National Capital Region World Future Society

Future Takes

Your Platform for Future Related Issues

VOLUME 3, NO. 2 Summer 2004

Inside this issue:

Future Life Forms Among Posthumans

by José Luis Cordeiro
President, Venezuela Chapter,
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The world is moving fast towards a fourth wave (following the terminology of US futurist Alvin Toffler) in which humans will become transhumans, and then posthumans, thanks to the multiple and simultaneous advances of technology. This change has been described by some experts as so transcendental as when apes evolved into humans.

TRANSHUMANISM

Transhumanism represents a radical new approach to future-oriented thinking that is based on the premise that the human species does not represent the end of our evolution but, rather, its beginning. Transhumanism is an interdisciplinary approach to understanding and evaluating the possibilities for overcoming biological limitations through scientific progress. Transhumanism seeks to expand technological opportunities for people to live longer and healthier lives and to enhance their intellectual, physical, and emotional capacities.

Transhumanism emphasizes that we have the potential not just to be but to become. Not only can we use rational means to improve the human condition and the external world; we can also use them to improve ourselves, the human organism. And we are not limited only to the methods, such as education, which humanism normally espouses. We can use technological means that will eventually enable us to move beyond what most would describe as human. Transhumanism defends that, through the accelerating pace of technological development and scientific understanding, we are entering a whole new stage in the history of the sapient species. Advances in artificial intelligence, robotics, bioengineering, cloning, cryon-

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RFID Current and Future Uses

by Russell Wooten
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RFID technology is already used daily in ports, distribution centers, and fleet operations around the world. It is used to identify employees, secure facilities, manage assets, and track parts and materials. RFID tagging is growing 30 percent annually with supply chain applications accounting for only one percent of the total implementations.

RFID provides a secure, wireless means to exchange information. Data is encoded in a computer chip that is connected to a transponder or RFID tag. Tags are

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From The President

by Limor Schafman

"Biology is not destiny. It was never more than a tendency." This quote from theorist Bart Kosko captures the essence of this month's ***Future Takes***. With our June issue we travel beyond our borders to explore the global economy and its results; we open the bounds of our mental neuro-systems and look at the impact of our beliefs on the physical brain; we float on the river of life in new housing; we move beyond our bodies to explore new human permutations and we imagine what space will be like with a new Sino-neighbor and competitor.

What we try to do at the World Future Society's National Capital Chapter is step outside our "tendency" of thought, theory and beliefs and reach for the beyond of our alleged boundaries. Here, with ***FT*** and our monthly events, we step outside the rigidity of mind and into the wealth of realized imagination. To help us continue to build our future as a forum for such sharing, our Board of Directors has embarked on taking close scrutiny of our vision, mission and goals as a chapter, with the intent of reexamining our "destiny" and reshaping it where necessary. One of our first missions is to involve greater participation from our membership. We have formed committees, which we invite you to join: Program, Outreach, Public Relations, Membership, Digital Media, Finance, and ***Future Takes***. Our intent is for this involvement to then evolve into Board of Directors positions. Please consider joining us in the leadership of this organization.

Not only are we looking at a new future for the Chapter, but also on the International level. Tim Mack, the new President of the World Future Society, eloquently spoke to us in May about what he brings to the organization and his vision for it. Welcome, Tim! We look forward to working together to forge an even stronger position for the International organization and its chapters.

It was also wonderful to have our Founder and Immediate Past President of 35 years, Ed Cornish, speak with us about his new book, ***Futuring: The Exploration of the Future***, and share with us why we as an organization and as professionals who explore, think, strategize and otherwise utilize futurist thought have such a vital role to play in the successful continuation of human kind. Thank you, Ed, for all your years of vision and dedication!

Further and always, our organization is a living organism, always open to you and your comments and suggestions for the betterment of the Chapter.

Enjoy this latest issue of ***Future Takes*** and we look forward to hearing from you!

Limor Schafman
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From The International President

by Timothy C. Mack

My relationship with the World Future Society began at the first WFS General Assembly in 1971, where I assisted Sally Cornish as a volunteer and event photographer. I subsequently volunteered for every conference except Toronto, when I was out of the country. In 1981, I joined the conference planning committee and then became a co-editor of ***Futures Research Quarterly*** in 1985. Finally, I was approached at the San Francisco conference last year about serving as Conference Chair for 2004 Washington, DC and I said yes – it has proven a very rewarding experience.

In addition to practicing law in New York and the District of Columbia, I served on the Boards of a number of issue-oriented non profits, including the Issue Management Association. My international experience includes a term as the Editor-in-Chief of the ***Syracuse Journal of International Law and Commerce*** and a three-year position as a Senior Instructor at the Institute for Global Chinese Affairs, which continues to be ranked number one worldwide by the Foreign Experts Bureau in Beijing. I also worked as a change consultant to the US Department of Defense, the US

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Future Takes

Future Takes is the newsletter of the National Capital Region World Future Society (NatCapWFS), which is based in Washington, DC, United States of America. In addition to the NatCapWFS, ***Future Takes*** serves other interested professional societies in the greater Washington DC metropolitan area as well as other chapters of the World Future Society worldwide.

Future Takes welcomes contributed articles that serve one or more of the following objectives:

a. Contribute to a reasoned awareness of the future and the importance of its study,

b. Advance serious and responsible investigation of the future,

c. Promote the development of methods for the study of the future,

d. Increase public understanding of future-oriented studies,

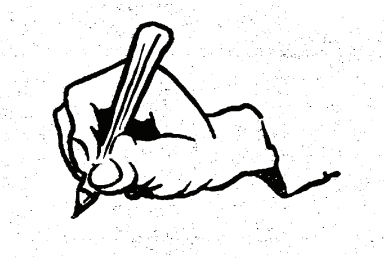
e. Facilitate communication and cooperation among organizations and individuals in studying or planning for the future.

In addition, ***Future Takes*** publishes book reviews, future studies exercises, discussion threads, letters to the editor or equivalent correspondence, and summaries of NatCapWFS programs. All published material will normally follow the guidelines delineated herein for contributed articles.

In accord with the NatCapWFS objectives to promote free dialog and the exchange of ideas on matters concerning the future, ***Future Takes*** does not align itself with political entities including but not limited to political parties, political action committees, or political platforms. In addition, ***Future Takes*** does not advocate particular ideologies or political positions.

Any article published in ***Future Takes*** including any original article written by ***Future Takes*** editors represents the viewpoint of the author(s) and does not necessarily represent the official position of the NatCapWFS or the greater World Future Society.

Give Us Your Perspective on the Future



We are looking for people with vision in any area of interest or expertise to write a future-oriented article for ***Future Takes***. Your vision may come from personal experience, reading, lecture notes, or a topic that in your view is important for the future. Share your thoughts with our chapter members, preferably in 1000 words or less. Send your contribution to futuretakes@cs.com

Space Security via the Olympic Spirit

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By the end of the year, China means to join the United States and the former Soviet Union as only the third nation to launch humans into space. This historic attempt may very well occur within the UN dedicated World Space Week (October 4-10). October 4 is also the anniversary of Sputnik. Some feel that the Chinese attempt will translate into a new security threat to the U.S. as did Sputnik 46 years ago. Others feel that this event could be the beginning of active international cooperation in space. Could the anticipated global Olympic spirit of Athens 2004 be carried into geo-strategic unity in space?

The Chinese say that they aim to go to the Moon on their own so that they can be able to "actively join international activities for Mars exploration." This is key phrase to examine. What has been described as the "flotilla" of

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ics, nanotechnology, new energies, mind uploading, dietary restriction, "designer babies," cyborgs, molecular chemistry, telecommunications, space exploration, immortality, virtual reality, extropy ideas, etc., will lead to substantial physical and mental augmentation at a "singularity" point.

The historical human desire to transcend bodily and mental limitations is deeply intertwined with a human fascination with new knowledge, which might be both inspiring and frightening. How these technologies are used could fundamentally change the ways in which our society functions, and raises crucial questions about our identities and moral status as human beings.

ENVIRONMENTAL TECHNOLOGY, MAGIC, AND THE "SINGULARITY"

New developments in science and technology are occurring so fast that some might begin to overwhelm our capacities to adapt to change. Personal computers did not exist 30 years ago, cell phones did not exist 20 years ago, and the Internet (actually, the World Wide Web, www) did not exist 10 years ago. In the biological sciences, similar achievements have been made since the discovery of the DNA structure in 1953, including new medicines, bioengineering and cloning technologies. In 2002 a living creature – polio virus – was assembled piece by piece with several bio-chemicals by US scientists J. Cello, A. Pauli and E. Wimmer in the New York State University. Cryonics and nanotechnology, for example, were also totally unknown just a few decades ago. Indeed, many years ago, British scientist and writer Arthur C. Clarke said that "any sufficiently advanced technology is indistinguishable from magic."

The pace of change is not only very fast but it is also accelerating. Some experts like US engineer Ray Kurzweil even talk about a coming "singularity" where artificial intelligence and artificial life forms will overtake human intelligence and human life in the coming decades. Slow biological evolution seems to be approaching fast a dead end: our species will continue changing but not through the old and slow biological evolution but through the new and fast technological evolution.

DEEP QUESTIONS

Today many boundaries are blurring. Boundaries between birth and death, between virtual and real, between morality and immorality, between truth and falsity, between inner and outer worlds, between me and "non" me, between life and "non" life, even between natural and "non" natural. What is life? What is death? What is "non" life? What is natural life? What is "non" natural life? What is artificial life?

These are all deep questions for a new deep world of transhumanism and subsequent posthumanism. The answers are complicated and they might be so difficult for us to comprehend as many of our current problems might

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Global Trade and Conflicting National Interests

by Ralph E. Gomory and William J. Baumol
MIT Press, ISBN 0-262-07209-2

a book review by Calvin Olano,
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There is a widely held view that totally unrestrained international trade is ultimately good, both globally and individually, for all trading nations. This belief goes back to the nineteenth century and the economic theories of Adam Smith and David Ricardo. In this book, Gomory and Baumol report on results from simplified economic models with basic assumptions that differ from those of the earlier work. Their somewhat controversial results are different from those of earlier studies in important ways. In their results, while there are regions in which global prosperity and individual national prosperity both benefit from more open trade, there always exists a region of conflict in which, even as total global prosperity increases, one nation can benefit at the expense of another.

Of necessity, any model of world economics must be grossly simplified. This fact by itself will lead to models that produce different results with subsequent controversy. Most of the experiments of Gomory and Baumol assume a world of only two nations, which for literary convenience are labeled France and the United Kingdom.

The classical trade models assumed diminishing rates of returns with greater output, with certain natural advantages in various industries for each trading partner. Gomory and Baumol agree that under these conditions totally unrestrained trade should benefit all. The authors, however, have run experiments using computer models with different assumptions, which they claim are more representative of the modern world. These models assume a variety of starting dispositions for the distribution of industries between nations. These starting dispositions lead to equilibrium outcomes that differ in total global income and individual national income. Results are shown as scatter plots of global income versus national income. It is assumed that these levels of income can be taken as a measure of prosperity.

The first set of experiments involves industries defined as retainable. These are industries in which neither nation has a natural advantage, but for which there is high initial cost of entry, caused by factors like higher

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Brain Research Shakes Up Assumptions

*(reprinted with permission from the May 2004 edition of **Alternative Futures**, the newsletter of the Institute for Alternative Futures, Alexandria, Virginia; Marsha Rhea, editor)*

Falling prices for brain scanners, such as the MRI, computer-enhanced EEG and PET scans make it easier for researchers to gain intriguing views of the brain working. What happens when somebody meditates? Or takes a fix of heroin? Or goes into a rage? Or converts the rage to a feeling of compassion? Emerging answers speak to more than just the biochemistry of large numbers of neurotransmitters and the neural networks that make various kinds of thought processes happen.

The new research supports some very old ideas. Freud and Jung appear to have been right, for example, that there is an unconscious mind that powerfully affects us. Buddhists are also proving to be right about meditation techniques they have been studying for over 2000 years. Recent neuroscience findings showing remarkable plasticity in the brain have created great interest in the Buddhist techniques among a large group of western scientists. Combining these old and new ideas into mental disciplines to help reshape the brain could give us better control of emotions.

The notion that intelligence is a single dimension is now challenged by a wider view seeing multiple intelligences. Emotional intelligence (EQ) is widely seen to be as important a dimension as cognitive skill for success in academic, social, and business contexts. This larger view could shake up education, healthcare and perhaps even religion in the not so distant future.

Brains do not fit the industrial paradigm of standardization now dominant in education. Genetic and environmental factors conspire to make one child ready to learn specific tasks, such as writing, either earlier or later than another child. The school, teacher, or even parent who attempts to force a child to conform to a standard curriculum designed for a specific age may be acting in ignorance of what neuroscience is showing. They may actually create a lifelong barrier to the very learning that they introduce prematurely.

Healthcare also may have to overthrow an old idea that objective science can ignore subjective realities, especially when healing is involved. The mind is engaged in health in ways that are both obvious and sub-

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unit cost for small-scale production or high cost of attaining the knowledge and skills needed to make quality products. Automotive, computer and television industries are cited as examples. Without early sheltering of these industries it is difficult for a new company to come up to speed in order to compete effectively. With retainable industries the Gomory and Baumol models produce outlying regions in which one of the countries has a very large proportion of world trade and in which unrestrained trade policies benefit both countries. However, at variance with the classical model, there is a central region of conflict, in which both countries have a respectable proportion of global trade and in which a gain by one trading partner is reflected in a loss by the other.

A second set of experiments replaces the assumption of retainable industries with industries where costs are linear with scale of production with the added twist that individual companies are able to improve productivity. Since with these assumptions there is no impediment to entry on a small scale, a reasonable argument is made that these experiments extend to the classical situation, where per unit costs diminish with volume of production, with the additional proviso that production efficiency is subject to change. Although these assumptions differ significantly from those of the retainable industries model, the results are amazingly similar, displaying outlying regions of mutual benefit with more open trade and a central region of conflict.

A number of other experiments are reported, some with a world of more than two nations, some with combinations of retainable and linear industries, and so on. In all cases, the behavior of these models is similar to the earlier results with regions of national conflict.

Reviewer's comments: This reviewer is not an economist, nor are the experiments described in sufficient detail to justify a strong opinion about their validity. It is, however, the opinion of the reviewer that international trade is sufficiently complex and sufficiently important that the often-repeated benefits of the classical assumption – that totally unrestrained trade will ultimately benefit everyone – should not be blindly accepted. At the very least we should make a strong effort to gain a better knowledge of possible outcomes. Both our leaders and our citizenry have a vested interest in knowing more about potential future results of current decisions.

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tle. Anybody can see that behaviors create the burden of diseases ranging from AIDS to Type 2 Diabetes. Yet the neural pathways that take us from a happy meal to ravenous hunger and on to obesity are neither obvious nor fully charted. These pathways may well provide scientists what they need to offer a better medical option for the morbidly obese than today's gastric bypass surgeries.

The neurosciences could pose challenges for religion as well. The relationship between the cognitive functions of the neocortex and the emotional responses of the limbic system is under increasing scrutiny. "The biology of belief may reveal the neural pathways connecting fanatical views to emotions like hate," said IAF Vice President Jonathan Peck. "One day this scrutiny may become so widespread that underlying beliefs that motivate people may become far more transparent. Hidden beliefs could become an impossible secret to keep." For example, the rise of fundamentalism that is evident across Christian, Jewish, Islamic and Hindu populations may be shown through brain scans to have less to do with religion than with differences in how certain brains function. Similarly, the mystic traditions that can be found in these different religions may also share a common neurological profile. Thus the underlying beliefs may prove less an aspect of religion than of biology.

[Editor's note: It's "your serve," as they say in sports! How will the new research in brain scanning and neurosciences impact education? Religion? Social behavior? Law enforcement? Classroom discipline? What are the implications for people with "learning disabilities"? What types of intelligence will be valued in the year 2020? To what extent, if any, will these advances bring Eastern and Western cultures together? What else do you see possible as a result of advances in neuroscience? If you like, think in terms of a futures wheel, with "advances in neuroscience" as the event, or try brainwriting if you prefer. Send your thoughts to the Editors' Forum today!]

***Future Takes Bulletin* Coming!**

To better publicize chapter activities and the activities of "sister" organizations, a ***Future Takes Bulletin*** (exact name TBD) is being launched in August or perhaps earlier. As a monthly electronic publication, it will complement ***Future Takes*** by providing timely notice of our dinner programs and other activities. It offers the additional exciting possibility of publishing read-ahead material to support lens groups and book discussion groups.

If you would like to work with us on the Future Takes Bulletin, please contact us at futuretakes@cs.com.

Future (Re) Takes

by Russell Wooten
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The May-June 2003 issue of ***The Futurist*** featured an article by Annemarie Skjold titled, "Tomorrow's Floating Homes: Part House, Part Offshore Rig." Here is a short review of that article and an update.

Original Article Summary

Europe faced enormous flooding the last few years. Its coastlines are diminishing as rivers rise. *Global Warming is – well that could certainly be another article in* ***Future Takes****! Here in the U.S. we face similar problems.*

Perhaps the answer is obvious. Family homes, student flats, offices, or an entire suburb floating and prepared for the advent of a drowning landscape. Imagine a three-story house that follows the sun during the day and gently rocks you to sleep as you float through the night.

The Netherlands has begun to rethink the traditional houseboat. Herman Hertzberger has designed an intelligent flotation system that is more house and less boat. Using the principal of offshore flotation rigging, he has mounted a steel-frame house onto a hexagon of industrial flotation pipes. The floating house can withstand the heaviest seas or flood and is almost unsinkable. It is positioned far enough from the shore to rise uninhibited with any dramatic change in water level, yet it is secured because it is moored. It utilizes solar energy and can rotate 90 degrees to follow the sun. Naturally the float-

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Dave's Think Tank

Issue of the quarter: As cultures intermingle and occasionally clash – with some cultures becoming more dominant than others – what *values* and *lifestyles* will survive in the world in the year 2025? (For starters, see "points for consideration" below, but this list does not come close to being exhaustive.) Which *values* and *lifestyles* will be lost or marginalized, and what are the implications for mankind?

Also, which people will be most highly valued in 2025? The young or the elderly? Gifted people or others – and which gifts? Introverts or extroverts (and let's not forget the other Myers-Briggs or equivalent personality descriptors)? Which professions? Who will be the celebrities? And, what did I forget?

Points for consideration:

1. The primary values of people within the United States include liberty, opportunity, self-reliance, "taking a stand (position)," and the traditional work ethic, as evidenced by long workdays and the associated lifestyles. One might also add immediacy, as manifested by impatience with long lines and traffic jams and by the desire for immediate return on time or money invested. There are numerous avenues for entertainment, ranging from movies to spectator sports events. Yet, one of the most common complaints is "not enough hours in the day."

2. Western Europe places more primacy on family and leisure time, as evidenced by their longer annual vacations, shorter workdays (in some parts), and even legal restrictions on store hours. In some countries, disposable income is somewhat less than in the United States, but even so, the standard of living is generally high. It has also been suggested that these cultures value introspection more so than North America does.

3. Various Oriental countries also tend to value the work ethic, but they have traditionally been characterized by patience and by a time horizon far longer than that represented in the quarterly earnings statement. This cultural difference figured prominently in the outcome of the conflict that we know as the Vietnam War. In addition, some Oriental cultures have historically valued age over youth and the group over the individual. In contrast with the reductionism that characterizes much of the West, Oriental cultures are known for their more holistic views on matters ranging from wellness to warfare.

4. Speaking of time, the languages of some Native and Aboriginal peoples do not conjugate verbs by time. To them, past, present, and future are one. In addition, these peoples have traditionally valued co-existing with nature as opposed to dominating it.

5. While tribal warfare and authoritarian regimes have characterized parts of the Middle East for centuries, it was Arabia and Persia that advanced

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Meet a Member

TOMMY T. OSBORNE – Soldier, Scholar, Information Technology Manager

Combining years of program and operational management accomplishments in both corporate and military worlds with an avid interest in the future, **Tommy T. Osborne** is proud to be one of the associate editors of ***Future Takes***. Having competed in the private sector and having managed the Army's multibillion-dollar computer budgets, he wants to increase readership and participation in the premiere participatory futurist publication. Since 2001, Tommy has been at Maden Technologies, an Afro-Cuban owned Information Technology and Security Services provider. He is currently the firm's Chief Technology Officer, manages Corporate Network Services and is the Program Manager for the Defense Advanced Research Projects Agency's Security and Intelligence Directorate Scientific Engineering and Technical Assistance (SETA) Contract. As Program Director for Maden Technologies' support to Army Test and Evaluation Command (ATEC), Osborne and associates raised operational reliability of wide area and local area systems to above 95% and improved life cycle software maintenance and web services as well as information security in concert with government partners. From 1995 to 2000 as Senior Program Manager, first at GSI, then at CACI, he directed government and commercial contracts and was responsible for service delivery, customer satisfaction, and profit and loss. His program management activities embraced conversion of Department of Justice telephone systems from FTS 2000 to FTS 2001, network conversions for Army and Air Force installations, and support to small businesses across the country as an information technology and business reengineering consultant to the National Institute of Science and Technology's Manufacturing Extension Partnership. He established a world wide X.25 network for Air Force Global Weather with 99% reliability and helped win CACI's Globalstar data support contract. As a manager for Abacus Technology, immediately after retirement from the U.S. Army in 1994, he was responsible for SETA support to the Defense Information Systems Agency.

Colonel Osborne's last military duty was as Army Materiel Command Corporate Information Officer and commander of the 6000 civilian and military information technicians who provided computer, telephone, printing, records management, frequency management, software engineering ,and videoconference support to the 21 bases of that command. As a Joint Staff Officer in the Office of the US Military Representative to the North Atlantic Treaty Organization (NATO), Osborne brought AFN-TV to Belgium while providing advice and direct support to designated US and alliance entities. In that assignment, he formulated policy and represented the US positions to NATO committees. As commander of Army Signal units including two brigades, he successfully facilitated the command and control of joint, combined, and Army pure formations in Europe, the United States, and the Republic of Vietnam.

A Mensan and an Associate of Harvard University's Program on Information Resources Policy, Osborne holds BS and MS degrees in Chemistry. In addition, he is a trained information technology manager, opera-

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Look What You Missed!

The Millennium Project

Synopsis of the September 2003 chapter dinner program; summarized by Russell Wooten

On Tuesday, September 16, 2003 the National Capital Region World Future Society started its 2003-2004 program year at the Embassy Suites Hotel in Friendship Heights. Mr. Jerome Glenn, the Director of the Millennium Project at the American Council for the United Nations University, presented his ideas on the Millennium Project. His presentation was a robust and highly interactive program, to the point that questions and commentaries from the audience approximated the length of Mr. Glenn's delivered presentation.

The Millennium Project at the American Council for the United Nations University is a global think tank of roughly 1500 people. Its process differs from standard think tanks in that the members and their responses remain anonymous. Nodes are responsible for reaching out to appropriate local experts and capturing their opinions. The objectives of the Millennium Project are to

1. Create normative scenarios which may lead to Middle East peace
2. Define preconditions to this peace
3. Develop actions to meet those preconditions
4. Evaluate the policies contained in its scenarios

Seven conditions were identified that may be necessary for

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Our International President Speaks!

Futuring: Preparing for a Changing World

Synopsis of the April 22, 2004 chapter dinner program; summarized by Dave Stein and Russ Wooten

The National Capital Region World Future Society (NatCapWFS) was honored to have **Ed Cornish**, founder and then-president of our parent organization, the World Future Society, as our April speaker. An established professional futurist for over 50 years, Mr. Cornish enlightened the attendees with his perspectives on the future and the role that forward-thinking people can play in creating a better tomorrow.

SIX SUPERTRENDS

The program began with a discussion of six supertrends that Mr. Cornish has identified over the years. These supertrends are technological progress, economic growth, improving health, increased mobility, environmental decline, and increased deculturation. Mr. Cornish was quick to point out that even these descriptors are an over-simplification of phenomena that are more complex, notwithstanding the need to identify the simplest elements.

While noting that technological progress has always been an engine of social change throughout history, he also emphasized a profound difference from times past, that the pace of technology growth is explosive – but maybe not quite at the rate predicted by fellow futurist Ray Kurzweil, who has suggested that technology growth in the next 20 years will be as much as that during the past century. Nonetheless, the rapid rate of technology growth is evidenced even in the 20th century, which produced airplanes, atomic weapons, submarines, radar, penicillin, television, and the internet. We can think of technological progress as the growing capability of humans to achieve their purpose

Turning to the economy, Mr. Cornish discussed how people on the whole are becoming wealthier, even though the population is also increasing. While poverty is also increasing, the impoverished people today are less poor than were the poor of earlier times, and the number of super rich people is increasing concurrently. Even the Chinese economy is growing at a rate of ten percent per year. At that rate, their rate of production will double in only ten years. As one might expect, economic polarization into "haves" and "have-nots" is increasing and can be expected to become worse.

A third supertrend, improvements in health, is a result of our technological progress and economic growth. Improved health leads to increasing longevity, which has two very important consequences: population growth and a rise in the average age of the population. These affect future considerations, trends and consequences. This is just one example of how complicated the study of the future is!

For its part, increased mobility impacts not only people but also communications, information, and commercial products. Communications satellites were first envisioned by science fiction writer Arthur Clarke. His discussion of communication with satellites in geostationary orbit dates back to 1945. Mobility, including traveling for pleasure, has some futurists believing that the tourist industry may become the world's biggest industry during the 21st century, if terrorism is controlled. A disadvantage of mobility includes the rapid spread of disease such as with the SARS (Severe Acute Respiratory Syndrome) virus.

Environmental decline manifests in many ways including global warming, increased pollution, over-fishing, and increasing loss of biodiversity. Mother Earth suffers as environmental decline continues for the world as a whole. Certain nations or locations have made major efforts to reduce pollution and other environmental abuse but more needs to be done.

Then there is increased deculturization. People are losing their traditional cultures, as their ties to the communities and cultures in which they grew up are cut. Mr. Cornish identified increased deculturization as a major contributor to present-day problems between the United States and the Middle East. There are two basic forms of deculturization – culture shock and future shock.

Culture shock can be a group or individual phenomenon. Group occurrences happen when existing cultures are impacted by outside culture moving into an established area and affecting the equilibrium of that area. Individual occurrences are when people relocate into a new area and they are impacted by their inability to function in their new environment. Future shock happens when changes occur from within usually at a very rapid pace. This is generally due to technological improvements, although the results of 9-11 could also be consider a future shock phenomenon.

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US, EU and Japanese probes to Mars this year is not exactly "international." Perhaps for good reasons they are, at least for now separate national missions. However, a joint mission is being planned between the EU and Japan to send a probe to Mercury in 2010. Other joint projects in satellite development have been undertaken by Germany and China and Brazil and China. The Chinese also say that launching humans into space is the equivalent in terms of being "regarded as an influential and powerful country" as their obtaining nuclear weapons in the 1960s. Does the desire to be "influential and powerful" translate into the desire to dominate the U.S.? Or, are these words merely an expression of national pride?

In either case, if China devoted resources to assist in launch missions to the International Space Station (ISS), theoretically this allocation would take away from resources the Chinese would otherwise devote to the development of strategic ballistic missile technology; as well as asymmetric cyber weaponry. As amateur sport is useful in determining the real character of individuals, we could use Chinese involvement aboard the ISS to learn more about their technological proclivities and vice versa. This might result not only in a more accurate security assessment on both sides but actually a bona fide improvement in the Sino/American and the Sino/Western relationships.

The Homeplanet Defense Institute (HDI) proposes that the state of global security in space and on Earth is directional and on a continuum between international anarchy and dynamic co-exploration. The question we should be asking is: Are we moving forward or backward along the security continuum and at what rate? On one end of the continuum, weaponized anarchy reigns supreme – the law of the jungle, where every nation and sub-state actor would deploy weapons in space. Some might argue from a negative view of human nature that equilibrium of power on this side of the continuum is achievable and can in fact result in general or at least temporary security. Others might argue, also from a negative view of human nature that equilibrium can exist on the other half of the spectrum – that security can best be achieved through treaties, prepared for by confidence building measures that engage in cooperative activities in space.

HDI maintains a positive view of human nature. Instead of using cooperative activities in space as a means to the end of terrestrial security (such as the 1975 Apollo-Soyuz mission of Nixon's détente), HDI believes that co-exploration is a legitimate end in itself. Just as the pan Hellenic athletic festivals of the ancient Athenians were unifying factors in Greek life, terrestrial security could also naturally occur as a by-product of expanded human endeavor.

We as nations and as individuals, if properly invested in by governments and corporations might become so fixated on colonizing various celestial bodies of our solar system as well as defending Earth from potential asteroids and comets that we would not have the inclination to prepare to fight on Earth. This approach could in effect "de-weaponize" space by fostering good intentions rather than imposing restrictions on dual use capabilities through treaties. HDI believes that the norm of international relations could become dynamic space co-exploration on an intercontinental (or at least interregional) and intercultural basis - the Olympic spirit in space!

Mars exploration and planetary defense would fit into the concept of a Department of Peace proposed by Representative Dennis Kucinich. However, HDI is opposed to the call by Kucinich and others to ban weapons in space. Reducing capabilities for hostility through treaties is usually counterproductive in the long run and rarely enforceable. If Kucinich and others really want to preserve "peace in space," they should work to transform the intentions of national and sub-national actors on Earth by calling for various common endeavors in space. Instead of shaming nations for exhibiting technological ingenuity to achieve vio-

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ing house is water-cooled.

The house itself is surprisingly spacious with 156 square meters or 1,679 square feet of floor space. The design offers a very livable combination of retreat and openness. Bedrooms on the entrance level are a quiet sanctuary of privacy. The middle floor is an airy and light living space with ceiling to floor windows. The top floor hosts a terrace and one large room that can be used as an additional bedroom or an office.

Update

The Netherlands' government is conscious of the rapidly changing climate and the constant need to look for new housing opportunities. New laws in The Netherlands encourage home ownership for everyone on land or at sea. It is now possible to mortgage a floating home. In theory one purchases the land under the water, or leases that land for 99-years. Connections to town services such parking and refuse collection come with either purchase or lease.

(Continued from page 1)
available in many forms, ranging from brick-like enclosures to thin, flexible styles that are easily embedded in adhesive labels. Tags can be disposable or reusable.

Data are accessed by a reader that captures and decodes a broadcasted RF signal. Antenna size, frequency, protocol, and power all affect data transmission range, speed, and accuracy. There are two types of tags: active and passive.

Active tags are self-powered and broadcast their data to readers. Because they have batteries, active tags are larger, more expensive, and less flexible. Currently reusable large active tags for cargo containers cost about $100 each.

Passive tags receive their power from the reader, not from a battery, so they can be very small. Flexible passive tags in the UHF frequency band can be read from more than 20 feet away. Until recently, the range for passive technology was limited to a few inches.

Recent performance improvements are significant because RFID is now a viable and powerful option where it was previously ineffective or cost prohibitive. RFID can be an effective tool to secure, allow access, prohibit access, track, automatically route and identify. And all this in real-time.

Applying a tag to a container or individual product enables the automatic logging of the assets throughout the supply chain and associates it with specifics customers and suppliers. This results in faster returns and fewer losses, and provides the information necessary to resolve customer discrepancies. The net effect of these improvements is that RFID-users can minimize asset inventory, reduce tracking and handling costs, and free up cash to spend elsewhere.

Vehicle, equipment and material tracking along with people identification are emerging as promising RFID applications. In less than one second, an RFID system can check credentials stored on an employee ID card and either allow or prohibit entry into a secure area, access to parts or materials, or the operation of equipment. The real-time location data can similarly provide an instant and accurate view of where all tags are at any given time.

The first retail consumer-wide application of RFID technology will most likely be at your Wal-Mart store. Earlier this summer, Wal-Mart informed its 100 top suppliers to start using RFID technology. Imagine not needing to go through a checkout line.

[Editor's note: Let us hear from you. What else do you see possible as a result of RFID technology? What other impacts will it have? If you like, bring out the old futures wheel, try brainwriting if you prefer, or pioneer a new futurist methodology. Send your thoughts to the Editors' Forum today!]

(Continued from page 8)
tions research systems analyst, military historian, and international affairs analyst. However, Tommy is proudest of his family. Emma, his wife, is an accomplished elementary school counselor with wide teaching experience, elder son Tommy II is an orthopedic surgeon, and son Sean is a professional engineer. Both Sean and Tommy II are married to vibrant ladies and each has a daughter and a son.

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lent ends, international agreements should appeal to the better angels of our ingenuity.

For example, under a current treaty with Russia, the U.S. is prohibited from beaming high-power lasers from outer space. This inhibits commercial interests from harnessing solar radiation in space before it is diluted by our atmosphere or stored in our vegetation. This potential breakthrough technology that could foster peace and prosperity for all of Earth through commerce is held back by treaty commitments that are designed to do the same.

HDI believes that it is possible to develop these and other renewable technologies in concert with both the technological and social traditions of Eastern civilizations as well as indigenous civilizations. When we harness and harmonize rather than subdue and dominate in our approach to both technology and other peoples, the charge that the U.S. seeks to control everything and everyone in existence, HDI predicts will quickly fade from the face of Earth.

Quotes to consider

"Violence is not a natural human trait. If it was so, human society would not have lasted so long."

Tenzin Gyatso, the 14th and current Dali Lama

"Be ashamed to die until you have won some victory for humanity."

Horace Mann

Futurist Link of the Quarter

http://www.rand.org/pardee/index.html

Who is your favorite futurist? Please nominate for this column.

A New Meaning of "The Future"!

The Post-Biological Universe

Synopsis of the February 19, 2004 chapter dinner program; summarized by Dave Stein

In an unusual program that extends the scale and concept of "the future" itself by several orders of magnitude, Dr. Steven Dick of the National Aeronautics and Space Administration (NASA) discussed the cultural evolution of advanced civilizations elsewhere in the known universe. Beginning with the Drake equation model for the number of advanced extraterrestrial civilizations possible, Dr. Dick extended its interpretation to include issues of culture in addition to those of astronomy and biology. In doing this, he brought together the physical and social sciences.

The Drake equation, well known among astronomers, predicts the number N of technologically advanced civilizations in our galaxy, based on the premise that they emit electromagnetic waves that we can detect. N is modeled as the product of several factors:

$$N = R^* \times fp \times ne \times fl \times fi \times fc \times L$$

where R* = the birth rate of stars that are suitable for intelligent life to develop on their planets,

fp = the percentage of those stars that have planets,

ne = the percentage of those planets that have environmental conditions conducive to life,

fl = the percentage of those environmentally friendly planets on which life actually manifests,

fi = the percentage of those life bearing planets on which intelligent life develops,

fc = the fraction of civilizations that develop a technology that emits signals detectable (by humans),

and L = the length of time that the civilization emits these signals.

In Dr. Dick's interpretation, the parameters range from astronomical to biological to cultural as one goes from left to right. With the right-most parameters less well known as Dr. Dick observed, N might range from 1 (indicating that we are the only advanced civilization in the galaxy) to a very large number. For the rightmost parameter, L, there is only one known data point – the one based on human civilization, which yields an estimate of 100 earth years.

As Dr. Dick noted, humans are not accustomed to thinking this far into the future, that is, on cosmic time scales, and since social scientists generally do not concern themselves with the possibility of intelligent extraterrestrial life, the "cultural" part of the Drake equation is not taken as seriously as are the astronomical and biological parts. Whereas 100 years might be an order-of-magnitude estimate for a human lifetime while 10,000 similarly characterizes human history, the anthropological time scale is approximately 10 million years. Next comes the geological scale of approximately 5 billion years, followed by the astronomical scale of 13.7 billion years. There is also the "staple domain" of biology and culture, as Dr. Dick pointed out.

According to Dr. Dick, a post-biological universe is one in which cultural evolution has replaced consciousness-based intelligence with artificial intelligence (AI). This is in contrast with a biological universe, in which cosmic evolution commonly ends with consciousness-based life. At the other end of the scale is a physical universe, which culminates only in galaxies, stars, and planets. In a post-biological civilization, Dr. Dick hypothesized, machines with greater resourcefulness than humans and with unlimited patience might dominate the airwaves.

Noting that L in the Drake equation might be much larger than 100 years, Dr. Dick argued that in the long term, cultural evolution might supersede biological evolution. Simultaneously recognizing the possibility that a mass extinction event such as a conflict or a supernova might reasonably limit L for various hypothetical extraterrestrial civilizations, he suggested that space travel to other worlds might mitigate this possibility. Thus, the upper limit on L might be measured in terms of millions or even billions of years.

At this point, Dr. Dick popped the questions, "At what value of L does a post-biological civilization occur? Furthermore, is there a unit of cultural evolution, similar to the gene in biology?" In examining the issues, he presented the intelligence principle, which recognizes the central role of the maintenance, improvement, and perpetuation of knowledge. He then noted that both an individual and a culture will do whatever they can to perpetuate and improve themselves, since otherwise they cease to exist. Continuing, he suggested that AI is a striking example of the intelligence principle at work. Both biotechnology and nanotechnology will help develop and improve AI, whereas space travel will spread it.

Providing further insights

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"The other side of the future"

Future *Lite*

by Lindan Lee Johnson
lindanlee@hotmail.com

The Cicada Effect

I'm sure all of you know about The Butterfly Effect – great short story, terrible movie – that goes something along the lines of a butterfly flapping its wings in Central Park can cause an earthquake in China.

Everything is connected to everything else which could explain the large groups of people that have given up blaming political parties for major disasters in the world, have taken up nets, and are now focusing in on the evil butterflies do instead. The longitudinal studies are still out on this trend but it's definitely noteworthy.

However, today, I would like to reveal an exciting new phenomenon reported here for the first time in this universe – The Cicada Effect. It's quite different from The Butterfly Effect in that only some things are connected to everything else; other things have nothing to do with anything. Here are some other key observations:

1. Whenever you have gazillions of crawling, swarming, flying things involved in mating and breeding and making a lot of noise, people will notice.

2. Even if you plan your entrance very carefully for 17 years, someone can still put a concrete building on top of you and ruin your plans.

I will now report on my personal observation of The Cicada Effect. Please keep in mind that I was wearing the official Effect-Observer garb-pith helmet, several hundred yards of mosquito netting, leather elbow-length rose gloves and moon-boots. I observed the entire sequence of events myself.

Well… that is to say, I actually saw the first half of the first event and the rest I constructed through appropriate scholarly research** including forecasting, scenario planning, singularity watching, futures wheeling and dealing and consulting the Delphi. There may have been one or two trips to know sci-fi watering holes but that was only for research and a well-crafted Belvedere martini.

Event One
One bright red-eyed cicada wriggles out of the ground in Silver Spring, Maryland. The cicada looks around and flaps her wings.

Event Two
Gazillions to infinity and beyond more red-eyed cicadas wriggle out of the ground. They all begin flying around and smashing into the windshields of cars commuting into Washington, D.C. Nothing can remove the thick splats. Windshield wipers break under the strain. People are forced to abandon their cars and walk to work or telecommute. Road rage is eliminated. People are losing weight everywhere because they're walking. The obesity crisis is over.

Event Three
All the senators and congressmen are stranded on the beltway, their cell phone batteries dead, no minions anywhere, and they have no choice but to sit on the hood of their limos. They discover to their great surprise they've got cicadas in their ears and when they pull them out all of a sudden they can hear things they never hear before – they hear the voices of other people, people with good ideas. They vow to listen, stop wasting time and money on politics and start working for the country.

Event Four
The time-space continuum is made visible and all the wormholes are charted.

Event Five
Schrödinger's cat is let out of the box.

Event Six
The Hitchhiker's guide to the Galaxy publishes its online version along with the carryout number for the Restaurant at the End of the Universe.

Now, here's the challenge. Which of these events seems the most unlikely to happen during the next 17 years?

**Okay, so I made it all up!

Note: Please feel free to send in your favorite quotes, predictions, anecdotes, topic du jour, scandals, pet peeves, gossip and rumors and you may find yourself captured in Future Lite!

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peace in the Middle East:

1. Providing secure borders for Israel
2. Establishing a viable, independent Palestinian state
3. Resolution of the Jerusalem question
4. An end to the violence by both sides and to build confidence
5. Social and economic development
6. Education
7. Resolution of Palestinian refugee status

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LIFE IN THE YEAR 2040

Looking ahead (as we futurists are prone to do), Mr. Cornish then shared his thoughts on what life might be like in 2040. The six descriptors that he proposed were (1) higher living standards, (2) a more crowded world, (3) an expanded human habitat, (4) increased leisure, (5) more jobs in the service sector, and (6) lifelong education.

In his view, higher living standards will result from the larger number of wealthy people, who will acquire more things and demand more space in which to keep them. At the same time, the improvements in health will lead to a more crowded world through population increase. Perhaps also as a result of overcrowding coupled with technology advances, there will be more human settlements in parts of the world presently deemed uninhabitable or nearly so, including mountains as well as the polar regions. Ski lifts extending up Mt. Everest are not beyond possibility.

In opposition to present observable trends, Mr. Cornish envisions that in 2040, people will work slightly less than they do now. Current trends show that the extra hour or so going to TV. In retirement, some people will retire from everything and choose simply to enjoy themselves. For those in the workforce, a higher percentage of them will be employed in the service sector with a correspondingly lower percentage working on farms and in factories. In the service oriented economy to come, a major challenge will be connecting a person who wants a service with someone who provides it.

Still another characteristic of 2040 will be the need for lifelong continuing education. With the world rapidly changing, skills will become obsolete more quickly, and workers will need to add to their skill sets continually.

THINKING ABOUT THE FUTURE – FATALISM VS. FUTURISM

Having told the audience his vision of 2040, Mr. Cornish then suggested ways to think about the future. First he admonished that fatalism is fatal. Fatalism, or "que sera sera," is the mindset of being unable to control the future. In this mindset, people find themselves stymied, in that they feel that they must do something different but don't know how to think about the future. At the same time, fatalism often provides convenient excuses for not changing.

Furthermore, fatalism is supported by three half-truths – that one can't know everything about the future, that one can't do anything about the future, and that one shouldn't worry about the future anyway, as there are too many problems right now. Correcting these half-truths, Mr. Cornish countered that what one can know about the future, even if it is knowable only in probabilistic terms, is important. Likewise, those measures that we can take are important, and nobody can truthfully say that he/she never has time to think about the future, because everyone does. These half-truths, according to Mr. Cornish, need to be fought with the full truths of futurism, in which one accepts responsibility for his/her own future.

FUTURISM AND ITS HISTORICAL DEVELOPMENT

The futurist movement developed largely during the second half of the 20th century. Inspired to a large extent by apprehensions regarding nuclear war, the military set up the Rand Corporation to study the future. Herman Kahn's scenario building followed. Olaf Helmer and Norman Dalkey pioneering the development of the Delphi technique. Still other techniques for thinking about the future followed, including trend scanning, environment scanning, gaming, brainstorming, and backcasting. To some extent, everyone does these things.

However, in futurism, the goal is foresight, which is the ability to think rationally and intelligently about the future so as to identify which courses of action are right, not only for the short term but also for the long term. A concurrent goal is to help generations of the future to think about their own futures in positive ways.

Q&A

Q. What is the capacity of humans to manage rapid change?

A. First of all, there are factors that mitigate against rapid change such as that predicted by Ray Kurzweil. For example, some people will not want to buy the latest gadgets. People can collectively decide which changes they will accept. They don't have to have cell phones if they don't want them. Also, one way to cope with rapid change is through education.

Q. What are the chances of another Tarrytown conference?

A. It is possible to organize one, but it requires funds.

Q. What will work and charity be like?

A. At the community level, charity is more viable. "We'll take care of those who can't work, and we'll kick out the ones who won't work." We will not be running out of work,

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For these seven conditions, events were then generated that would need to take place to allow for the realization of the conditions. These events are generated by a backwards (time) thinking analysis. For example, for condition # 1 occur, "event d" needs to immediately occur, and for "event d" to occur, "event c" needs to occur immediately before, etc. These events and conditions are then judged as to their importance, likelihood of occurring, and possibility of backfiring.

The Millennium Project is still a work in process. However, some conclusions have already been developed and include:

1. Systematic study of routes to peace seems possible (in doubt at the start)
2. The politics of the respondents cannot be determined from the answer (results from Node control and anonymity of respondents)
3. Differences in opinion about what is important are small
4. Most events identified are important and are as likely of happening as not
5. Backfire potential is, on the average, lower than 50/50
6. The most important events were viewed as most likely and with the least backfire potential
7. The consequences and cross impacts of any action are complex and must be carefully thought through in any scenario and planned action.

For additional information on this subject log on to http://www.acunu.org/.

[Editor's note: This program synopsis was scheduled to appear in the previous issue of ***Future Takes*** *but was inadvertently omitted.* ***Future Takes*** *regrets the error.]*

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since most of us have needs that aren't being met. However, there will be issues regarding desirable work and what the public is willing to pay for. For example, the Dutch government provides a subsidy to anyone who wants to be an artist. This evokes the question as to whether citizens should have to pay for paintings that nobody wants to look at.

Q. *Three megatrends that you identified rest on the assumption of cheap and plentiful energy.*

A. I am reasonably confident that energy will be reasonably available, and there are a number of technological developments that support this optimism. In fact, the energy problem is due in part to the fact that petroleum is relatively cheap. Otherwise, we would see much more research on alternative energy sources.

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on AI and its role, Dr. Dick discussed the "strong AI" postulate, according to which intelligence equivalent or superior to human intelligence can be constructed. If the AI postulate is true, computers can be minds themselves as opposed to mere tools for studying the mind. Dr. Dick noted the positions of Hans Marovec and Raymond Kurzweil, who believe that an AI takeover of human civilization is possible within a few mere generations!

This led to the issue of possible ethical restraints, an issue that was discussed in the context of the present abortion controversy – which while emotionally charged, is a seemingly benign issue in comparison with the prospect of replacing the human species. Dr. Dick noted that objections based on ethical considerations might lose their impact as AI asserts itself.

Returning to the search for intelligent extraterrestrial life, Dr. Dick suggested that the likelihood of finding "life" would be greater in a post-biological universe, since L would then be substantially larger than for a biological universe. In addition, he discussed the signals that the "beings" in such a universe might send to one another, together with the possible implications of such signals. For example, if the beings were communicating among themselves, would we necessarily be able to intercept their signals? Might they be more likely to receive than to send signals that would be intelligible to humans? What kinds of messages might they send – and would communication be as good as travel for them?

Even the nature of intelligence itself was pondered. Since it is natural to ask, "What next?," that begs Fred Hoyle's question, "What is beyond AI?" Dr. Dick also commented on the possibility of distributed intelligence and on the nature of intelligence itself, particularly from the standpoint of data being the "what," knowledge the "how," and wisdom the "why." Lively discussion ensued, and at approximately 9 pm, the program concluded ….

… but not really! (see follow-on article, "The Program Goes On," enabled by our **interactive on-line forum**)

The Program Goes On!

Dave Stein
posted Fri February 20 2004 05:59 PM
What kind of intelligence for a

(Continued on page 17)

Breakthrough or Breakdown?

You Can Change the World

Synopsis of the March 18, 2004 chapter dinner program; summarized by Dave Stein

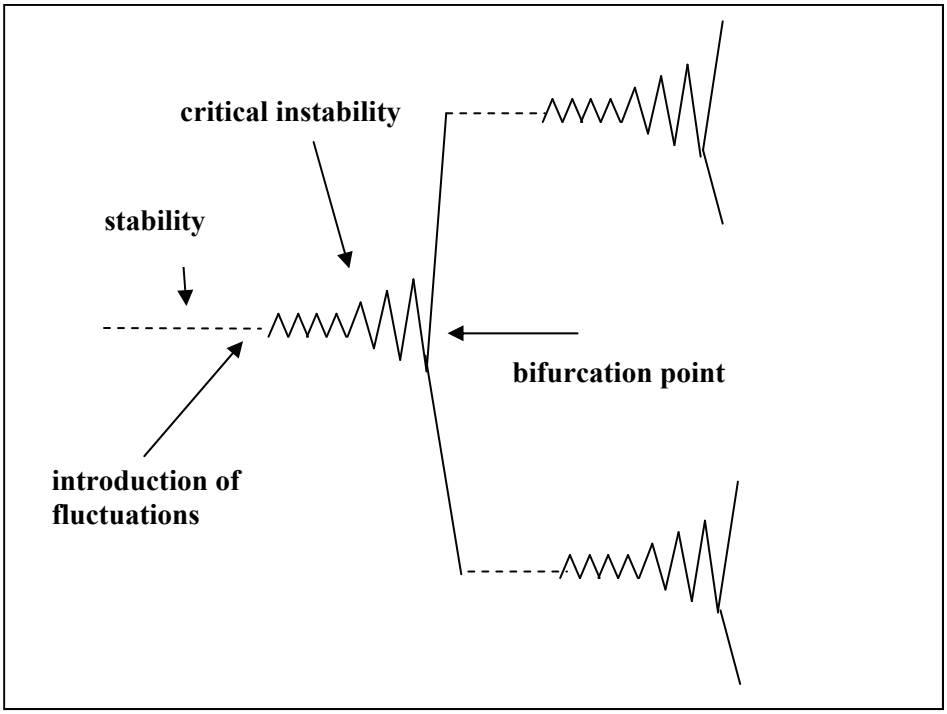
"Do we have a future? Will human life continue to be possible for people now, and will it be possible for those coming into the world?" So asked Dr. Ervin Laszlo, the founder and leader of the Club of Budapest, when he addressed the National Capital Region World Future Society (NatCapWFS) at our March dinner program.

CHAOS THEORY

Beginning with the observation that "the future" is now in the present, Dr. Laszlo reviewed chaos theory, the unifying theme behind his overall presentation. In chaos theory, events proceed nonlinearly, and not everything is predictable. The future of a system is determined not by its past or by its environment but rather by fluctuations. Furthermore, small perturbations or fluctuations can create discontinuous changes leading to alternative futures that differ radically. *[Editor's note: an often-cited example is the "butterfly effect."]*

Dr. Laszlo's illustrated chaos theory in a convincing way. Once the fluctuations reach a so-called bifurcation point (tipping point) is reached, everything (any alternative future) except the status quo is possible.

Continuing, Dr. Laszlo noted that if we live on the edge of sustainability, a small perturbation can have disastrous consequences. The bifurcation point represents a proverbial fork in the road, and the two trajectories of evolution lead to extreme alternatives – breakthrough and breakdown. Breakdown represents the wars and the breakdown of society that can result from increasing economic, political, and cultural polarization and the violence to which they lead. Conversely, in the view of Dr. Laszlo, peaceful and cooperative breakthroughs represent ecology movements and the spreading of peace, accompanied by the necessary institutional changes at national and global levels.



CHALLENGES

In addition to the increasing polarization of society along cultural and economic lines, Dr. Laszlo expects a scarcity of land and water by 2150. A sudden change in climate, perhaps global warming, can exacerbate the problem. He anticipates that even if the Kyoto treaty is signed and followed, the sea level will rise by 7 meters. This has implications for the Netherlands and for Venice, and even Hamburg will need to move further inland to survive.

Another possible outcome global warming is the shutdown of the Gulf Stream, which maintains the temperate climate in Western Europe. Without the Gulf Stream, Western Europe will undergo a new ice age.

Returning to polarization, Dr. Laszlo discussed the population explosion and noted that half of the world's population now lives on less than 5USD per day. The percent of the world population living in poverty is ever-increasing, and Asia now has more than 60% of the world's population. A concurrent increase is in the concentration of wealth.

Dr. Laszlo foresees that we are moving to a crisis (bifurcation) point. The "negative" branch of the bifurcation leads to epidemics, mass revolts, social unrest, increased terrorism, and ultimately to a complete social breakdown.

THE WAY OUT

The good news is that bifurcation also has a "positive"

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post-biological civilization?

This was one of our top presentations! Now I'd like to follow up on the role of intelligence and intelligent life as a prerequisite for a post-biological universe. Several types of intelligence have been identified, including linguistic intelligence, logical-mathematical intelligence, musical and artistic intelligence, spatial intelligence, and social intelligence. (Interestingly, IQ tests generally attempt to measure only some of these types of intelligence.) Another definition of intelligence is in terms of the ability of an individual – or a species – to adapt to its environment or to adapt its environment to it. In addition, there is the exciting possibility of new types of intelligence that we have not yet identified (or perhaps created)!

Continuing the thought – a member of the audience raised the question of whether a good chess-playing computer represents a type of intelligence. In ***Shadows of the Mind***, physicist Roger Penrose notes that such computers have the advantage in processing speed that lets them examine more possibilities or "branches" quickly (in terms of "depth of moves") than humans can. Conversely, he notes, humans have the advantage in judgment that eliminates the need to consider certain "branches." This suggests that perhaps judgment is a type of intelligence, irrespective of whether it is reducible to another type of intelligence such as logical intelligence. Judgment, in turn, is often based on one's experience and sometimes even on intuition. Is there a role for intuition in the evolution of an extraterrestrial civilization to post-biological status?

All considered, what types of intelligence should be modeled in the Drake equation or deemed as necessary (or even sufficient) conditions for a post-biological universe?

Dave Stein

Posts: 1 | Registered: Fri February 20 2004

Limor S.
posted Sat February 21 2004 04:36 AM

Dave, you bring up several interesting points:

How does one measure intelligence in order to determine what contains "intelligent life"? We might not consider microorganisms to be intelligent life b/c we believe that definition requires a certain level of awareness of behavior? [In fact – is this how we define intelligent life?] Assuming it is, what if the criteria of the ETs out there is different and they do not believe we on Earth are intelligent life? We need to consider, and I think Steve touched on this, that we may simply not be considered "intelligent enough"/evolved enough by ETs out there to be of interest.

And let me build on your second point: intelligence, some believe, also comes from what we carry in our body – genetic memory. If postbios are nonbio, where does that memory go? Does it disappear? Does it get transferred and housed simply in the cognitive memory?

What happens to the concept of the subconscious mind in postbios? Does it continue to exist? In another form?

When looking at the spiritual realm, what effect if any does that have on postbios? Does karma still play a role? Could one claim they have souls? Are there souls like ours or different? (Is there such a thing as different types of souls – but not to digress?)

I welcome comments!

Limor S.

Posts: 1 | Registered: Thu February 19 2004

Steve Dick
posted Sun February 22 2004 06:16 PM

Thanks for your thought provoking comments. I think SETI astronomers have not thought a great deal about the nature of intelligence, other than the operational definition that it requires technology that makes them radio communicative – that is, after all, why they are interested in the first place. But recently some people have begun to think about message construction, and how we might best communicate if we send a message. This does require more thought about the nature of intelligence, and whether a message should incorporate music, spiritual or other non-technical elements. Doug
Vakoch at the SETI Institute has done work on this, and references to his articles are probably found at the SETI Institute website.

Even this work, however, does not take into account the possibilities of the postbiological universe that I described. How might communication differ if we are talking to intelligent machines? I'm not sure, but if one believes in cultural evolution over millions of years, someone should think about this. We tend to have a "Terminator" view of machines, but it isn't necessarily so – it

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is possible they might have emotions and even spirituality, in which case they might be indistinguishable from biologicals, but, according to the intelligence principle I enunciated, much smarter.

The nature of intelligence is a fascinating subject about which many books have been written. Few of them, however, encompass the possible nature of ETs. I think both natural and social scientists can benefit from each other – the ETI debate is a great way to span the two cultures, and advance E. O. Wilson's concept of consilience.

Steve Dick

Dave Stein
posted Tue February 24 2004 05:01 PM

Another Question

I appreciate your insights on various types of intelligence in the search for extraterrestrial civilizations and especially your observation that ETI research may bring together the natural and social scientist cultures. Such synergies have been pivotal to many great discoveries.

Now, I have another question. Your presentation referred to radio frequency (RF) communication as a means of recognizing advanced civilizations elsewhere in the universe. This is in keeping with research by other scientists, who are also looking for RF signals to identify advanced extraterrestrial civilizations. I'm interested in knowing the basis for assigning RF signals such a privileged role. Granted, of the four fundamental forces recognized by contemporary physics, electromagnetism seems most adaptable to communication systems as we know them, but let us consider:

1. What have we not yet learned about some of the known forces, some of which behave differently at different scales of spacetime? Contemporary research indicates the existence of electromagnetic fields beyond those described by our everyday "Maxwell equations," which are actually the Oliver Heaviside equations. In fact, one of the leading researchers of these fields was recently nominated for the Nobel Prize. If these "higher gauge symmetry" fields are confirmed as I anticipate, might these or other fields or energies be the preferred basis for communication by post-biological beings?

2. What are we assuming about the physical scales of intelligent life elsewhere, and about the types and ranges of sensory organs, when we presuppose their use of RF signals that we can receive?

3. In assessing the environmental conditions conducive to life, as modeled in the Drake equation, what are we assuming about possible life forms themselves, even before we turn to the issue of RF emissions?

Dave Stein

(Continued from page 16)
branch, which is characterized by peaceful cooperative breakthroughs that lead to lifestyle and governance changes. The key to getting there is to create fluctuations that move our social system in a positive direction. Also essential is acting on the fundamental causes of the issues that we are facing. The alternative is to treat the symptoms. For example, conflict can be suppressed, but it eventually explodes.

In Europe, there is already increased awareness that moving in a wrong direction can have disastrous consequences. One sign of positive potential is the empowerment of civil society.

CHAOS THEORY AND EVOLUTION

Dr. Laszlo discussed the connection between chaos theory and system evolution. The "positive" branches of bifurcations lead to higher levels of organization in a system. They impact system evolution, where "system" can refer to a biological organism or even human society, in which further evolution is socio-cultural. Evolution of a system is characterized by an increase in the level of organization, the structural complexity, the specific entropy, and in the case of human civilization, the ecological footprint.

Several vantage points from which to characterize the evolution of human society were presented. Dr. Laszlo first noted that human society evolved from the hunter-gather age to the agrarian-pastoral age, followed in turn by the agricultural, pre-industrial, industrial, and post-industrial ages. Human evolution might also be characterized by a progression from the kinship system to the village system, followed by the empire system and now the nation-state system. New technology is one of the forcing functions that drive evolution.

In parallel, belief systems have evolved from mythos to theos ("as above, so below"), followed by logos (thinking and rationality).

TAKING IT TO THE NEXT LEVEL

We are now moving beyond the nation-state system. Dr.

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Laszlo foresees that the next level may be a a highly-interdependent planetary system with nobody in charge, as the Earth itself imposes limits on human evolution. At the same time, he does not foresee a continuation of the stable climate that has characterized much of the 20th century, and climatic changes may be a forcing function. Yet he doesn't see a collapse of human civilization as inevitable.

Dr. Laszlo compared extensive vs. intensive evolution. Extensive evolution, characterized by conquest and consumption, is zero sum. Often it entails killing and destroying. Intensive evolution, "vertical" where extensive evolution is "horizontal," is characterized more by connection and communication.

Indeed, the Club of Budapest is already discussing the new consciousness. Among other things, it entails the need to replace greed as a system, and therein lies the challenge. Religions and ethics teach us how, but their teachings are difficult to implement on a large scale. Nonetheless, a sizeable portion of society is waking up, realizing that everything that we do affects us and comes back to us. Accordingly, Dr. Laszlo suggested that mythos, theos, and logos should be followed perhaps by "holos."

QUESTIONS AND ANSWERS

Q. What is the relationship of between the Club of Budapest and the Club of Rome?

A. The Club of Budapest is active in the World Economic Forum, but this forum reflects certain interests. An alternative "World Spirit Forum," is proposed. The Club of Rome predates the Club of Budapest, but it has suffered from "Monday morning syndrome." In addition, it is limited to 100 members. The vision of the Club of Budapest cannot be implemented through the Club of Rome. While there is collaboration between the two groups now, the need for social reform requires a second organization such as the Club of Budapest. There is evidence supporting the idea that the civil movement for social reform will grow.

Q. You have not made the case that the potential problems associated with the negative bifurcations are not manageable. Can you provide additional detail?

A. We take a systemic view that does not regard poverty, health, climate, etc. as separate issues. Furthermore, "managing the problems" simply kicks the proverbial can down the road. The alternative to doing nothing now could be catastrophe.

ABOUT THE SPEAKER AND THE CLUB OF BUDAPEST

Dr. Ervin Laszlo is the world famous founder and head of the Club of Budapest, www.club-of-budapest.com. The club's logo – the chain bridge connecting the merged cities of Buda and Pest – symbolizes its mission of building bridges between generations and cultures. Each year the Club makes a Change the World – Best Practice Award for projects that foster sustainable development and a Planetary Consciousness Award honoring individuals who have been most effective in exhibiting and promoting the universally required new consciousness. This year it will start Planet Life University, an institution that will train people in planetary consciousness and best planetary practices.

Carl Zails is the Executive Director of the Club of Budapest in North America, which is based in the greater Washington DC area. In addition to the United States, it includes Mexico and Canada.

Dr. Laszlo's latest book, ***You Can Change the World: The Global Citizen's Handbook for Living on Planet Earth***, deals with the potential consequences of continuing to live in an environmentally unsustainable way and how we might avoid those consequences. Mikhail Gorbachev says in his foreword, "*Read this book. It helps us to understand the current situation of our planet and to find the path we must take. The relationship between man and nature has become more and more complex and strained; the air has become poisoned, the rivers polluted and the forests decimated. Society is beginning to show the symptoms of sickness.* ***You Can Change the World*** *helps us to determine what we must do and how we must do it to ensure our common well-being. The future that confronts us is an open future and all of us can do our bit to decide it."*

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cluster.

This bleak prediction will be somewhat mitigated by the excitement of technological advance in medicine, space exploration, transportation and home entertainment/automation. Who knows? The Red Sox might win the 2020 World Series!

[Editor's note: Jay Herson has shared his enlightening thoughts with us. Will you share yours?]

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mathematics, medicine, and astronomy when much of Europe was in the Dark Ages. Traditionally, these parts of the world have valued learning, and it is unlikely that their "MVP's" would have been athletes and the "movie stars" of their day.

6. There are still other countries in which people have generally been fatalistic about life – perhaps understandably so.

So, what values and lifestyles can we expect to see in 2025 – and who will be the "MVP's"?

Bonus question: How would our everyday lives be different today if another culture had become dominant?

[Editor's note: Have your views published and considered by your peers in the National Capital Region and in other WFS chapters worldwide. Send them to futuretakes@cs.com.]

from the February 2004 Think Tank topic, "Quality of Life in 2020":

Quality of Life in the U.S. in 2020
by Jay Herson

Describing quality of life in 2020 would take considerable analysis. For our purposes here it is sufficient to consider the following drivers / metrics:

1. Employment – Continuity of employment will be a more important driver than income. The metric for continuity would be the percent of workforce gainfully employed for at least 75% of available hours.

2. Health – measured by the percent of the population having access to adequate care.

3. Education – the percent of children by age group having access to quality education.

4. Family – the percent of children reared in a functional family cluster.

Despite current problems the 2004 workforce will have more employment continuity and predictability than that of 2020. Sixteen years from now people will work longer hours when they can work. More people will be working as independent contractors rather than employees compared to today. These contractors will be matched with employers through the internet as it exists at that time. Many of contractors will work from home or offices of their own. More software development, research and professional services projects will be performed by teams brought together for a specific purpose and without any permanent administrative hierarchy. Team members can be based in foreign countries thus supporting even greater global competition for technical employment than today.

Despite the movement to independent contractors a larger percent of the population will be covered by some form of health insurance allowing access to adequate care. This will come about by formation of insurance pools formed by governments, employers, professional organizations, religious groups, etc. Those people who cannot afford to join these pools will receive traditional and rationed care at public clinics and hospitals. Advances in medicine and disease prevention will at least allow for fewer clinic visits and shorter hospital stays than now although prevention programs will be more prevalent to those members of insurance pools.

In 2020 fewer children will be educated in public schools than in 2004. A system of vouchers will allow qualified children to attend private schools operated by religious groups, parent employers, universities, professional organizations, etc. Much of this education will be via internet with children participating from their own home, neighbor's home, churches, etc. The better private schools will require parent financial support to supplement the vouchers. Public schools as we know them will be attended by those children who do not achieve the qualifications to attend voucher-supported private schools. Public schools will be associated with an especially inferior education.

By 2020 the immediate family will be defined as a cluster of adults and children living together. The extended family will contain people living elsewhere but bonded together in some way. Not all members of the immediate or extended family will be relatives by blood or marriage. The success of this family cluster will depend on its ability to remain as an intact group for long periods of time. In 2020, 80% of middle and upper class children will live in functional family clusters compared to less than 50% for the lower class. Less than 40% of children overall will live in 1950's-style nuclear families.

In 2020 the quality of life of those educated, middle or upper class and residing in a functional family cluster will be as good as it is today but accelerating change will make even a five-year future less certain than it is today. More people will go through periods of breadwinner unemployment, family cluster change, etc. than today. The quality of life of those not well educated, lower social class will decline due to periods of unemployment, unsatisfactory health care, poor education and changing family

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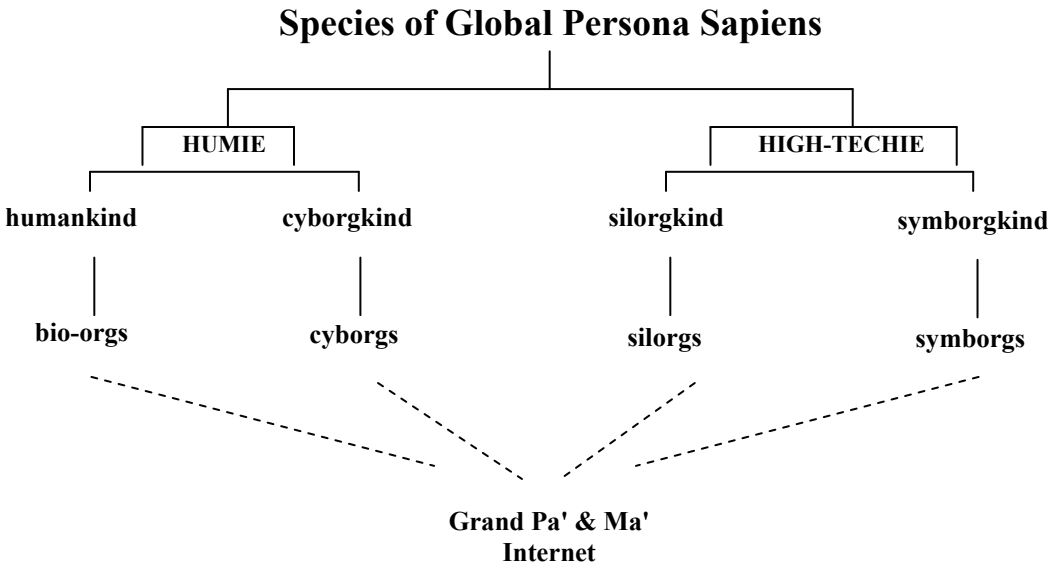
seem to monkeys, or even to ants. British writer H.G. Wells said it very well about a hundred years ago: "all that the human mind has ever accomplished is but the dream before the awakening."

ORGS, BORGS, AND "WHAT IS LIFE?"

If we believe that biological evolution has reached a limit, what will come next? Finnish engineer Pentti Malaska tried to answer this question in 1997 during a speech in Brisbane, Australia, while he was president of the World Futures Studies Federation (WFSF). He talked about human-made non-human generations in the pipeline of evolution. Malaska described two major kinds of species (carbon-based humies and silicon/information-based high techies, as a rough simplification) and four minor kinds of global persona sapiens, as can be seen below:



In such a posthuman world beings of other kinds, different from us (bio-orgs of Homo sapiens), may well be within the bounds of human invention. Malaska defined the other intelligent and conscious beings as:

- Bio-orgs or Homo sapiens – a protein-coded bio-organism in the earthly infrastructure as their "natural" surrounding.
- Cyborgs – a cybernetic organism – a combination of techniques and human biology mainly for the earthly infrastructure and the near space.
- Silorgs – a silicon organism – a humanlike non-human, fashioned by coding artificial DNA onto silicon compounds with ammonium as a solvent and aimed basically for outer space infrastructure.
- Symborgs – a symbolic organism – self-reflective, self-reproducing, self-conscious, "living programs" within the Internet as their "natural" infrastructure with advanced interface functions with the other species.

According to Malaska, Cyborgs of Cyborgkind, Silorgs of Silorgkind, and Symborgs of Symborgkind are "gestating, waiting to be brought to life." Finally, there is the Grand Pa'&Ma' Internet – a global mind with superior intelligence and wisdom. This Grand Pa'&Ma' Internet could be a Quantum Global Brain.

Australian economist Paul Wildman, also an active member of the WFSF and of the Millennium Project (of the American Council for the United Nations University), further talks about terrestrial and non terrestrial Forms Of Life (FOL). Wildman uses the concept "borg" in its historical and generic sense to identify a "Bionic" (i.e. human made) "ORGanism", and defines five such terrestrial FOL borgs:

- Orgoborgs – organic FOL, including "traditional" Humborgs (like Homo sapiens) and new and hybrid bioengineered Bioborgs.

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- GEborgs – Genetically Engineered FOL.
- Cyborgs – human/machine composite FOL.
- Symborgs – symbolical and symbological FOL, including Conscious/External (such as cultures and corporations) and Unconscious/Internal (such as myths and archetypes) FOL.
- Technoborgs – technological FOL, including Exoskeletalborgs (with an external insect like skeleton) and Siliborgs (silicon-based FOL).

According to Wildman, some of these new FOL already exist in a technical sense, since 12% of the current USA population could be considered incipient "cyborgs" that use electronic pacemakers, artificial joints, drug implant systems, implanted corneal lenses, artificial skin, etc. All the previous FOL are our creations and will be populating our world and remaking us genetically and mechanically and thereby changing our consciousness forever.

Wildman also briefly described other four non terrestrial FOL. They are Macrorgs (macrocosmic FOL), MVorgs (Micro Vita – microscopic FOL), ETorgs (Extra-Terrestrial FOL), and Psyorgs (psychic FOL). Obviously, these exotic FOL depend very much on what definition of life is being used; but several unknown or not yet created intelligent and conscious entities will definitely pass the test of being "alive," and will satisfy most criteria under several concepts of "life."

BORGS AND ROBOTS – OUR DESCENDANTS

Other authors have written about even more life forms in a possible posthuman future, from the very physical to the very ethereal, but a simple classification with carbon-based and silicon-based organisms is a good place to start. Such concise system allows to incorporate not just humans but also several types of robots, cyborgs and symborgs (including different logical entities, both physical and non physical).

The word "robot" was created in 1921 by the Czech playwright Karel Capek in his book ***RUR: Rossum's Universal Robots***. It was immortalized in 1950 by Russian-American scientist and writer Isaac Asimov in his book ***I, Robot*** where he created the Three Laws of Robotics:

- A robot may not injure a human being, or, through inaction, allow a human being to come to harm.
- A robot must obey orders given it by human beings except where such orders would conflict with the First Law.
- A robot must protect its own existence as long as such protection does not conflict with the First or Second Law.

Asimov eventually improved his system and extrapolated the Zeroth Law (A robot may not injure humanity or, through inaction, allow humanity to come to harm.) and modified the other Three Laws accordingly. On a separate front, US futurist Phil McNally and Pakistani futurist Sohail Inayatullah wrote "The Rights of Robots" in 1987, and US feminist Donna Haraway published "A Cyborg Manifesto" in 1991. Both are important documents that defend robots and cyborgs on their own right.

US robotics expert Hans Moravec wrote two books about robots and our/their future: ***Mind Children*** in 1988 and ***Robot*** in 1999. Moravec argues that robots will be our rightful descendants and he explains several ways to "upload" a mind into a robot. Similarly, US professor Marvin Minsky, one of the fathers of artificial intelligence at MIT, wrote his very famous 1994 article "Will robots inherit the Earth?" in ***Scientific American***, where he concludes: "Yes, but they will be our children." In the meantime, UK cybernetics professor Kevin Warwick has been implanting his own body with several microchip devices and published in 2002 a book titled ***I, Cyborg*** explaining his experiments. Warwick is a cybernetics pioneer who claims that "I was born human. But this was an accident of fate – a condition merely of time and place. I believe it's something we have the power to change… The future is out there; I am eager to see what it holds. I want to do something with my life: I want to be a cyborg."

BIOLOGY – TENDENCY OR DESTINY?

The human body is a good beginning, but we can certainly improve it, upgrade it, and transcend it. Biological evolution might be ending, but technological evolution is only accelerating now. Technology, which started

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NATIONAL CAPITAL REGION

WORLD FUTURE SOCIETY

Book Discussion of
The Next Big Thing is Really Small
by
Jack Uldrich and Deb Newberry

Where: Politics and Prose, Lower Level, 5015 Connecticut Ave, NW, Washington, DC

When: Wednesday, July 7, 2004, 7:30 pm

Cost: Free. Please contact Ken Harris at 301-657-3731 or harriskw@erols.com to let him know you are coming or to ask further information or sign up on line at www.natcapwfs.org. Space is limited. Limited parking is available at the rear of the building and on-street parking is available nearby.

Discount purchase opportunity: Just mention you are with The Futurist Book Discussion group and you can buy ***The Next Big Thing is Really Small*** at Politics and Prose for $16.03.

Get there by public transport: Take the Metro Red Line to Van Ness and transfer to the L-2 bus going to Chevy Chase Circle and get off at the corner of Connecticut Ave. and Everett St. NW.

Our chapter and the well-known independent bookstore Politics and Prose have joined forces to inaugurate The Futurist Book Discussion group. We will have wide-ranging discussions on mostly non-fiction books that shed light on our future – often related to the topics of our dinner meeting speakers. Our May dinner meeting speaker Dick Smith has suggested our first selection, ***The Next Big Thing is Really Small****, as a very readable, non-technical, and yet authoritative, look at coming nanotechnology developments. This quote highlights the book's importance,*

> ***"The buzz surrounding nanotech is comparable to that at the dawn of the digital revolution, which changed the face of how business operates. Unlike the Internet, however, which applied new technology to many old processes and businesses, nanotech is about creating entirely new materials, products and systems (and therefore markets) as well as making existing products, faster, stronger and better."***

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General Accounting Office and the US General Services agency and held policy research positions at the National Academy of Sciences and the John F. Kennedy School of Government at Harvard University.

Following a term on the Board of the Massachusetts Institute of Technology Enterprise Forum, I served in marketing and operations capacities with a number of high tech firms in areas such as financial transactions, electric power management and environmental quality. In addition, I served as a regulatory advisor to a wide range of industries and trade associations, ranging from city planning to small business affairs to transportation and continue to

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showing some dominance over biological processes for the first time some 100.000 years ago, is finally overtaking biology as the science of life. In fact, US fuzzy logic theorist Bart Kosko has said: "biology is not destiny. It was never more than tendency. It was just nature's first quick and dirty way to compute with meat. Chips are destiny." And photo-qubits might come soon after standard silicon-based chips, but even they are only an intermediate means for eternal intelligent life in the universe.

In the way to becoming permanent rational "demiurgi" of space and time, it is vital to be aware that even more important than to create is not to destroy. As US author David Zindell has written:

"What is a human being, then?"
"A seed."
"A seed?"
"An acorn that is unafraid to destroy itself in growing into a tree."

José Luis Cordeiro (www.Cordeiro.org)
Sociedad Mundial del Futuro Venezuela
(www.FuturoVenezuela.org)
Asociación Transhumanista Venezolana
(www.TransHumanismO.org)
Club de Roma, Capítulo Venezolano
(www.ucab.edu.ve/CdeR)

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speak on new converging technologies including nanotech, biotech and the world. This would include encouraging chapters outside the US to participate in the WFS annual meeting but to hold local events as well (such as Mexico did recently).

I believe that this wide range of experience has prepared me to manage new directions for an organization as broad-based as WFS. I look forward to working with all of you and with new strategic partners to grow the Society and expand its range of offerings to the entire WFS membership.

Timothy Mack, President WFS

National Capital Region World Future Society
Membership Application and Renewal Form

As a member of the National Capital Region World Future Society (NatCapWFS), you will receive ***Future Takes*** (the chapter newsletter), announcements of all chapter activities, and discounts at chapter-sponsored events. If you would like to join us, please print out this form, complete it, and mail it to:

Ken Harris
Treasurer
National Capital Region World Future Society
5416 Newington Rd.
Bethesda, MD 20816

This will confirm your membership for the year, list you in the chapter's online directory for networking, and qualify you for member pricing.

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Your Name _____

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Interest in helping the chapter? ____ In which areas? _____

Enclosed is my check, payable to the "National Capital Region World Future Society" for annual dues, **or**

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