, and it contains, too, traits of its own that are *sui generis*.

Chinese and Mexican food; Italian, Spanish, Yoruban, and Australian-aboriginal art; Asian philosophies; African drumming and Latin music; Italian and German opera; Indonesian and Jamaican coffee; French wines; Egyptian history; Chinese silk and Indian spices; African and Indian rice; American chocolate, corn, manioc, potatoes, and bananas; Turkish and Persian rugs; the English Magna Carta and the American Big Mac; Hollywood films; Arabian and Venezuelan oil; Japanese cameras, cars, and VCRs; the plow, the rudder, maps, the concept of zero, basilical architecture, penicillin, the elevator, and the microchip; and any major religion's version of the Golden Rule are available to enrich the lives of people everywhere. What may have originated locally has often become universally adopted (like Arabic numbers and the Christian calendar).

Huntington (1996: 320) suggests that "all civilizations should search for and attempt to expand the values, institutions, and practices they have in common with peoples of other civilizations." Well, yes and no. Yes, they should expand those common traits that contribute to

human freedom and well-being. But no, they ought not to expand those common values and practices that contribute to death and destruction. For not all things human societies share are necessarily beneficial in today's world or in the new time of the coming future. For example, at the dawn of the 21st century, the old traditional values placed on high levels of human reproduction and on aggressive acts against outsiders are dysfunctional—and ought to become recognized as such.

Certainly, the millennia-old human search for the right moral values and beneficial cultural practices ought to continue. And, indeed, it is continuing, as many members of the human community seek to define and to achieve the good society. We can continue to ask whether particular values and cultural practices contribute to the survival and flourishing of a society's population, to the physical and mental health of its members by satisfying their needs, and to their life satisfaction and happiness. Although there are some societies that are doing reasonably well according to these criteria, there are sick societies that are not (Edgerton, 1992).

The interfaith declaration of the Parliament of the World's Religions (1993) is an effort to synthesize moralities from different sources into a meaningful whole. Meeting in Chicago in September 1993, 200 leaders representing more than 100 of the world's religious faiths endorsed a statement of morality, "Towards a Global Ethic." It is importantly based on earlier work by Hans Küng (1991).

The global ethic that the participants propose is not a religious statement as such. For example, they put aside supernatural beliefs. Rather, they focus on stating moral codes that every human being is invited to consider and endorse, even people with no religious beliefs. They wish to provide universal behavioral guides that will lead to a harmonious global society in this one, naturalistic world.

Their global ethic includes values such as respect for human life, individual responsibility, and treating all other people with dignity (without regard to distinctions of age, sex, race, skin color, physical or mental ability, language, religion, political view, or national or social origin).

Additional values are patience, understanding and acceptance of other people, forgiveness, solidarity and relatedness with other people of the world, kindness and generosity, caring for others, compassion, love for one another, equality between men and women, nonviolence, economic and social justice, peace and global order, nature-friendly ways of life, respect for human rights, constancy and trustworthiness, truthfulness and honesty, moderation and modesty, loyalty, safety and security, freedom and tolerance as long as no harm is done to others, and sexuality that expresses and reinforces a loving relationship lived by equal partners.

The paths *not* to take to the future are also well marked in the declaration. Things that ought to be avoided are abuses of the Earth's ecosystems, prejudice, hatred, theft, greed, arrogance, mistrust, hostility, violence, envy, jealousy, resentment, terror, oppression, torture, mutilation, killing, ruthlessness and brutality, lies and deceit, swindling and hypocrisy, demagoguery, fanaticism and intolerance, opportunism, domination, and degradation (Parliament of World's Religions, 1993).

Clearly, such value judgments are not distinctively Islamic or Christian or Hindu, Asian or Western, African or Latin American. They are *universal human* values, reached, often independently, from a variety of different origins after millennia of human experience. They state what we humans believe we have learned so far about how to treat each other for our mutual benefit.

They are not, however, a final summary of ultimate global morality. Rather, they are a basis for a continuing critical moral discourse on a global level.

Although "Towards a Global Ethic" is an important milestone in the development of worldwide morality, other efforts have also been underway. For example, moral arguments underlie global cooperation aimed at saving the life-sustaining capacities of the Earth, agreements to prevent the spread of nuclear weapons and to promote disarmament and world peace, family planning programs that aim to increase the effectiveness of people's personal choices to have or not to have children, and attempts to monitor and protest violations of human freedom everywhere on Earth.

Additionally, global moral discourse was enlarged by the World Conference that met in Vienna in June 1993, as conferees debated, and re-affirmed the United Nations Declaration of Human Rights. And, finally, the General Conference of the United Nations Educational, Scientific and Cultural Organization meeting in Paris from 21 October to 12 November 1997 proclaimed a "Declaration on the Responsibilities of the Present Generations towards Future Generations" that contains behavioral guidelines for present people designed to insure that the needs and interests of future generations will be fully safeguarded.

Of course, the rise of global society and a world moral community has been viewed by some local groups as a threat to their traditional ways. They may be right. Many things are changing and they will continue to change. The social world, after all, is in flux. But like the clean toilets that McDonald's brought to Hong Kong restaurants (Watson, 1997), people often may be better off for the changes, even though their fears often prevent them from seeing the benefits until later.

Yet the preservation of many aspects of local traditions is not necessarily incompatible with participation in a global culture. Tolerance—even celebration—of all kinds of local variations and expressions of the values of human dignity, freedom, and well-being, so long as they do no harm to others, can become the hallmark of the development of a future world moral community.

The Future of Humanity in Space

Perhaps nothing produces a sense of panhuman identity more than looking back on the planet Earth from space. During the last few decades, we have seen the Earth as humans never have before as photographs and films from spaceships became available. They reveal a small, watery planet, a blue paradise of life in the universe. Our Earth nourishes us, even as it rushes on through space/time carrying the human community into the future. If—or when—extraterrestrial intelligent beings observe us, what will they see?

From their vantage point, they will see only one human race, because all the different peoples and civilizations and the thousands of Earthly languages that humans now recognize will appear practically identical. Moreover, their observation will be correct. In basic structure and function, human beings, human societies, and human languages *are* all basically the same.

A convenient date to mark the beginning of the space age is 4 October 1957 when the Russians launched *Sputnik I*, the first orbiting satellite. On 12 April 1961, Yuri A Gagarin in *Vostok I* completed the first manned orbital flight, and, soon after, on 20 February 1962, John H. Glenn, Jr. in his Mercury craft followed suit. Alexei A. Leonov took the first "space walk" on 18 March 1965 and, in July 1969, Neil A. Armstrong and Edwin E. Aldrin, Jr. walked on the Moon. Only a few short years later, in December 1972, when the sixth and last manned lunar landing (so far) took place, some people hardly took notice of it. Yet, by then, there had been a sea change in human

conceptions of the possible: We then knew that human beings were not inevitably and forever chained to this planet Earth.

In the forty-some years since *Sputnik I*, an incredible increase in human knowledge and the use of space took place. We have had Skylabs, manned rendezvous and docking in space, regular and routine flights of the American space shuttle (now temporarily suspended) and the Russian Soyuz rocket, the *Mir* space station with long-term stays by cosmonauts and astronauts, the recovery of satellites in space, and the repair of the Hubble space telescope. Hundreds of research projects on materials, plants, animals, and humans have taken place, incorporating the vantage points, perpetual motion, solar energy, a vacuum, zero gravity, or the changeless environment that space allows.

As gripping as manned space flight has been—and as heartbreaking as have been some of its tragedies, such as the Challenger explosion and death of all seven of its crew members on launching in January 1986 and the Columbia's destruction and the deaths of its crew members on reentering the Earth's atmosphere in February 2003—unmanned space probes have contributed considerably more to knowledge. Humans have learned more about the solar system and the universe beyond it in the past four decades or so than in all of human history before then. We have investigated not only the Moon, but also Halley's Comet, Jupiter, Mercury, Neptune, the Sun, Saturn, Uranus, and Venus, Mars's moon Phobos, Mars itself (especially with the Mars Exploration Rovers that landed on Mars in 2004 and sent back data on the geology of the planet), and many other astronomical objects and phenomena, including probes beyond the solar system.

Scientists have probed the far horizons of the cosmos from observations using powerful telescopes, including the Hubble space telescope that can view back in space/time to near the beginning of the universe, to distances of about 13 billion light years. And we will learn more from the Chandra X-ray Observatory that was launched into orbit in 1999.

In the near future, we will use space not only to create knowledge, but also to enhance life on Earth. We will continue to have orbiting satellites for weather forecasting, personal communication and television transmission, information exchange, and a variety of scanning purposes from tracking such things as deforestation and the growth of particular agricultural products to the discovery of resources. Manned space flight and research experiments in space will continue with a new generation of spaceships. For example, the prototype of the X-33 already has been tested. It is a suborbital forerunner of the Venture Star rocket that will power future spacecraft designed to replace the aging space shuttle fleet. Moreover, we began building the international space station at the end of the 20th century and it will provide a permanent base in space. Among other things, it will help make possible mining in space. For example, a National Research Council committee dealing with *Space Technology for the New Century* has recently recommended the development of tools for mining resources from the Moon, Mars, and other planets.

In the mid-term, orbital solar power plants may be possible, radiating clean energy to Earth in the form of microwaves, a boon to sustainable economic development and human life here on Earth. As the international space station becomes a hub for all kinds of additional activities, we can expect space assembly and manufacturing, an industrial park in space, where products already in use on Earth, such as crystals and pharmaceuticals, will be perfected and new materials and products will be created. At the same time, some people envision the creation of permanent lunar colonies and, eventually, the human colonization of Mars (Kistler, 1999).

For many centuries to come, travel outside the solar system will most likely continue to be by robotic probes. Distances are too great for people to complete their travel within the human life span even as we now expect it to be increased—unless, of course, they are put into some kind of suspended animation. Yet, in the long term, perhaps in the third millennium, the spread of humanity throughout our galactic system may begin.

One vision, proposed some time ago by a Princeton University physicist, Gerard O'Neill, is of a giant city traveling through space that contains a human population in the thousands. In such a space city, social life and culture will continue and many generations will come and go before it reaches its destination of a planet in deep space (Kistler, 1999).

Finally, the Search for Extraterrestrial Intelligence continues. Some informed, reasonable people believe that contact between humans and intelligent extraterrestrials may be made sometime in the future. Yet, despite recurring tabloid sensationalism about alien contact or abduction, there is, as I write, no credible evidence that such contact has occurred. And there is none even to suggest that it ever will. We simply do not know. But the search goes on.

(Take a look at website, <http://www.ieti.org>, for welcome messages from a variety of people to extraterrestrials who may be listening and observing).

Lest any reader believes that the above developments represent interesting challenges only for natural and physical scientists, let me point out that there are equally challenging opportunities for social scientists. As human society increases in scale to incorporate near-space habitats and then to the human colonization of other planets, new conceptions and constructions of polity, economy, culture, and society will certainly occur. Human organizations and institutions will face new and different problems and innovative social structures will be created. New challenges will occur as well in individual development and learning. And at the interface between humans and machines and their interpenetration with the coming widespread use of embedded microelectronic people-amplifying devices designed to help humans adapt to life in space will come new psychological problems and challenges. And, obviously, if we humans ever do come in contact with extraterrestrial beings, then entirely new sections of anthropology and sociology will be written. (For example, see Jim Pass' inaugural essay, "The Definition and Relevance of Astrosociology in the Twenty-First Century" at <http://www.astrosociology.com/iessay.html>).

Conclusion

In sum, we can envision a possible and probable future in which the life-sustaining capacities of the Earth will be indefinitely preserved, even enhanced; a future in which technological innovations will continually alter and improve human potential, especially developments of materials, biogenetics, energy, and information; a future in which every human will have a good chance to live a long life in good health, possibly up to 180 years by the year 2200; a future in which the scale of society will encompass all of humanity, while preserving much local autonomy, in which peace will prevail, and in which an important part of the identity of each person will be as a member of the human race; a future in which a global discourse on ethics will create a world moral community dedicated to the freedom and welfare of all people, while nonetheless celebrating a diverse mix of local cultural variations that support beneficial human values; and a future, finally, in which humans will continue to explore and industrialize space, will begin colonizing other parts

of the solar system, may meet intelligent extraterrestrial beings, and, eventually, will spread elsewhere in the galaxy.

Such images of the future are consistent with key long-term trends of human history and they define goals that many groups are now struggling to achieve. Yet they represent only a sample of topics that are in fact shaping the human future and that deserve our attention. I have said nothing here, for example, about the socialization and education of the young and very little about an international economy and legal system, among other important issues. Everything on Earth and in the universe may have a future. There is a coming future for humankind as a whole and there is a future for each of us as individuals, for our children and for our children's children, and for all the groups, organizations, and institutions to which we belong.

What will the human future actually turn out to be? At worst, we may self-destruct in any number of ways, most likely by destroying the life-sustaining capacities of the Earth. And, of course, we cannot rule out some future natural disaster, such as the Earth's collision with an asteroid. Also, there are always forces of reaction, people who see not only technological but also social changes as evil threats to their livelihood and to their cherished beliefs and customs and who sometimes are willing to destroy and kill in order to keep the future at bay.

At best, a desirable human future in the short term will occur in the midst of conflict and disagreement among people in some parts of the globe, just as the increase in life expectancy in the last century has occurred despite wars, genocide, civil strife, terrorism, and other human abominations. But, in the long term, humans may be able to limit their disagreements to reasoned discourse and peaceful resolutions. We can create a win-win world of human cooperation, where all people—both people now living and future people—will have a good chance of living long lives of their own choosing. For some people such a vision is already a realistic goal toward which they strive.

In this chapter, I have tried to show that we humans can—and should—take an active part in shaping our own futures. Moreover, we can do so more intelligently and effectively than we have in the past. Futurists are learning how to discover the full range of possibilities for the future, how to assess more accurately the probable future outcomes of human actions, and how to judge desirable futures more objectively. As human evolution increasingly comes under human control, knowing what is possible, probable, and preferable becomes more and more urgent so that we can act rightly to achieve the future that we want.

At present, there is a cognitive imbalance in educational institutions at every stage of learning and in every country. Humans now devote many resources to recovering and preserving the past by studying history, as indeed we should. But we devote relatively few resources to the study of the future. This imbalance is increasingly dangerous as we enter a new century of increasingly rapid change. Although beliefs about the past may change, the past itself is—and always will be—what it was. The future, to the contrary, is as yet unmade. It remains open to the human will. We can still act so as to do something about shaping our own destiny.

Thus, we ought to expand the systematic study of the future, to create, as H.G. Wells proposed long ago, Professors of Foresight. As complements to existing Departments of History, we ought to establish Departments of Futures Studies in all the world's colleges and universities. In them, scholars and scientists of foresight can rigorously study the fan of alternative futures with

the aim not only of increasing basic knowledge, but also of informing human decision and action so as to increase the chances of achieving a desirable human future.

Finally, at the end of the 20th century, just as millennial fever peaked in popular thinking, most professional futurists had already moved on, well beyond the year 2000. Except for some immediate practical problems, such as the Y2K computer glitch which then still concerned a few futurists, most futurists were writing about 2025 or beyond. Moreover, the Foundation for the Future had already set its course to systematically explore the future of humankind in the year 3000.

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