

**EVEN THOUGH OXYGEN IS FLOWING,  
THE PLASTIC BAG MAY NOT INFLATE:  
Normalcy, survival, and transformation of  
future generations**

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What a wonderful time it is now to be young! What extraordinary opportunities and challenges lie immediately ahead!

While every generation which has appeared on earth before the present has faced great challenges and opportunities, I sincerely believe they all pale in comparison with those that are facing humanity now, and will more clearly do so in the early years of what some still call the Twenty-First Century.

All life, including all humans, and the environment within which all life lives and from which all living things have so far drawn their being and sustenance, is now, and increasingly will be, in jeopardy, or, to put it optimistically, in transformation.

The famous Russian futurist, Igor Bestuzhev-Lada, has said that the choice before humanity now is New Civilization or No Civilization. I do not disagree, but I would put it even more broadly: "New Life or No Life."

I will try to explain, and justify, that conclusion briefly in the paragraphs that follow.

**Our Abnormal Century.** First of all, we need to understand how very abnormal, unusual, and indeed in many ways, pathological has been our immediate past. The period from 1914 through 1989--the bulk of the 20th Century, and thus the lifetime of everyone attending this conference and of most people in the world today--must be considered to be an exceptional period in the human experience which has now come to an end and almost certainly will not return in any analogous form for the foreseeable future.

One of the most important things we old folks need to do in thinking about future generations--their challenges and their opportunities--is to realize how extraordinary have been the events of our own lives and times, and how utterly irrelevant many of our most deeply held fears and hopes might be for future generations.

Within the last several hundred years, and especially in the period 1914-1989, one small portion of humanity; one tiny part of the breadth and depth of human experience; one speck among the innumerable possibilities of significant being; one fractional expression of intelligible fears and yearnings--that is to say, Western Civilization--came somehow to dominate the world in all aspects--religious beliefs and expression, military organization and weaponry and all other kinds of technology and organization; sports and play; story telling and myth making; modes of

production and consumption; styles of everyday living and dying; everything--EVERYTHING--became engulfed in, defined by, or at the very least under the influence of, Western Civilization.

If this were not the case, how then could we presume to believe that we are stating the obvious when we say that the world is coming to the end of The Second Millennium. By whose reckoning do we reach that date?

While various cultures have risen to impressive heights (and sunk to depressing lows) in the past, never before has a single culture dominated all other cultures on the globe the way Western Civilization has over the last century or so.

This is over. Western Civilization has reached the end of its tether and must either find its place as one among many new and old cultures of the future or else it will find itself strangled at the end of its rope.

I choose the dates 1914 to 1989 for what must be obvious reasons. While the period of "enlightenment," "discovery," colonization, immigration, and cultural imperialism and genocide extend far back into the so-called 16th 17th, 18th, and 19th centuries, it is the period of the recent past, defined from the beginning of what was once declared by some to be The Great War through the collapse of communism and the fall of the Berlin Wall, which I believe not only defines the consciousness of the members of the present and dying generations, but also best epitomizes the uniqueness and pathologies of modern times, and thus its irrelevance (and dangerous legacy) to the future.

How was it possible for Western Civilization, within the space of so few years, to bring the entire world into two horrifying world wars, breached by a prolonged and humiliating depression, and then an utterly senseless, obscenely wasteful, and intellectually all-consuming Cold War?

How could anyone look back on the period of our lives and (however grand and noble and pleasant our own personal lives might, or might not, have been) see anything but a world which must never--and will never--ever happen again?

Of course there were many bright points of light during those times. People everywhere laughed and played, prayed and sang, created and danced, loved and lost. They did so in small, clean cottages; in broad, bright mansions; in teeming tenement flats; in bleak and barren wastelands; in atomic bomb shelters; in boxcars waiting patiently beside gas ovens. Humans--all life--wills to survive, thrive, and enjoy even the worst as well as the best imaginable conditions.

But in many ways our century, now coming to an end, has seen humanity at its worst, as well (from time to time) as at perhaps its personal best.

In either case it is nothing to wish upon the future.

### **So What Lies Ahead for Future Generations?**

A return to normalcy? To the way the world was for millennia before?

In some ways, yes.

Certainly a return to a multi-cultural world--to a world not dominated by any single way of life, but teeming with many different and competing beliefs and behaviors. This normalcy will probably not be peaceful. Unfortunately, quite to the contrary. But we can hope for, if that is the proper word, more ordinary strife and torture, such as we see now in the Balkans, the former Soviet Union, and in parts of Africa--as well as in the streets and slums of most cities of the Advanced as well as Developing worlds. Cruelty on a more normal, human scale.

But in almost every other way, no. Future generations will not return to normalcy if by that one means a return to The Way It Used To Be.

Tsunamis. As many of you know, I use the metaphor of tsunamis to epitomize the massive waves of wholly unprecedented change which are racing towards us, over and under one another, from the future. In my view, humanity has no possibility at all of avoiding these tsunamis. We can ignore them, and be swept away. Or we can try to ride them, as a surfer tries to ride the mighty waves. But it is far too late for us to do anything useful to prevent their rushing towards and through us, and either drowning all of us or lifting us up for the ride of our lives.

I opt for the ride, and am doing what I can to survey the waves, assess the tides, wax up my surf board and be prepared, soon, to paddle out and try to ride them, in the company, I hope of many more aspiring surfers.

I will not describe those waves today. I will only name them, and indicate where you might find my thoughts about them in greater detail, should you be curious. (1)

The first tsunami is catastrophic global population growth which I find far more dangerous and unstoppable than do most official projectors of demographics. I see nothing good (certainly not "the demographic transition of economic development") stopping population growth before unsustainable and devastating magnitudes are reached. To the contrary, I see religious and political leaders irresponsibly pushing human numbers even higher and thus more rapidly towards extinction.

While horrible disasters--such as HIV disease, new strains of TB, and other and new diseases and viruses--may in fact bring humanity down well before the earth collapses under our oppressive weight, I hardly can say that this is a preferable alternative to foresight and planning.

At the same time, I am impressed by the fact that, while global population is growing, the population of some parts of the world (namely, the West and a few of the industrialized regions of the nonWest) is not growing, or is growing only very slowly, and in some regions is actually declining.

This is just one additional reason why I feel we should not expect too much good--or unusually bad--to come out of Western cultures in the foreseeable futures: Westerners will be such a diminishing, tiny fraction of humans on the globe over the coming years.

A second, related, tsunami is that of environmental degradation and collapse. Again, while the details are arguable, the trajectory is undeniable, in my opinion, and the danger so great that it is far, far better to be safe (and overly cautious) than to be sorry (and dead).

Thirdly, inspite of the apparent triumph of Western Capitalism over Western Communism, Western Capitalism is neither a sustainable nor an equitable form of political economy or ecology. Until new understandings of work, economic growth, productivity, value, resources, investment, fair access, distribution and consumption, and all the rest are achieved and established (and while there are some valiant attempts, I don't see a likely alternative emerging any time soon), the outlook for the future in terms of conventional economic expectations, theories, and practices looks very bleak to me indeed. (2)

The three tsunamis I have mentioned so far derive largely from the impact of past and lingering technologies--the technologies and techniques of the 18th, 19th, and early 20th centuries. They are to "blame" for overpopulation, looming environmental collapse, and the obscene and growing distances between the super rich and the very poor both within and between all regions of the world.

The "new" technologies of the present and immediate future--especially those of electronic communication technologies, robotics, automation, expert systems, and emerging artificial intelligence and artificial life, on the one hand, and of genetic and molecular engineering of all life forms (including "humans") and materials during the early and maturing years of the 21st Century, on the other--clearly imply, in my view, that the challenges and possibilities of the immediate future are in this respect as well, completely without precedent, or adequate analogy, in the immediate, much less more distant, past. (3)

Finally, there is no governance system on earth at the present time which can manage--or even adequately address--the tsunamis I have sketched above. The nation-state is dead as an effective instrument of governance. Its dead hands may still lie on the obsolete levers of the past, but it is only stiffening rigor mortis that is causing the levers to flail about at all.

Everywhere in the world, groups of humans are crying out, and acting out, for more local governance and self control. At the same time, the greater need--a call for which is scarcely made or heard at all--exists for global governance. (4)

So, no. There will be no return to The Way It Used to Be for Future Generations. And I deeply regret that so much time and effort is being spent on trying to make it so.

I think it is necessary that we understand and appreciate the reasons why fundamentalisms of all sorts--not only religious, but economic, political, educational, linguistic, and cultural--are arising with such vigor now. It is the consequence of what Alvin Toffler correctly, in my view, identified many years ago: future shock; the psychological disease of denial which happens when the "future" which people actually experience is substantially different from the one they have been taught to expect. Instead of reassessing their image of the present/future, they invent and try to live in an imaginary world of the past, which in all likelihood did not ever exist as they imagine it, and certainly cannot exist in the world in which they actually must live, now or in the future. (5)

### So What Is My Solution?

I have no solution, but I do have two wishes, two hopes, two suggestions.

1. Invent and Guide Life. The first is that while we need to take the tsunamis of overpopulation, environmental and economic collapse very seriously, we should not waste our time trying to stop them, nor should we try to slow them down in order to return to an earlier way of life. While we should do whatever little we can to slow them down, even a bit, as I have argued elsewhere, I believe our only alternative is to understand that, though our past actions, we live now in a largely artificial world, and are moving rapidly and irreversibly towards a wholly artificial world. (6)

The only option before us lies, in the words of the title of another book by Walter Truett Anderson which I frequently cite: our willingness to try To Govern Evolution. (7)

This must become the focus of all education and all politics: to understand that--well before we have even the slightest understanding of how nature works in sufficient detail--we have destroyed nature, or so interfered with natural processes that for human or many other life forms to exist in the future requires our active invention, design, and nurturing from now on.

I see little or nothing in present education or politics--and especially in politics--which leads me to believe that humans will take up that responsibility any time soon.

But there I go, looking at the future from the past! The acceptance of the task and responsibility for governing evolution lies with future generations, just as the responsibility for tasking them with it lies with us alive today, and dead tomorrow.

Even though humans scarcely have the wisdom needed to carry out this awesome responsibility effectively, we may be creating some technologies which might help. Artificial intelligence, artificial life, genetic engineering, and nanotechnologies are four such technologies. A fifth are those necessary for space exploration and settlement.

2. To Boldly Go. So I intend to conclude today by presenting space exploration and settlement as the next great opportunity for humanity and all of life as far as we know it or can imagine it, and as a necessary step in our learning how to govern evolution.

It is difficult for me to make that case with a clear conscience. When most of us think of "space activities" we think of the huge, wasteful, militarized, dangerous competition between the two "Great Superpowers" of the past, the USSR and the United States. We understandably recoil in horror at the memory of the "space program" which those two hulking behemoths provoke.

Just as the USSR insults the expansive dreams of Karl Marx (and as the US may insult the insights of Adam Smith and the intentions of Thomas Jefferson), so also (inspite of many wonderful moments of personal courage, triumph, and glory) does the historical space program of both of those countries insult the promise of what space exploration and settlement should, and will, or must, become.

So we first may need to see how abnormal the space programs of the 20th Century were before we can prepare ourselves to accept, much less to acclaim, those of the future.

Many people argue that it is wasteful to pour billions of dollars into space exploration until we have solved our overwhelming problems--prepared ourselves to surf the oncoming tsunamis--on earth.

I understand the reasoning in back of this objection--given the bloated and militarized obsessive space programs of the past.

But humans spend billions of dollars on many things totally unrelated to "real" or "fundamental" human needs, and they will continue to do so.

For example, why should so much money be spent on religions? What are they doing to improve economic productivity or effectively to solve world hunger?

Or why should so many humans spend billions of dollars and countless hours in front of television sets watching other grown men run around in their underwear kicking a small white ball, and hugging themselves rapturously from time to time (let alone struggling for a strange trapezoid, or hitting a small leather sphere, or bouncing a larger brown ball and stuffing it in a basket with no bottom so that it is necessary to stuff it in the basket over and over again, to no sensible conclusion whatsoever)?

Why should more children be born? Aren't there enough already? Does the earth need more? And aren't children hugely expensive and almost always a personal tragedy of dashed parental hopes?

Why dance? Why sing? Why get out of bed--or into it--at all?

Why indeed do any of the millions of things humans do which do not directly improve economic competitiveness or restore the environment?

If we agree it is simply within our humanity to do these things, then tell me it cannot also be within our humanity, and some small portion of our budget, to help some of us leap off this planet, our mother Earth, and find new places among the countless stars of space?

That seems enough to say, but I am convinced that there is much more to it than that.

We are not only earth children, we are also star children. We are, each of us, composed of the same particles that are (it seems) found everywhere in the universe. We are not made only of dirt, but also of stardust. Earth may have been our cradle, but the cosmos is our wider home and beckoning world. If we truly love our mother, Earth, we should realize it is time for us to grow up, untie our apron strings, kiss our mother fondly on the cheek, and leave.

Indeed, recent evidence suggests that there may already have been (and still may be ongoing) some exchange of lifeforms at least between Earth, Mars and Venus. This happened initially during the early periods of all three planets when they were experiencing heavy bombardment of meteorites. The blasts ejected huge chunks of each planet's surface into space with some of it eventually falling onto the surface of the other two planets.

This is still occurring. So Jay Melosh concludes a survey of this phenomenon by observing that "given the possibility of the exchange of

life among the planets by large impacts, we may have to regard the terrestrial planets not as biologically isolated, but rather as a single ecological system with components, like islands in the sea, that occasionally communicate with one another." (8)

Similarly, a friend of mine recently sent me the following quotation from an uncertain source:

"Cells can be looked upon as inventions of nucleic acids to provide themselves with a local environment optimally suited to provide the materials and conditions required for nucleic acid replication. Similarly, the emergence of multi-cellular animals and plants can be interpreted as devices which evolved to permit DNA to exploit all terrestrial space, including the land, the seas, and the air.

"Until the last few years, one might well have wondered why DNA invented humans.

"It is now evident that humans were invented to provide DNA with the opportunity to explore extra-terrestrial possibilities for replication." (9)

That is certainly an appealing interpretation. Humanity clearly stands on the brink either of transformation or extinction. We cannot continue as we are, much less as we were. Rather, humanity has revealed itself to be problematic.

Are humans a poisonous cancer on all other life, as some among us argue is the case? Is Mother Nature about to remove us from the chain of life--or are we in the process of doing it ourselves?

Or are we earthly humans instead a vehicle for an evolutionary step towards intelligent life in the universe, as yet inadequately achieved?

In what is still one of the most important volumes on space exploration and settlement from a human perspective, Ben Finney and Eric Jones "reiterate that the use of technology to expand beyond Earth would be entirely consonant with the whole trend of human evolution. From the time the most adventuresome of apes left the tropical forest to seek a living in the grasslands of the African savanna, our ancestors have been inventing technology to adapt to new environments and to expand over the globe. There is a large techno-cultural distance between grubbing succulent roots from the soil of the savanna with digging sticks on the one hand and growing algae to provide both food and oxygen for Moon colonies on the other. And it is a long way from sailing canoes to interstellar arks. But ever since our ancestors started using tools to survive and eventually flourish in new environments, the pattern of evolution by cultural as well as biological adaptation has been underway. Although the prospect of traveling and living in space might seem 'unnatural' to many, it would represent a logical extension to the technological path our ancestors have been following for some 5 million years." (10)

To many people born in and living through the 20th Century, "the technological path of our ancestors" seems instead to have led to overpopulation, environmental collapse, and overgrown boys in colorful uniforms taunting each other with the Russian roulette of one hundred thousand nuclear warheads poised at the skulls of all humanity (and now 30,000 warheads and 1,500 tons of uranium are floating away from Russian

control into the hands of who knows what madmen and women elsewhere on the planet).

To many survivors of the 20th Century, "space" means "Star Wars"--the Strategic Defense Initiative. It means "spy in the sky" satellites that enable whoever controls them to monitor, down to one-half meter square resolution, the movement of other humans anywhere on earth. It means taking food out the mouths of babes in Rwanda and stuffing into the overstuffed larders of the captains of the aerospace industries of the "advanced nations."

I cannot honestly say those feelings are misguided, or that those days are over. But those days are numbered. The end is nigh. A return to normalcy--normal military budgets, with science and technology uncoupled, or least less tightly coupled, to military purposes--is possible, and likely as new generations, who did not fight in two World Wars or prosper from a Cold one, finally take the stage.

Francis L. K. Hsu says there are two kinds of ethnocentrism--"neutral ethnocentrism" and "positive ethnocentrism." People of both kinds tend to see their group's way of doing things as right, and all other ways as wrong. But only groups with "positive ethnocentrism" feel it is necessary to change (or destroy) groups with different manners and ways. "Neutral ethnocentrism" is--unfortunately, I would add--found in almost all cultures. But, Hsu says, "positive ethnocentrism" is characteristic (almost uniquely) of Western culture which has tried for several hundred years, and succeeded for almost one hundred, to change (or destroy) all Others. (11)

But gradually all the contesting Western groups which attempted to convert or kill all others have finally overextended themselves, grown old, and had to lick their wounds and settle down to normalcy--Portugal, Spain, Holland, England, France, Germany, Russia, and, yes, even the United States, still ticking, though still licking.

So as America and Russia take a more normal, balanced, cooperative place in space research, exploration, and settlement, other nations--Japan, China, India, Indonesia, Brazil--dozens of other nations (and consortia such as the European Space Agency), and scores of other economic, religious, and visionary individuals and organizations will finally be emboldened to help humanity move on.

Humans, a profoundly migratory species, some time ago filled up every available ecological niche on earth (except the ocean depths), and now are threatening to overpopulate themselves to extinction. Evolutionary pressures, long pent-up on earth, are struggling to burst free. Space (much more than under the seas) offers humanity the obvious next evolutionary step.

In almost all religious, spiritual, and cultural traditions, it is necessary to travel, to be a pilgrim, to seek the holy grail, to go to Mecca, to trek, to endure and triumph in a Vision Quest.

For the first time (it seems) we have the ability to carry our pilgrimage beyond the perimeter of this tiny sphere.

I am sure that future generations will continue the journey towards the stars, not for military or nationalistic reasons, and (I hope) not to escape planetary disaster, much less to export pollution and environmental

devastation throughout the solar system, but rather to quest, to vision, to transform, and to live.

## Citations

1. This is a theme I have been developing in many papers over the past several years, most recently and extensively in a paper titled, "Surfing the tsunamis of change," especially written for an international conference considering various futures perspectives concerning Mexico in the world, convened by Antonio Alonso Concheiro, director of the Centro des Prospectivos in Mexico City, September 26, 1994. The paper is to be published in the proceedings of that conference.
2. For example see my "Linkages between work and employment?" The Manoa Journal of Fried and Half-Fried Ideas (about the future...). May 1994, and "Futures of work, working and workers," in Charles Aldrich, Exploring the Future. College Park, Maryland: International University Consortium, 1991. The 1994 article has an extensive bibliography. Especially noteworthy is the work of Herman Daly, Paul Ekin, Amitai Etzioni, William Halal, Paul Hawkin, Hazel Henderson, Barry O. Jones, James Robertson, and Kaoru Yamaguchi.
3. See, for example, my "Dogs don't bark at parked cars," Futures, January/February 1994, and "What do 'You' do when your robot bows as your clone enters holographic MTV?" Futures, August 1989, and the references used in both of these articles. Especially important in this regard is the work of Susantha Goonatilake and of Christopher Langton.
4. For one such call, see Harlan Cleveland, Birth of a New World. Jossey-Bass, 1993. See also my "Bright future for democracy?" in Ikram Azam, et al., eds., The Future of Democracy in Developing Countries. Islamabad, Pakistan: National Book Foundation, Forthcoming.
5. See also, Walter Truett Anderson, Reality Isn't What It Used To Be. Harper & Row, 1990.
6. For example, see my "It's only a paper moon," Futures, December 1990, and "Humanity's responsibility for future life," in C. P. Stone, ed., Conservation Biology in Hawai'i. University of Hawaii Press, 1988.
7. Walter Truett Anderson, To Govern Evolution. Harcourt, Brace, Jovanovich, 1987.
8. H. Jay Melosh, "Swapping Rocks: Exchange of surface material among the planets," The Planetary Report, July/August 1994, p. 19.
9. Faxed to me on July 19, 1994, by Dick Stephens, head of the Florida Criminal Justice Executive Institute, who attributed it to "S. Siegal ?? ca. 1969." I have modified the quotation slightly from the way Stephens faxed it to me.
10. In Ben Finney and Eric Jones, eds., Interstellar Migration and the Human Experience. University of California Press, 1985, p. 335.
11. Francis L. K. Hsu, "The cultural problem of the cultural anthropologist," American Anthropologist, 81, 3: 517-532, 1979. Cited by Nancy Makepeace Tanner in "Interstellar migrations: the beginnings of familiar process in a new context," in Finney and Jones, op. cit., p. 225. It is also worth noting--especially for those who believe that technological development in

general, and space exploration in particular, is an ugly expression of rapacious male behavior--that Tanner argues that technological innovation, especially for travel, was begun and perpetuated by females: "In fact the skill female chimpanzees show in using tools and passing their techniques on to their daughters suggests that among the early hominids tool-assisted gathering may have been a preeminently female adaptation, which spread rapidly as young females observed the new behaviors, imitated them, and were aided and rewarded by their mothers" (p. 222). "Some 2 to 1.5 million years ago, women may have begun skinning animals to make better containers for carrying gathered food and babies. Women may have thereby invented a container that made possible a new spurt of human migration" (p. 223). Moreover, "both sexes were very involved in subsistence activities and often were quite egalitarian" (p. 224) as will, I trust, be future generations on earth and in space.