

# FUTURE *takes*

*Your international platform for future related issues*

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## Wanted - Futures Travel Now!

Arthur B. Shostak, Ph.D.  
Emeritus Professor of Sociology,  
Department of Culture and  
Communication,  
Drexel University, Phila., PA

*"This time, like all times, is a very good one if we but know what to do with it."* Ralph Waldo Emerson

Unless and until we can travel primarily as futurists our lives will continue to lack a valuable option.

Thanks to the creative travel industry we can now choose among Adventure Trips, Archeological Digs, Cross-Cultural Encounters, Egg Head Cruises, Elderhostel Tours, affordable

tours (hostels, etc.), Grand Tours (5-star hotels, etc.), Mystery Tours, and so on. But, we still do not have tours explicitly designed for

you and me as earnest futurists, an oversight an entrepreneurial reader of this essay cannot help remedy soon enough.

Over the course of my life, I have deliberately explored a fair sample of  
*See Futures Travel, continued on page 8*



Arthur Shostak

*"Salami speech," finally in Philadelphia!*

## FROM: Unknown Alternative Future Worlds TO: Prudent Defense Technology Investments

How does one optimize defense technology investment decisions that must be made now, when the resulting technologies may be long obsolete by the time they are fielded because of counter-technologies, counter-doctrine, and radical changes in the geostrategic environment? Indeed, given the long lead times, how does one develop the decisive military force to defeat any of several threats that may emerge 15-25 years from now, when one does not know what the threats will be? These challenges were explored in the October 2005 colloquium of the **Center for Frontier Sciences** in Philadelphia, presented by Dave Stein, Lt Col, USAFR (Ret). [Full disclo-

sure: Dave Stein also serves as Editor-in-Chief of **FUTUREtakes**.] An invitation to the colloquium was extended to the WFS Philadelphia chapter.

### "BRAVE NEW WORLD"

Beginning with a discussion of the "brave new world" and its implications for defense planning, Stein explained why incremental thinking and planning, based on extrapolation from the present, is not enough in today's defense planning environment – a point evidenced all too well by the tragic events of 9/11, a fateful day that demonstrated that "out-of-the-box" operational planning and execution can

*See Salami Speech, continued on page 13*

## from the CHAPTER PRESIDENT

*Dear members and friends of the World Future Society, U.S. National Capital Chapter and all readers worldwide,*

Greetings, my name is Russell Wooten and I am an amateur futurist.

I have succeeded Limor Schafman as the chapter's new president. Fortunately for our chapter and for me in particular, Limor remains diligently involved in our chapter as our first Immediate Past President. I will not make any statement about filling Limor's shoes. Occasionally she wears high heels.

I wish to thank Limor for all her fine efforts over the last year and a half as our President. During this time, we revitalized our website <http://www.natcapwfs.org/>, elevated our **FUTUREtakes** publication into an internationally recognized publication with an International Standard Serial Number (ISSN) and contributors from around the globe, established a commonality with other professional organizations, and were featured on INTERNATIONAL INVESTOR, [www.international-investors.com](http://www.international-investors.com). The Chapter now has an active Futurist Book Group that meets the first Wednesday of every month at Politics and Prose, our monthly dinner program is better than ever, and we have added workshop and lunch programs at the Woodrow Wilson International Center for Scholars. In addition, our membership process is now more efficient and friendlier.

At this time I would like to introduce our newest board member and two new group leads. Adam Brandon has joined our Board of Directors as our Secretary. I am glad that Adam has found the time and commitment to become involved and look forward to his assistance and added value to our chapter's organizational efforts.

Lisa Roney and Carolyn Shettle are our new Futurist Book Group co-leads. Thank you both Lisa and Carolyn; I have read the reviews and you are both doing an excellent job.

I believe I became a futurist the day after my first son was born. While I was planning my future before this very special day, I now started thinking about the future and taking responsibility not just for my actions and involvement but for others. Today, I am again reinvigorated as a futurist by the recent birth of my first grandson.

Professionally, I have worked on long term planning and strategic development as well as operational and tactical issues. My day job is with the U.S. Department of Homeland Security as a Senior Program Manager and IT Science & Technology Advisor. I worked in the private sector in engineering and management before moving from Ohio to fight terrorisms. A few months after moving to Northern Virginia, I found the time to attend one of our evening programs. I haven't missed many since and was also a panelist at one meeting with Joe Coates and Dr. Bill Rowley.

I hope you utilize **FUTUREtakes** and our website as your primary communication media for keeping up with chapter activity and events. I also hope you find the time and are duly rewarded when you attend our excellent events and programs.

The future is important to us all. I hope our organization helps you plan and prepare for the future, both the big global events and your own personal futures. Futurists are planners and explorers of options and scenarios through thought, analysis, and strategy. Because we are futurists, we pay attention and ask questions. And what better way to do this than by attending our evening programs, lunch pro-



Russell Wooten

grams, workshops and book clubs!

The World Future Society stands firm as a group that promotes the rigorous non-partisan study of future trends. The society started in the 1960s, when it was obvious that technological and social trends were changing our world at an ever increasing pace. This is also the time when technology started to gain ground to assist us in understanding and dealing with our futures.

Futurist activities are necessary in good times and in bad. Today acknowledging and dealing with the future is more important than ever. Our chapter hopes to be of value to you in this regard. This chapter serves as a forum for future thinking in Washington. We inspire a sense of foresight in those who make long-standing policies decisions locally and globally. It is our mission to bring you a wide range of perspectives which will enable you to intensify your understanding of the world and its happenings with a vision that may be just that much clearer, and which will help you make decisions with which you can feel comfortable as you enter the future.

I wish you the very best today and into Our Future

**Russell Wooten**  
Chapter President



# FUTUREtakes

**FUTUREtakes** is a publication of the World Future Society US National Capital Chapter, based in Washington DC, USA. In addition to the local chapter, **FUTUREtakes** serves other interested professional societies in the greater Washington DC metropolitan area as well as other chapters of the World Future Society worldwide.

**FUTUREtakes** welcomes contributed articles that serve one or more of the following objectives:

- Contribute to a reasoned awareness of the future and the importance of its study,
- Advance serious and responsible investigation of the future,
- Promote the development of methods for the study of the future,
- Increase public understanding of future-oriented studies,
- Facilitate communication and cooperation among organizations and individuals in studying or planning for the future.

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

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

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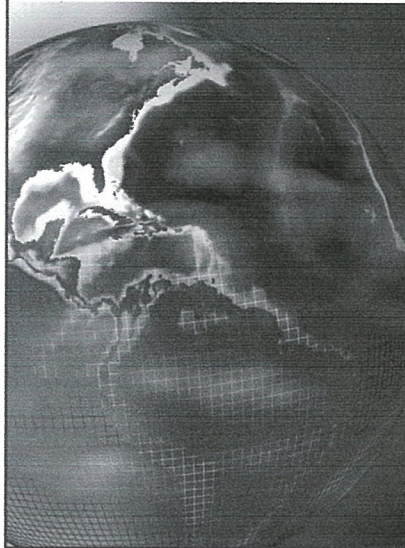
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## Give Us Your Perspective on the Future



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



# From the International Office of the WFS

Tim Mack

International President, WFS

One of my commitments upon taking office as WFS President 18 months ago was to put more focus on the 'World' in World Future Society. Over the past three months, this has certainly been the case. The planning for the Toronto conference in July 2006 has proven to be a very international process, and we are getting more overseas registration and session proposals than we have seen in quite awhile. As well, the interaction between WFS chapters and the international office has substantially increased of late, including a series of visits we were able to make to Asia, Central and South America this fall.

Tamkang University was the host of an a conference in early November on "Global Mind, Global Soul" which saw scholars (including a substantial number of WFS members) from the Pacific Rim and beyond addressing the technological, cultural, political and economic changes that have resulted from the accelerating globalism that is transforming all of our lives. Following that conference, quick visits with futurists in New Zealand and Argentina were followed by a series of trend discussions with a number of international trade associations in Montevideo, Uruguay. This was part of a range of presentations and seminars that WFS has been able to initiate with business and issue groups concerning coming challenges and opportunities. The result has been a greater understanding about the practical utility of foresight tools and studies in a variety of settings.

One of the critical lessons from these discussions is how important a factor that geography is in shaping the

futures agenda. This does not mean that Tom Friedman is wrong when he says that "The World Is Flat," but that local cultural issues have not yet melded into one uniform global mindset. This was especially the case during my visits to the WFS chapters in Brazil, such as in Sao Paulo, which is the commercial and financial capital of the country. Instead of wanting to hear about new technology trends for

*Our greatest payoff has been the growing level of member involvement in the programs and direction of WFS, resulting in a richer range of programs and a much more interactive organization.*

their own sake, the Brazilians focused on the "human" side of technology transformation, including how it was affecting the 'social gap' between rich and poor, the growth of democratic institutions and the quality of life for the average citizen.

At a number of universities and in the national government, the impact of technology and science policy is a matter of constant discussion and high priority.

This is especially the case in economic arenas where Brazil has been a world leader, such as the development of open source software and the production of fuels from biosources such as sugar cane. Brazilian innovation in distance learning and futures from the elementary school level all the way up were very impressive, as were advances in more complex scientific areas. A uniquely Brazilian aspect of their approach is the energetic manner in which they weave the technical, policy and social elements of change management into a coherent whole.

Finally, WFS was able to meet in October with the legislature of Mexico to work together in addressing a trend and policy agenda for the future of that country, involving government, private sector and academia. They were very interested in reviewing the experience of other countries in both hemispheres and the Society is in the

process of linking them up with a number of members who have relevant backgrounds.

Another international initiative that may be of interest is in the area of education. In addition to a survey of all the foresight courses being taught around the world, WFS is also developing a range of teaching tools, both for secondary schools, colleges, and mid-career training. Ed Cornish's book, *Futuring: The Exploration of the Future*, is now being used in 30 colleges and universities and the Society is involved in developing a workbook and CD to accompany that volume. Another endeavor is the upcoming launch of an electronic education newsletter early next year, to highlight new projects and papers from both individual members and organizations. The first step in this process is to pull together material for the initial issue, and I would be very happy to hear from any potential contributors to this new publication.

Accordingly, please get back to me at [tmack@wfs.org](mailto:tmack@wfs.org) or 301-656-8274 concerning your interest in contributing stories, offering editing assistance or any questions about the publication that you might have. Of course, we will be looking both at futures education and the future of education. Ideas about stories or information on innovation education programs that you are aware of would also be very useful, as would be suggestions concerning who else in the education field we should be asking for additional articles and ideas.

All in all, it has been a very productive year for the Society and our move into a range of new areas has been paying off handsomely. Our greatest payoff has been the growing level of member involvement in the programs and direction of WFS, resulting in a richer range of programs and a much more interactive organization. I applaud those who have contributed their ideas and time to date and encourage every member with a commitment to a better Society to join with me in making that a reality.



*Living Happily Ever After?***The Future of Social Security**

*Synopsis of the April 2005 dinner program presented by Dean Baker; summarized by Darlow Botha*

Social Security is one of the country's most important and successful social programs. It provides a large measure of economic security to the whole country, uniting the interests of the poor and the middle class. In addition, Social Security not only keeps tens of millions of retirees out of poverty but also provides disability and survivors' insurance to almost the entire working population.

But recent projections from some politicians and policymakers suggest that Social Security is in dire straits. Are they right? No, says Dr. Dean Baker, as he discussed the future of Social Security at the April 2005 dinner program of the US National Capital Chapter, where he provided details of the program history, management, and rationale through the years beginning in 1937. Asserts Baker, independent forecasts by the program trustees and the Congressional Budget Office (CBO) confirm that any shortfalls in individual year accounting are modest and can be accommodated as readily as adjustments made in the past. Furthermore, he continues, many of the factors used as scare tactics (such as baby boomers) have been considered in the accounting projections for decades, suggesting that the program will continue to be safe and solvent for ourselves, our children, and our grandchildren. A potentially greater problem is Medicare.

**CAUSES FOR CONCERN – THEN AND NOW**

Several factors have been cited as imperiling the financial health of Social Security, chief among which are the baby-boomer demographics. The number of workers supporting each retiree, at 45 in 1950, has been steadily decreasing since. Over the next 50 to 75 years, that number is

projected to level off at slightly above a 2:1 ratio, according to current estimates. But from a historical standpoint, noted Baker, there have already been shortfalls in 1977 and again in 1983. Forty years ago, the projections would have looked even worse, even though increased longevity now increases the pressure on the budget. Thus, there would have been more cause for concern at any point between 1937 and 1980 than there is today.

However, as befitting the fiduciary nature of the program, the trustees' assumptions have been conservative, and they have already incorporated these factors and the necessary adjustments. Independently, the CBO has arrived at very similar conclusions about the soundness of the program. Baker also stated that between 1977 and 1983, significant changes were made to accommodate changing demographics. The Social Security tax rate (employer and employee) was raised from 6% to 10.6%, well in excess of current benefit payments, with the surplus applied to building the trust fund.

**PRESENT STATUS**

The value of the Social Security Trust (SST), which is invested in US government bonds, is presently \$1.7 trillion. The value peaks in 2015 at 500% of benefits payments projected for that year and is projected as completely drawn down in approximately 2043 (or 2052, according to the CBO), but with all scheduled payments paid up to that point. Beginning in 2018, interest on the bonds will be needed to pay the benefits, but selling the bonds themselves will not be necessary. Even if no changes are made, benefits that are presently scheduled can be paid through 2043, and the program will always pay a higher benefit than what present retirees receive, even after inflation adjustment. Reminded Baker, the benefits when this happens will be larger in comparable dollars than they are now because benefits are indexed to average income, and the ratio

between average and median income is projected to continue increasing. Furthermore, notes Baker, if the future gross domestic product (GDP) growth is closer to historical levels, the shortfall will be even less than what the trustees project.

Dr. Baker presented additional facts of interest. In addition to being adjusted for inflation, SST projections account for the demographic changes including lifespan increases and changing workforce patterns. Real hourly compensation after Social Security taxes, referenced to 100 in 2000, will rise to 280 in 2080. This will decrease by 10 in 2043 when the trust fund is finally depleted. Also, if payroll taxes are increased as needed to continue paying full social security benefits, then in 2043, there will be a one-year decrease in hourly compensation – just a blip – according to the trustees' figures. The trustees' have identified the needed payroll tax increases as 1.3% per year, while the CBO has pegged the needed increase at 1.5%.

**SO WHY THE CONCERN?**

Returning to the dire predictions of various policymakers and politicians, Baker discussed why he regards these predictions as baseless. For example, he emphasized that expressing the shortfall in terms of trillions of dollars is misleading. A better measure, he proposes, is as a percentage of GDP, since nobody knows what a million dollars will mean decades from now. Returning to the demographic factors, Baker noted that the trustees' calculations factor in not only the aging baby-boomers but also immigration, the projected shortfall of labor – and the fact that in 2000, for example, there was an increase in employment among workers 55 and older but a decrease among workers below age 55. He further noted that according to most economists, productivity is increasing.

More sobering was Baker's statement that if the US health care system is not fixed, then the US will face an economic crisis, even if Medicare is discontinued immediately. Observed Baker, while the Social Security short-

*See Social Security, continued on page 6*



## Social Security

continued from page 5

fall as a percent of GDP is 0.73%, the projected shortfall for Medicare is 2.0% of GDP.

### PRIVATIZATION

Observed Baker, the administrative costs of Social Security as a percent of the annual benefits are 50 cents per \$100. This is 0.6% of the Social Security budget (that is, the retirement, disability, and survivors' portions). In contrast, decentralized privatized systems in other countries have administrative costs that are 15% of the budgets of their Social Security equivalent systems, whereas for centralized privatized systems, the percent is 5% (a factor of 10 above the present US system).

Continued Baker, the reinvestment that a privatized system would involve depends on how stock returns are allocated between dividends and capital gains. Furthermore, the high price-to-earnings ratios (PEs) of recent years point to a slow growth rate, rendering it impossible for stocks to provide their historic rates of return.

### CONCLUSION

Baker concluded that Social Security is a fundamentally sound program that is effective in fulfilling its mission, to provide a core retirement income. In Baker's view, the program must be protected. In addition, he stated the need for policy emphasis on a healthy environment and on global warming.

### QUESTIONS, ANSWERS, AND COMMENTS (as best captured):

**C:** The recent rash of pension plan defaults is expected to result in more workers continuing on past previously planned retirement dates.

**A:** This is true. For this reason, Social Security is now more important to a larger number of people. Another reason for older workers returning to the workforce is to obtain healthcare coverage.

**C:** Business and the administration

want to privatize Social Security to provide investment vehicles.

**A:** If economic growth slows, then it is difficult for the administration to sell the program – to tell people that the stock market will do well.

**A** (to a comment on the deficit): There are two sets of books. According to the “on-budget” figures, that deficit is \$600 billion. The “unified budget” shows a deficit of \$420 billion. The unified budget has its place, but if one asks how much the government has to repay, the answer is \$600 billion.

**Q:** How valid are the projections for the solvency of Social Security in the far term – given the possibility of “wild cards” such as war, environmental disaster, resource exhaustion, or a precipitous decline in the value of the dollar? Expanding on the latter point, a massive sell-off of US securities can impact the US economy substantially – and with it, Social Security. Presently, other nations including China are buying US securities, but how sustainable is this – considering that on one hand, US securities may become less desirable to China at some point, while on the other hand, a massive sell-off will hurt China too by reducing the value of the US securities that they do have (in a manner analogous to a majority stockholder dumping his stock)?

**A:** Forecasting 75 years out or out to infinity really doesn't make sense, but a 10-20 year forecast is reasonable. We will be seeing a very different world in 2080. Presently, the rest of the world is letting the US be the biggest consumers, but this is not sustainable for 50 years. Furthermore, other countries buy our securities to help their export markets. That is, they are paying us to buy their goods. However, they can grow their economies in other ways. Therefore, the question becomes, how long will they pay us to buy their goods? Because of the strong dollar, we buy a lot of Chinese goods. The Chinese buy few American goods, since to them, American goods are more expensive. A modest increase in their standard of living may result in their buying fewer American goods, which will then need to be bought more and more by Americans to sustain

the American economy. India is also developing, but it is a democracy, and as a result, its economy may not be as export-oriented.

*Dr. Dean Baker is Co-Director of the Center for Economic and Policy Research in Washington, DC ([www.cepr.net](http://www.cepr.net)). He previously worked as a senior economist at the Economic Policy Institute and was an assistant professor at Bucknell University. His prolific list of publications includes books and articles about Social Security, Medicare, the stock market bubble, pharmaceutical policy, globalization, the deficit, and the consumer price index. In addition, Dr. Baker reports on economics in major media outlets including the *Atlantic Monthly*, the *Washington Post*, the *London Financial Times*, and National Public Radio.*

*[Points for consideration: During the discussion, it was pointed out that more workers can be expected to continue working past previously planned retirement dates because of pension plan defaults and the need to maintain healthcare coverage. To what extent are under-funded pension plans the result of increased longevity vs. other factors? Also, how will next-generation healthcare impact healthcare costs (apart from extending longevity and thereby increasing demand)? How will Social Security and other retirement and insurance plans be impacted by anticipated changes in work-education-retirement patterns? Finally, what developments might alter the symbiotic relationship between the US economy and that of China, and how will that change impact working and retirement patterns in both countries? Send your thoughts to [futuretakes@cs.com](mailto:futuretakes@cs.com).]*

### FURTHER READING:

<http://www.cepr.net/pages/dbbio.htm>

**Professor Dean Baker, bio**

[http://www.rationalrevolution.net/articles/truth\\_about\\_social\\_security.htm](http://www.rationalrevolution.net/articles/truth_about_social_security.htm)  
**History and data on Social Security**

<http://www.ssa.gov/OACT/ProgData/taxRates.html>

**Government data**



# A \$40 TRILLION LEGACY?

This article first appeared in *The Actuary*, vol. 2, no. 4 (August/September 2005) and is reprinted with permission from the Society of Actuaries.

By Haeworth Robertson

A popular bumper sticker reads: **We are spending our children's inheritance.** But that's not all we're doing. We're passing along trillions of dollars in obligations to pay for Social Security and Medicare benefits that we expect to receive but not pay for.

According to the 2005 Trustees Reports, the unfunded obligation as of January 1, 2005 for current participants in the Social Security program was \$13.7 trillion. This is the value today of all future benefits that will be paid to current participants, for which no funds have been accumulated and with respect to which no future taxes have been scheduled to be collected from current participants. In other words, this is the amount, together with future interest thereon, and scheduled future taxes payable by current participants, that would be just sufficient to pay all future benefits that have been promised to current participants. The unfunded obligation as of January 1, 2005 for current participants in Medicare-Part A (the HI program) is \$9.6 trillion.

The grand total unfunded obligation for Social Security and Medicare-Part A is thus \$23.3 trillion. The intention is to finance this \$23.3 trillion unfunded obligation as follows:

(1) The Social Security trust funds contain \$1.7 trillion of Treasury securities, and the Medicare trust funds contain \$0.3 trillion of Treasury securities; therefore, such securities represent the authorization to collect \$2.0 trillion in future general revenue taxes from all taxpayers (both current and future participants in the systems).

(2) Future participants will pay Social Security and Medicare payroll taxes as soon as they enter the systems, but will not collect significant benefits until many years in the future; therefore, most of their payroll taxes (with a present value of approximately \$8.7 trillion) will be available to finance benefit obligations for current participants—creating, of course, a *new*

unfunded obligation for these future participants. (The future payroll taxes payable by current participants have already been taken into account in calculating the \$23.3 trillion unfunded obligation.)

(3) Even after the funds in items (1) and (2) are provided, obligations with a present value of approximately \$12.6 trillion will still be unmet. The method of eliminating this remaining long-range deficit has not yet been determined; however, as stated in the Trustees Report, "This can be achieved by raising additional revenue or reducing benefits (or some combination) for current and future participants . . ."

In addition to the \$23.3 trillion unfunded obligation of the Social

Security and Medicare-Part A systems, there are significant obligations for Medicare-Part B (the SMI program), and Medicare-Part D (the prescription drug and related benefits program). Technically, these are not considered *unfunded* obligations since the law states that the government (i.e., future taxpayers) will provide general revenue in whatever amounts are necessary to pay all benefits—a rather audacious commitment, of which most taxpayers are not aware.

For example, under Medicare-Part B, the present value of future benefits for current participants as of January 1, 2005, is \$13.2 trillion. The present value of beneficiary premiums payable by current participants is \$3.3 trillion. This leaves \$9.9 trillion to be financed by general revenue.

Under Medicare-Part D, the present value of future benefits for current participants as of January 1, 2005, is \$8.8 trillion. The present value of beneficiary premiums payable by current

participants is \$1.1 trillion; and the present value of transfers from State governments is \$0.9 trillion. This leaves \$6.8 trillion to be financed by general revenue.

Thus, under Medicare-Parts B and D, the present value of future general revenue required to finance benefits for current participants is \$16.7 trillion. If this amount of general revenue is actually collected, some of it will be paid by current participants (taxpayers) and some of it will be paid by future participants (taxpayers). On the other hand, if the Federal government continues to operate at a deficit, this \$16.7 trillion will probably be financed by borrowing—and the obligation thus passed on to future generations. If so, this \$16.7 trillion, when added to the \$23.3 trillion obligation for Social Security and Medicare-Part A, will yield a total of \$40 trillion, which will be passed on to future generations to



**We are spending our children's inheritance.**

worry about.

A \$40 trillion obligation is difficult to comprehend, so here are some figures to help place it in perspective. As of January 1, 2005, the acknowledged National Debt was approximately \$7.6 trillion. The Gross Domestic Product, the value of all goods and services produced in the U.S. in one year, is estimated at \$12.4 trillion for 2005. One way to think about it is that it will require more than three years of national effort just to satisfy our obligations to the current participants in Social Security and Medicare. Another way is to note that this \$40 trillion debt amounts to \$135,600 for every person in the U.S. resident population of 295 million on January 1, 2005.

Analysts sometimes express concern about the size of the acknowledged National Debt of \$7.6 trillion. The \$40 trillion debt (only \$2.0 trillion of which is included in the \$7.6 trillion

See *Legacy*, continued on page 9



## Futures Travel

*continued from page 1*

sites that may foreshadow the future: In the early 1970s, for example, I toured the British Garden Cities and New Towns, then the cutting-edge of planned community social engineering – warts and all. I have also studied social experiments in Brazil (the Rio favelas). In Canada (Safdie's Toronto Habitat). In Cuba (rural modernization). In England (squatter housing). In Holland (legalized prostitution and drug use). In Israel (the kibbutzim). In Italy (regional economic cooperation). In Norway (cold weather accommodations). In Spain (Gaudi's architecture). And in Norway and Sweden (labor union empowerment).

Back home, as a government consultant in the late 1970s, I assessed future-shaping innovations developers were required to introduce into America's federally-aided Planned Communities. In the 1980s I stayed at and studied trendy new urban communes, exotic Ashrams for Americans, and colorful Hippie homesteads. In the mid-1980s I visited Paulo Solari's Archology, an extraordinary futuristic building site still under construction outside of Phoenix. Across the years I have also visited various NASA bases in California and Florida, toured underground and solar-aided homes, and explored both the Disney Centennial town and the company's plans for its (never built) EPCOT city.

Naturally, all of this has whetted my appetite to explore still other seedbeds for a possibly finer tomorrow. If we had a futures-oriented travel agency eager to help learners like ourselves I would expect it to offer guided trips to every place I mention above, foreign and domestic, and many other such other desirable locations.

Typical of the remarkable sites we futurists might visit are two close to one another in Austria that highlight both preferable and also preventable futures. A half-day visit to each can add immeasurably to our imaginings of both a desirable and/or a horrific tomorrow.

In the self-named "City of the

Future," Linz, Austria, we can learn much about advances in information technology highlighted on five floors of the Ars Electronic Center in a world-class Museum of the Future. Invaluable for hands-on exhibits that enable one to operate IT gadgets and gizmos, the 25-year old Museum of the Future offers experiences similar to those otherwise only known by cutting-edge innovators in Silicon Valley. Many personable young uniformed guides (all of whom speak English) hover about eager to help the novice quickly gain skill at using this or that novel IT applications. The scene of an annual world-wide Conference of Digital Art advances, the Museum is a unique and empowering site for any of us who would try to stay abreast of IT advances.

Just a few miles away, we can spend several hours learning from unsparing exhibits explaining why Mauthausen was the most feared of the many concentration camps operated by the Nazis (from 1938 through 1945 over 105,000 of 195,000 inmates were murdered through slave labor in the quarries or the gas chamber). No visitor will ever forget the monstrous machine-like character of this hellish place, nor the 17 massive and very moving monuments placed around the camp by grieving nations.

Paradoxically, a visit to Mauthausen might seem the very opposite of what futurists would do, but that would be a grievous mistake. Futurists are not starry-eyed types; they want to be as realistic as possible about human nature, affairs, and events – warts and all. Much of the value in a visit to a Concentration Camp is in seeing the thoughtful somber ways of many hundreds of adult visitors – of every type – carefully reading and pondering the multi-lingual educational material. As well,

many hundreds of teenagers (some American, most Europeans) are brought daily by their teachers ... the better to deepen their grasp of human possibilities and perils.

Turning away from Europe I would expect futurists to welcome trips to intentional communities in almost every country. I would want to

visit the floating city in Tokyo Bay, the Science Center in Osaka, and the Hiroshima Monument. The Tidal Power Station in Newfoundland. Thermal power plants in Iceland. The Opera House in Sydney. Earthquake-defiant massive skyscrapers in Malaysia. The R&D Incubator at Haifa

University. And the Yangtze River Dam System in China. Even as partial as is this overseas list it sets me to wanting to check my passport and rush to pack.

Coming closer to home, I would hope a pro-Futures Travel Agency would arrange guided tours of the Media Lab at MIT, arguably one of the most future-shaping sites anywhere. Also, the new Science Fiction Museum and Hall of Fame in Seattle ("Other museums show you history; only one takes you into the future."). And the two old neighborhoods in Philadelphia where the City in 2005 pioneered in providing WiFi to low-income households.

We could also be offered guided visits to the Rand Corporation headquarters, the Abt Associates headquarters, and the various major global consulting company headquarters, along with Inside-the-Beltway think tanks (Brookings, Cato, Heritage, etc.). At these sites, we could have seminars with talented communicators, having agreed beforehand to read and ponder relevant material e-mailed along with confirmation of our paid registration. Similarly, the Travel Agency might contract for similar seminars in various cities with outstanding forecasters like

*See Futures Travel, continued on page 10*

***Futurists are not starry-eyed types; they want to be as realistic as possible about human nature, affairs, and events – warts and all.***



## Legacy

continued from page 7

National Debt) should cause even greater concern. In addition to the obligations of the Social Security and Medicare systems, there are obligations for many other government programs: Medicaid, Supplemental Security Income, Federal employee and military retirement systems, etc. The total obligations for all these programs will almost certainly exceed the nation's ability to produce such amounts.

This is probably what led Federal Reserve Chairman Alan Greenspan to make statements in Congressional testimony this year such as: "I fear that we may have already committed more physical resources to the baby-boom generation in its retirement years than our economy has the capacity to deliver." The resources needed for the Social Security and Medicare programs as they are constructed today seem "increasingly likely to make current fiscal policy unsustainable." And, he characterized most of the proposals to bolster the present Social Security system's solvency as merely "patching a system which is fundamentally inappropriate for the future of this country."

In the words of former Senator Russell Long, Social Security "is nothing more than a promise to a group of people that their children will be taxed for that group's benefit." Analysts usually refer to this euphemistically as a covenant between generations.

Is it responsible to have a covenant between a generation of workers and their children, many of whom are yet unborn—particularly one that imposes such an onerous burden? Thomas Jefferson did not seem to think so when he wrote:

*"We may consider each generation as a separate nation, with a right, by the will of the majority, to bind themselves, but not to bind the succeeding generation, any more than the inhabitants of another country."*

A \$40 trillion obligation just for Social Security and Medicare is a lot to transfer to succeeding generations.

In fact, it is highly unlikely that such a transfer will be possible—try as we might.

What, then, should we do about this \$40 trillion legacy? To begin with, we should invoke the first rule of hole digging: *When you find that you've dug yourself into a hole, stop digging.* However we restructure Social Security and Medicare, we should do it in a way that prevents the unfunded obligation from getting any larger. In other words, we should quit promising

more in benefits than we are able to finance currently. The longer we keep the present systems, the larger the unfunded obligation will grow—and the more difficult it will be to satisfy that obligation or pass it on to future generations.

*Haeworth Robertson, a frequent author and lecturer on social insurance reform, was Chief Actuary of the Social Security Administration from 1975 to 1978.*

## Book Discussion

### The Future of the Brain: The Promise and Peril of Tomorrow's Neuroscience

By Steven Rose  
Oxford University Press, 2005  
ISBN 0195154207

*Synopsis of the July 2005 Futurist Book Group meeting; summarized by Ken Harris*

The chapter book group discussed *The Future of the Brain* by Steven Rose at its July 6 meeting. Rose is a Professor of Biology and Director of the Brain and Behavior Research Group at the Open University in the UK and a Visiting Professor in the Department of Anatomy and Developmental Biology at University College London.

**FUTUREtakes** readers will not find *The Future of the Brain* an easily digestible read. All the readers agreed it should have been much better edited. The title and teaser on the dust cover lead the reader to think the book is mostly about the future of neuroscience, but just the opposite is true. In fact, the first six chapters set the stage for how the human brain evolved to the point it is at today. The remainder is a rather pessimistic view of where developments in neuroscience are taking us.

People who believe in the existence of a human soul will be very

sympathetic to Rose's point of view that there is something about being human that cannot ultimately be explained by physics and chemistry, but the book does little to increase understanding of what that essence of humanness is. Humanness in Rose's view is something that is learned rather than built into each person biologically. He distinguishes "mind" from "brain," but he does not specifically define what the mind is. On the other hand, the book goes into great detail in explaining how human beings evolved over time with particular attention to the human brain. One of the great strengths of the human brain is its "plasticity" — its ability to assemble and disassemble neurons and synapses to perform specific tasks.

The most relevant section of the book for futurists is the last chapter. In it, Rose raises deep concern about the possibilities for increased state control of the individual resulting from advances in neuroscience — in particular the prospect that brain imaging might advance to a point at which it could predict an individual's pre-disposition to anti-social behavior and thus to potentially unwarranted restrictions on individual freedom.

This reviewer recommends *The Future of the Brain* only for the serious reader willing to put up with the poor editing to review the current state of evolutionary science and/or to benefit from a perspective contrary to that of the biomedical techno-optimists, who can't wait for us to evolve into super humans.



## *At the Woodrow Wilson International Center for Scholars* **The Future of Leadership**

Just when we thought we had read every self-help book and watched every video on leadership, along comes Herb Rubenstein as our guest speaker at the US National Capital Chapter luncheon meeting last April, co-sponsored by the **Woodrow Wilson International Center for Scholars**, to give some valuable new insights.

Leaders are people who see existing problems and develop solutions for those problems with the support of the group they lead, said Rubenstein. In contrast, "leaders of leaders" play the more important role of developing organizational "platforms" for preventing whole classes of problems from arising in the first place and guiding leaders when problems arise within the organization. The future would be brighter if society encouraged more leaders of leaders to emerge, but most Western societies encourage the emergence of only leaders, not leaders of leaders.

People don't like to be marginalized and will increasingly demand participation in decisions that affect them. The future of leadership is about inclusion, notwithstanding the tendency of those who continue looking at life as a chess game, win-lose. Even with the trend toward inclusion, so many leaders in business, government and voluntary organizations build "Berlin walls" around themselves.

Examples of inclusion vs. exclusion abound in government, sports, and business. In sports, the person who creates the schedule is the most powerful person, as it is he/she who manages the "conversation." Likewise in the case of scheduling shifts for firemen, policemen, and nurses. The airlines exclude passengers from their own conversations about how prices are set. Religious authorities have been known to stifle conversation among their followers. Similar examples are pervasive in contemporary US politics.

How do we get to a future of inclusion, asked Rubenstein? Via IT. IT can help decision-makers manipulate people, but it also helps those who struggle to lead more than it helps those who try to keep them from leading. The cell phone, especially the camera-enabled cell phone, makes everyone a member of the Fourth Estate. IT can help one process public opinion information faster and at virtually no cost. At the same time, it can exacerbate GIGO (garbage in, garbage out). Additionally, it can support another means to manage a conversation, in which one makes it free-for-all and then sifts through it via word searches to extract those facts that supports his/her position.

*Herb Rubenstein has written, lectured extensively and developed a unique perspective on leadership that he supports with many examples of successful leaders. He is an attorney, a Founding*

*Director and member of the Association of Professional Futurists, and a Founding Member and Advisory Board Member of the Society for Leadership Change. His consulting firm, Growth Strategies, Inc., conducts leadership audits and designs custom leadership courses for clients. Many of his writings on leadership and other management topics are available at <http://www.growth-strategies.com>. He is co-author of **Breakthrough, Inc.: High Growth Strategies for Entrepreneurial Organizations**. His next book will consider whether in the modern world people who have been only followers can easily become leaders.*

*[Points for consideration: It's your turn to be a leader of leaders! How would you transform the conversation and provide opportunities for people of opposing persuasions to engage in "constructive dialog" – and on which highly-polarizing issues? What other important issues are excluded from "the dialog"? Send your thoughts to [futuretakes@cs.com](mailto:futuretakes@cs.com), itself a promoter of constructive dialog.]*

### **Futures Travel**

*continued from page 8*

Arnold Brown, Joe Coates, Ken Dychwald, Hazel Henderson, Barbara Hubbard, David Pearce Snyder, Edie Weiner, and so on.

In the best of circumstances, a pro-Futures Travel Agency would use its web site to solicit news of places, social experiments, and people worth further consideration. Providers of these leads would get a public vote of thanks, and a significant discount on any tour of their choice. The same web site would feature uncensored feedback from tour participants, a confirmation of the transparency and accountability futurists would expect from any such commercial operation.

How do we get there from here? It will not be easy, as travel agencies I have explored this money-making opportunity with have blinked, explaining that our ranks would seem too varied by age, class, and life style to readily constitute a promising mar-

ket. They also confess to knowing far more about colorful (musty) castles, must-see (creaky) museums, and well-known (crowded) ancient ruins than about any future-sharing phenomena (built, social, or otherwise).

Which is not to say it cannot be accomplished. All that is required is for one of us to step forward (like YOU!), and help create the world's first travel agency for futurists. That innovative entrepreneur will make a lasting and significant contribution to our lives, to our shared concern – futuristics, and to future generations who are likely to think of the Moon and Mars when they imagine where to spend their honeymoon, or, their next enriching travel adventure.

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<http://www.futureshaping.com/shostak/>  
<http://www.cyberunions.net>*





## Meet a Member

### **Limor Schafman**

*Immediate Past President of  
World Future Society U.S.  
National Capital Chapter*

When I first walked into a meeting of this chapter three years ago, I felt like I had just stepped into a room filled with people that I knew well, though they were strangers to me. The depth of intellect, breadth of curiosity and diversity of interest I found in the room that evening are the elements I always seek.

My search has taken me to many places – I have lived in Boston, Manhattan, LA, Jerusalem, Paris and now Virginia. And many professions – I am an attorney who has worked for the past 10 years in the entertainment technology field – specifically the video game and theme park industries. This experience gave immeasurable learning regarding how people interacted with their environments, how one tells stories, how stories involve people, the role that environment and technology play in enabling people to understand themselves, others and the world they live in. This knowledge translated into an understanding of marketing, branding, and “story-telling” in the commercial arena.

After several years working for other companies, I decided to develop my own product. One element that I always found missing from video games was the ability to interact with them through other than the keyboard, mouse or joystick. Interactivity with content is the best way to explore experience and learn. So I put together a team to create a sports training hardware/software product. In the process, we created a very intelligent camera. We started looking for funding post bubble which hampered efforts but which also opened new doors. First – starting this business was the best business school training I could have gotten. Second – in looking for funding I sought SBIR grants and discovered the marketplace I focus on today – technology companies that have great products or services but don’t know how or where to take the first step in bringing their technolo-

gy to market. Every technology and company has a story that will sell it to the marketplace. We help the client find that story and tell it.

My career as an adviser to technology companies brought me to the Washington DC area. – a region with tremendous market and funding opportunities for technology companies that need to understand trends in markets, technology development, economics and society. With an eye always to the future, how it impacts our present and what we need to do now to prepare, take advantage of, and understand it, I and those I work with take that focus and formulate it so it can be acted upon by the companies we advise. By taking a broad view, we see the intersection points where technology and markets coincide to form opportunity. By acting as a translator, we enable technologists and commercial market buyers, sellers and funders to communicate to build the opportunity. And by keeping an eye on the practical even while staying at or ahead of the curve, we work to transform the opportunity into a commercial reality. So there is always the interaction between the real world and the virtual world. And I’m not only referring to Internet cyber or video game virtual worlds. I am talking about taking aspiration of business and turning it into reality. Capturing that virtual vision and bringing it to the present.

The World Future Society offered and continues to be a place where all my senses can be informed through the people I meet, the information they carry, our sharing of different perspectives and new ideas, our mutual learning. It has been an honor being the first woman president of the chapter, and a growing experience for me. I look forward to seeing what future we build together.

*Limor Schafman is a graduate of UCLA Anderson School's Executive Program for Business Management, received a JD from Boston University School of Law, and a BA from the University of Pennsylvania. She always welcomes good conversation, so please contact her at [limor@keystonetechgroup.com](mailto:limor@keystonetechgroup.com). And you can visit the KeystoneTech Group website at [www.keystonetechgroup.com](http://www.keystonetechgroup.com).*

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# Future Lite

By Lindan Johnson  
lindanlee@hotmail.com

*Welcome to Future-Lite, the "other side of the future." No topic is too small, no trivia too trivial, and no fact too unfounded if it can possibly provide entertainment or enlightenment for our readers.*

## Cyber Love

I personally believe the collapse of Western Civilization, as we know it began with the invention of the salad bar although there are some scholars that argue with me and say that it began earlier with the \$3.95-all-you-can-eat luncheon buffet at the Golden Dragon.

The fact is that human beings are only capable of processing so much information before we're completely overwhelmed and by the time we get to the "chick peas or garbanzo beans" choice quite a few of us toss our leafy greens into the air, race back to the safety of our table and request a nice house salad with house dressing, and breathe a sigh of relief.

On this particular Monday, I ended up sitting with a group who had all avoided the salad bar and I ascertained very quickly that everyone was indeed, single. Not only were they single, but they were all experts in the field of love... er... the quest for not the conquest of—so they were a perfect panel of experts for my current research.

There was an immediate consensus to the fact that you can't possibly date anyone you work with, anyone who is recommended by a friend, relative or ex-spouse, anyone you know in a social setting—church, PTA, or political group, or anyone from any-

thing you really enjoy doing—like bowling.

The main reason for this is that dates NEVER work out and then you have to avoid the place where you know the person from which can get very difficult particularly if it's your job. Or you have to avoid the person that suggested you date the aforementioned person and that can be very difficult particularly if it's your mother.

Everyone agreed that the best way to meet someone was online... in the cyber zone.

So I shared with them my case study...

Sarah, a 31-year-old attorney placed her profile online in hopes of finding her soul mate. She wanted a man who was also an attorney, loved Wagner, played ice hockey and was more than 6' tall.

Arthur sent her an email and told her how much he identified with her profile and that he matched all of her requests. The emails began to fly back and forth and soon they were instant messaging each other constantly. They loved the same things. They hated the same things. They dreamed the same dreams. The world around them lost all meaning... they were only living from one cyber contact to the next.

They soon took the leap into the second dimension of sound—they were held in rapture by each other's voice and would spend hours on the phone together talking about everything under the sun, moon and stars. Sarah would start sentences that Arthur would finish and sometimes they even said the SAME WORDS at the SAME TIME. It was kismet.

Finally, unable to bear the separation and suspense any longer. After all this had been going on forever—at least three weeks—they both agreed it was time to meet in person. Arthur invited Sarah to meet him at her favorite restaurant. He arrived early to personally set their table with a beautiful floral arrangement from his own garden and ornate sterling silver candleholders with festive color-drip candles. By her salad fork he put an elegantly wrapped Wagner mixed disk that he had created for her that reflect-

ed the story of their relationship.

Sarah came into the restaurant and their eyes connected immediately across the crowded room. Arthur was the man of her dreams. The evening was fabulous—the food, the wine, the conversation—perfect! Sarah knew that she would invite Arthur to come home with her this very evening and propose that they catch the next plane to Reno to make it legal in the morning.

The moment came... it was time to leave this magic setting. Arthur stood up and came around to help Sarah with her coat. Sarah stood up and suddenly realized that something was terribly wrong. Instead of looking into her lover's eyes, she was looking at a patch of thinning hair covering the top of his head!

**"OH MY GOD! I SPECIFICALLY STATED IN MY AD THAT I WANTED SOMEONE OVER 6 FEET TALL... YOU MUST BE 5'6"! YOU'RE SHORT!!!!"**

"Yes," said Arthur, "and I always wanted to be over 6' tall as well."

My panel of experts wasted no time in thinking about their interpretation. "He **LIED** to her, she should sue him for misrepresentation, alienation of affection and time lost... and can I have her number?" said George an attorney who had nothing going for him except he was 6'2" tall.

"He didn't lie... he told her the **TRUTH**... he always wanted to be over 6' tall as well! Who couldn't see what a wonderful, caring thoughtful man Arthur was—those color drip candles are very difficult to fit in sterling silver candleholders! Which sites is he posted on? I'll email him immediately at every one of them," said Sally as she whipped out her laptop.

"Okay, now here's the mistake they both made—they met in person. You don't ever actually **MEET** people that you meet online—it ruins everything! Heck, I've got 50 different profiles out there and hundreds of different girlfriends who think I'm the love of their lives. Now just how long do ya think that would last if I went around **MEETING THEM IN PERSON???**" said Hank, who in point of

See *Future Lite*, continued on p. 15



## **Salami Speech**

*continued from page 1*

trump military supremacy, albeit briefly.

Continued Stein, many warfighting paradigms, even those of recent years, are in now their death throes or beyond – perhaps not surprisingly in this era of ever-accelerating change, given the convergence of the new and changing geostrategic environment (multipolar world, non-state actors, culture clashes, and transnational problems beyond the control of a single nation-state), the new battlespace (asymmetric warfare, vulnerabilities, nonlethal warfare, parallel warfare, and operations other than war or OOTW), technology impacts, budgetary pressures, and the rapid obsolescence of doctrine. Recognizing that multipolar worlds are not new, Stein noted that such worlds present more dyads across which conflict can start, especially if non-state geostrategic actors are considered. Indeed, noted Stein, recent times have seen a proliferation of non-state geostrategic actors including nationalist and ethnic groups, alliances and trade blocs (e.g., NATO, OPEC, NAFTA), multinational corporations, the media, terrorists, drug cartels, and the disenfranchised in general – all empowered by high-tech including instant communications. Dealing with terrorists is exceptionally challenging as they can privatize war and have no return address or other vulnerabilities commonly associated with nation-states. The multipolar world presents additional challenges including the loss of superpower restraining capability over client states as well as the release of new tensions as old ones are relaxed with the collapse of regimes.

Another challenge is dealing with potential adversaries whose mindsets differ radically from our own, observed Stein. A common example is the suicidal terrorist who is not readily deterred and who places a low value on human life, but there is also the tyrant willing to sacrifice his people and country, who is out of touch with military reality (Hitler, in the waning days of WWII), or who derives

strength from standing up to the US and not necessarily from military victory (Saddam Hussein). In cases such as these, conventional game theory is not readily applicable. Another formidable challenge can be found in “holistic warfare” based on non-military means such as public opinion manipulation (recall Vietnam), embargoes, manipulation of the stock market or exchange rate, or perhaps even election influence. Noted Stein, stock market or trade transactions considered normal in the US might be viewed as



*Dave Stein*

that is more common in the West, also entails the prospect of being at war and not knowing it, perhaps even begging for a new definition of “peacetime.”

Non-conventional military operations present their own challenges that must be considered in planning force structures. Operations other than war (OOTW) such as peacekeeping, peacemaking, and humanitarian assistance require special training. Often protracted, they entail public opinion issues, especially in a “quarterly earnings statement” culture. Urban operations often entail high collateral damage risks and magnify the need for accurate and timely identification of friend and foe (IFF) – no trivial challenge. As in any conflict, there is the need to maintain escalation dominance and to implement a viable exit strategy to “get out of trouble faster than we got into it” – without sowing the seeds for another war to fight.

Adding to these challenges are the pervasive impacts of technology. As one might expect for a complex society, technology generates new vulnerabilities in addition to providing new capabilities. Indeed, observed Stein,

acts of war by other nations that are adversely impacted. This holistic thinking, which contrasts profoundly with the reductionist thinking

even technologies that are seemingly mundane have had unforeseen impacts, as evidenced by the impact of food preservation technologies on the mobility of armies. Traditional service roles and missions are also being impacted – the laws of “bureaustatics” notwithstanding, as improved precision, range, and lethality are making it more possible for any service to strike nearly any target. Furthermore, technology has already lowered the threshold for going to war, since massive mobilizations are not as necessary and since nonlethal warfare might entail less public opinion risk. At the same time, the information age is empowering good guys and bad guys alike including non-state geostrategic actors. On one hand, it blunts information control by dictators as well as by the mainstream media, while on the other, it heightens discontent among the have-nots – all while influencing public opinion everywhere. Said Stein, this is all on top of the debate as to whether high technology lifts all boats, widens the “digital divide,” or does both.

Other factors influence force structure options. A primary consideration is whether to rely on allies to share weapon system development and acquisition costs and on coalitions in time of conflict. Stable coalitions and reliable allies argue for cost- and burden-sharing, given the costs of big-ticket weapons systems against the backdrop of competing fiscal priorities. Yet in the extreme, the likelihood of fluid coalitions argues against burden sharing, forward basing, and even the guaranteed availability of ports and airfields – at least in the case of some countries – because of the technology transfer risk (if it cannot be outpaced) and also because divergent national interests in the fact of a crises can force concessions and render the coalition itself a Clausewitzian center-of-gravity (COG) that the adversary can target via ally intimidation. It has also been argued that in years past, forward basing underscored the US commitment to their host nations while also deterring regional arms

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## Salami Speech

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ances. However, if rapidly-changing coalitions, the geopolitical cold shoulder, or domestic considerations preclude forward basing, the potential need for long range power projection increases.

Furthermore, fluid coalitions can limit targeting options, as today's adversary may be tomorrow's ally. Other adversaries of tomorrow may lack a Clausewitzian COG that is vulnerable to strategic strike – not unlike today's terrorists who have no return address, and this needs to be considered in tailoring force structure.

The anticipated shelf life of technological advantages is yet another consideration. Then, too, one must consider the possible roles that the armed forces will assume – e.g., conventional missions only or OOTW also. Additional considerations include the possible relative roles of the various instruments of national power (e.g., military, diplomatic, economic, and those yet to come) and of the nation-state to the multinational corporation. Compounding these challenges is doctrine obsolescence. Drawing upon examples from business as well as from spectator sports, Stein explained that warfighting doctrine is like a match – no good after it is used once – that is, after it becomes known to potential adversaries.

All of these factors, challenging enough even today, point to long-range uncertainty regarding alternative future worlds and the threats that they will present. This uncertainty, itself exacerbated by the ever-increasing rapidity of change, complicates defense force structure and technology investment planning, as though (to borrow a military euphemism) the rate of change is getting inside the defense planning decision loop. In this planning environment, it is not enough to build an incrementally better tank, combat ship, or fighter aircraft, as military supremacy in this context has only limited relevance. A better planning methodology and framework are needed.

## THE METHODOLOGY AND ITS PAYOFFS

So how does one plan for those wars that have not yet been fought? As Stein indicated, this challenge is roughly akin to asking a physicist to identify those elementary particles that have not yet been discovered! Careful to emphasize that he was but one of many people involved in the Air Force long-range planning studies and not a principal investigator, Stein then outlined one of the long-range planning methodologies used within the US Air Force during the 1990's (see disclaimer<sup>1</sup>). A simplified description is as follows.<sup>2</sup> The methodology starts with a "time warp" to a future characterized by any of several alternative geostrategic worlds (scenarios), themselves postulated on the basis of geostrategic planning space drivers and representing discontinuous jumps from the present. Each world to be considered in the study is selected on the basis of the national security challenges that it presents. For each world, a draft "history" is developed by "backcasting to the present" and checked for self-consistency. The details of the specific worlds considered in the Air Force planning studies are documented elsewhere.<sup>3</sup>

The next step postulates the various threats that these worlds present and military capabilities (weapon systems) needed to counter the threats. In turn, these hypothetical weapons systems, which range from evolutionary to revolutionary – "mild to wild" – require enabling technologies that are themselves identified. A "scoring" process, sometimes iterative as well as interactive, evaluates the utility of each hypothetical weapons system for each alternative future world as appropriate – thereby yielding a separate score for each world – and it also evaluates each system's susceptibility to countermeasures, be they technology-based or tactics- and doctrine-based. To this end, it is necessary to have a "Red Team" or at least a robust representation of a hypothetical adversary's own military capabilities and their possible countermeasures against "Blue Team" (friendly) forces.

Scoring criteria can range from precision, range, and lethality to reliability, sustainability, deployability, personnel and training impact, risk (development, acquisition, and obsolescence), cost, and even political acceptability considerations. For each world, the weapons system results are then correlated with the enabling technologies to obtain a score for each technology, again by alternative future world.

The end product is a list of the enabling technologies, the scores of which are roughly correlated with their "pervasiveness" across the hypothesized weapons systems and their relative utilities across the alternative future worlds examined. For a given technology or weapons system, a low spread or variation of scores indicates that the results are relatively invariant to whichever alternative future world emerges, at least among those worlds considered. Thus, a technology or weapons system with high value-added scores and low score spread is a relatively attractive investment from a future uncertainty standpoint. However, the analysis does not stop here. The methodology also considers cost-to-benefit ratios in terms of two additional criteria – the challenges associated with developing a particular technology, and the extent to which the commercial sector is driving the development. Technologies being developed

*See Salami Speech, continued on page 15*

<sup>1</sup> DISCLAIMER: Although the methodology presented in the colloquium was used in 1990's-vintage United States Air Force long-range planning studies and has long been in the public domain, this synopsis and the colloquium that it summarizes do not necessarily represent the official position of the United States Air Force or the Department of Defense. Furthermore, the speaker did not present the colloquium in an official capacity as a representative of the United States Air Force or the Department of Defense. This synopsis makes no express or implied statements regarding any use of the results of these studies.

<sup>2</sup> A more complete description is available in the following two references:

a. J. A. Jackson et al., "Air Force 2024 Operational Analysis," *Military Operations Research* V3, N4, 1997, pp. 5-21.  
b. Air Force 2025 Final report Homepage, [www.au.af.mil/au/2025](http://www.au.af.mil/au/2025), accessed November 8, 1996.

<sup>3</sup> *Ibid.*



## Salami Speech

continued from page 14

primarily by the commercial sector generally require less public sector investment, and commercial off-the-shelf (COTS) technologies may be available with shorter lead times and at lower costs. However, the military leverage in steering the development is correspondingly reduced, and there is sometimes the additional risk of technology transfer (to potential adversaries). If the methodology is properly used, these scores provide useful insights on which technologies will have maximum payoff in the face of uncertainty. Furthermore, the built-in audit trail self-documents the scores, so that the reasons for high, midrange, or low scores are readily apparent.

### DON'T SLICE THE SALAMI!

There are added bonuses, including further insights on long-range threats, needed capabilities, and joint warfighting doctrine as well as improved dialog among the warfighting, acquisition, technology, and futurist communities – dialog that helps move them beyond incremental thinking. Still another payoff is management guidance for technology budget

cuts that result from reprogramming of funds. The methodology is a powerful alternative to the “peanut butter spread” or “salami slice” approach that “spreads the pain” evenly (on a percentage basis)!

As in all futures exercises, care is necessary in choosing the drivers, the alternative future worlds (scenarios), the hypothetical weapons systems, and the scoring criteria. The complexity of the world notwithstanding, a relatively small number of drivers is preferred so that the set of drivers is manageable. This facilitates the identification of underlying issues, thereby lending additional insights into the future. For their part, the number of alternative future worlds and of hypothetical weapons systems should also be manageable. Too many worlds or systems lead to skewed results, and the differences among them become fuzzy. Conversely, the too few extreme invites just the “Pearl Harbor” that one is trying to avoid, and in the case of systems, it can relegate the fielding of promising technologies to a risky “eggs in one basket” approach. Finally, the scoring criteria should also be examined for orthogonality to preclude double-weighting.

## LIMITATIONS

Stein was quick to point out that even a scenario-based methodology such as this one is only as good as the out-of-the-box thinking that goes into it. If the thinking that goes into identifying the drivers, the alternative future worlds, and the capabilities and limitations of the hypothetical weapons systems is too incremental and lacks vision and imagination, the value of the resulting study is degraded substantially. It is especially imperative that the hypothetical adversaries' capabilities be sufficiently robust to stress the capabilities of the Blue Team's proposed weapons systems.

Inadequate breaking of existing doctrinal paradigms, Red or Blue – for example, deploy-buildup-defend-counterattack – can fatally flaw a study or at least render the findings less generic, continued Stein. The Air Force 2025 study, pioneering though it was, had been based on the overarching objective of “air and space dominance” as a given, together with its three functions of awareness, reach, and power. Consequently, the technologies were evaluated through the lens of air and space dominance

See *Salami Speech*, continued on page 16

## Future Lite

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fact would never ever ever qualify as the man of anyone's dreams.... ever!

“Actually, there's no point for all of this stress and miscommunication. You don't really need real people at all... it's now possible to order the latest in female companionship where you can customize each and every part of her body in the state of the art silicon to be delivered to your door for around \$7,600,” said Stu the guy from the stockroom who was speaking from personal experience (note: this is the one comment that is not made up... the company will create “men” as well!)

The discussion continued with passion for quite awhile longer. The digital divide between fantasy and reality was deep. Not only are we dealing with our own perceptions of who we are and what we're looking for... and

our projections onto each person who responds who in turn is dealing with his or her own versions of fantasy and reality... like the “house of mirrors” only in the cyber world the mirrors can go on forever and ever.

As I was walking out of the cafeteria, Juanita, the lady in charge of the salad bar, pulled me over.

“Honey, it ain't the technology, it's the people. Just tell the truth. Tell the truth about who you are and what you are looking for... and the odds are someone out there will tell the truth right back. The Technology is only the medium, we still are responsible for the message.”

“Thanks, Juanita...” I said.



Lindan Johnson

“One more thing... you could avoid all this silliness if you'd just go out with Herman in accounting—he is a fine man!”

Technology now gives us the ability to scan millions of personal profiles from all over the world. We can sort our search by age, physical attributes, educational, financial, hobbies and pudding preferences. But is this a good thing? Does it make us more successful in the dating game? Are we finding our soul mates and direct-connecting into the Happily Ever After?

I think I'll drop by accounting and flirt with Herman.

*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!*  
lindanlee@hotmail.com



# Anticipate the World You Want: Learning for Alternative Futures

Marsha Lynne Rhea  
Rowman & Littlefield Publishers, 2005  
ISBN 1-57886-258-2

A book review by Maya Horton

In her book, *Anticipate the World You Want: Learning for Alternative Futures*, author and senior futurist Marsha Lynne Rhea provides a futuristic perspective to how we approach learning. Rhea invites us to think outside of the textbook and "reorient learning from mastery of the past to preparation for the future." Using Rhea's thought-provoking alternative futuring techniques, readers can learn how to forecast the future challenges that learners will likely face in a rapidly changing world.

Rhea does not merely ask what can we expect in the future, but what future do we want? And what innovations can we create to get to where we want? Rhea encourages readers to look across disciplines and find out what learning is essential now for students to meet the challenges that lie ahead. Preparing our students for the future, says Rhea, requires more than simply staying in step with current technologies and advances.

While her case for anticipatory learning is impressive, Rhea's forward-thinking approach is not entirely uncommon among leaders in education and learning.

The real question is how do educators implement the initiatives Rhea sets out in her book in the context of funding, bureaucratic and other barriers. A challenge for readers will be to balance the ideal world Rhea suggests with the reality of the educational system in America.

Still, the methodologies and examples Rhea presents are at the cutting edge, a clear break away from the standard, and perhaps all too safe, approaches to learning. Rhea successfully illustrates how important concepts like incorporating self-directed learning, volunteerism experiences, risk-taking, and identity practices into the learning environment,

are not only useful, but essential for equipping young people to become the lifelong learners, contributors, and creative problem solvers we will need them to be in the future.

Indeed, school leaders can and should use this book to guide them as they initiate "anticipatory learning" discussions and think through multiple

future scenarios. Doing so can ultimately empower and engage today's learners to change American education as we know it.

Intelligent, innovative, inspiring, Rhea builds the case for staying in step with tomorrow, a nice breather from the status quo.

## Salami Speech

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and not necessarily through the wider lens of overall value to national defense.

An additional potential pitfall is over-reliance on high tech as a panacea. Contrary to the predictions of some futurists of their day, airpower never made armies and navies obsolete, and nuclear weapons never prevented war across the entire spectrum of conflict. Likewise, technological superiority did not win the Vietnam War.

Still another potential pitfall is assumed benign operational circumstances such as favorable weather or port and airfield access. Finally, proper identification of the enabling technologies and the associated technology challenges is essential. For these reasons, an after-the-fact re-examination of the assumptions regarding roles and missions, doctrine, vulnerabilities, adversary mindsets, risks, technologies, and geostrategic considerations is advised, said Stein.

## WAYS FORWARD

The program concluded with Stein's thoughts on ways to extend this proven technology investment methodology. One logical extension is to service roles and missions, with all services (Army, Navy, Marine Corps, and Air Force) participating on an equal basis. Another possible extension is to dual use technologies and to tradeoffs among defense, homeland security, and non-defense investments such as infrastructure, education, environmental remediation and management, foreign assistance, and perhaps even paying

down the national debt if a good economic model can be incorporated into the methodology. There is even the additional possibility of migrating the methodology beyond the military instrument of national power to encompass the economic, diplomatic, and technological, so that the challenges presented by holistic warfare are met.

## THE CENTER FOR FRONTIER SCIENCES

The Center for Frontier Sciences ([www.temple.edu/cfs](http://www.temple.edu/cfs)), established in 1987 at Temple University, is an open forum that networks information on the frontiers of physical science, biological science, medicine, and technology. It is dedicated to the open and unbiased examination of any theories, hypotheses, or models that challenge prevailing scientific viewpoints while using sound scientific methods. While encouraging a healthy skepticism and maintaining high academic standards, the Center does not endorse or promote particular positions on scientific issues. In addition to colloquia, the Center publishes *Frontier Perspectives*, an international peer-reviewed journal on next-generation science, and it sponsors symposia and international conferences, the most recent of which was *Quo Vadis Quantum Mechanics* in 2002, the proceedings of which were published by Springer-Verlag, same title, in 2005. Past speakers have included Nobel laureates as well as other distinguished scientists, engineers, and physicians.



## CHAPTERS' CORNER

*This issue's column presents the ideas that were exchanged among presidents and other representatives of various chapters at the chapter activities session in Chicago – the event that inspired “Chapters’ Corner” – as summarized by session chairperson Ken Harris.*

### Things Chapters Can Do to Assure Success

1. Get support from their governments in the form of subsidies or payment for work on projects of interest to their governments.
2. Get corporate sponsorship (e.g., Korea chapter has received support from Samsung; Northern California, intends to get support from Google).
3. Build membership, as the Hong Kong chapter has done, by giving free memberships to high school students and then retain them as paying members after graduation.
4. Build high school futurist clubs and encourage the members to start college chapters after they graduate as Timetrackers in Northern California has done.
5. If you are forming youth chapters, use Christy Dugger’s booklet “Starting a Futurist Club.” Christy’s email is [dugger1892@yahoo.com](mailto:dugger1892@yahoo.com).
6. Undertake programming with alternative media such as independent TV channels, cable TV, Internet, satellite radio and podcasting. Podcasts are created with an RSS feed and can be played on different types of electronic devices such as computers, IPODs and MP3 players. Podcasts could be considered an audio version of blogging.
7. Have programs featuring Washington-based professional futurist David Pearce Snyder as speaker. His email is [david@the-futurist.com](mailto:david@the-futurist.com). He will speak for

## Notes from the Chapter Activities Session at World Future 2005: Foresight, Innovation and Strategy

- free to WFS chapters if appearances at their meetings can be worked into his extensive travel schedule, which is known well in advance. (Note: Although he would waive his normal speaking fee, he would appreciate some reimbursement for expenses.)
8. Take advantage of E-Learning programs on futures subjects.
  9. Use chapter activities sessions at the annual WFS conference to exchange chapter success stories. In between conferences, post chapter success stories on the Future Times section of the WFS website and/or send them to the Washington chapter newsletter **FUTUREtakes** ([futuretakes@cs.com](mailto:futuretakes@cs.com)).
  10. Have a website that tells all about your chapter and link it to the WFS website.
  11. Videotape or audiotape your own programs and make the tapes available to chapter members unable to attend the programs.
- bership dues to make Society membership more affordable for people in poorer countries. Adjustments could be on a purchasing power basis. Dues equivalent to two hours average wages in a country were suggested.
2. Provide, possibly in conjunction with larger chapters, video or audio taped programs to smaller chapters. NBC Universal taped the 2005 opening plenary session. The WFS is having discussions with NBC in hopes of getting use of the tape.
  3. Make copies of the 2005 and/or recent past conference volumes available to chapters to give out as an incentive for joining.
  4. Enlist Society members fluent in languages other than English to translate Society publications into those languages.

*Your chapter has its own success story and winning ideas to share with other chapters! Let's continue this exchange of ideas that can benefit all WFS chapters. Send your “words of wisdom” to [futuretakes@cs.com](mailto:futuretakes@cs.com) for publication in “Chapters’ Corner.”*

### Things the World Future Society Can Do for Chapter Success

1. Introduce country-adjusted mem-

## Reply to Commentary by Tommy Osborne

*(Summer 2005 issue)*

Tommy Osborne’s thought-provoking response to my article, “Learning Environment for the 21st Century” (Spring 2005 issue) raises some intriguing questions.

Osborne raises a question about the relationship between student learning preferences and acquisition of skills and knowledge. As a result of extensive research and experience in higher/adult education, the military, and business, skills are best taught by multiple methods that match the student’s learning preferences, the student’s ability, and the purpose and complexity of the skill.

In response to the question about the expert/non-expert teaching/learning relationship, the expert engages the non-expert or learner by applying multiple teaching/learning strategies such as reading, discussion, written

*See Commentary, continued on page 20*



By Jay Herson

*Do you have predictions for the next 35 years? The editors of **Foreign Policy** magazine recently invited an international panel of experts to muse about life in 2040 (September-October 2005 issue). Here is a summary:*

**The Sanctity of Life.** During the next 35 years, the traditional view of the sanctity of human life will collapse under pressure from scientific, technological and demographic developments. By 2040, it may be that only a rump of hard-core, know-nothing religious fundamentalists will defend the view that every human life from conception to death is sacrosanct.

-Peter Singer, Princeton University

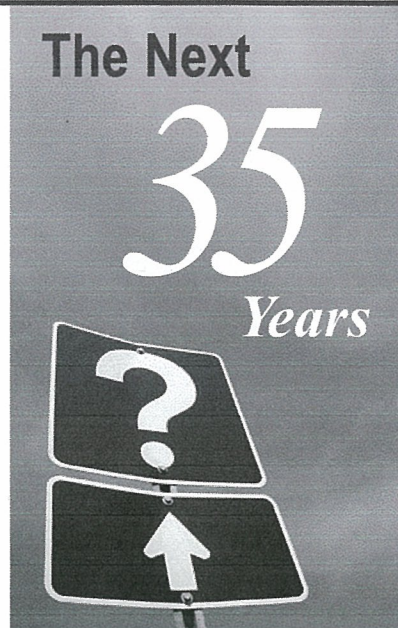
**Political Parties.** Political parties may soon disappear. Today labels such as left and right have less and less meaning. Citizens have developed multiple interests, diverse senses of belonging and overlapping identities. People today prefer to voice their interests directly or through nongovernmental organizations. Voting is essential but citizens of Switzerland, Bolivia and California now govern by referendum more than by elected officials in legislatures.

-Fernando Henrique Cardoso, President of Brazil 1995-2003.

**The Euro.** The likelihood of new countries adopting the euro has become remote ever since the French and Dutch repudiated the proposed European constitution earlier this year. A euro that is legal tender only in some parts of Europe will not only emphasize the continent's failure to eliminate differences: it will itself become one of those differences.

-Christopher Hitchens, columnist for *Vanity Fair*

**Japanese Passivity.** Japan clings to a hopelessly idealistic and historically illegitimate constitution handed down the U.S. occupation forces nearly 60 years ago to block Japan's reemer-



gence as a military power. Japan now entrusts its survival to the United States but many in Japan feel that today the United States' capability as a superpower is limited. Japan's regional friction with China and North Korea will force Japan to emerge from its futile passivity and become a strong nation willing to accept sacrifices.

-Shintaro Ishihara, governor of Tokyo

**Monogamy.** The fall of monogamy does not imply the establishment of polygamy. Instead we will move toward a radically new conception of sentimental and love relationships. Nothing forbids a person from being in love with a few people at the same time and the jump in life expectancy will make it nearly impossible to spend one's entire life with one person and to love only that one person. Just as most societies now accept successive love relationships soon we will acknowledge the legality and acceptability of simultaneous love just as legalized divorce, open homosexuality and gay marriage have gained acceptance over the decades. People will have partnerships with various people. Relationships with children will be radically different as will financial and living arrangements. It will take decades for the change to be complete

but if we look around—movies, novels and music—it is already here.

-Jacques Attali, writer and president of *PlaNet*

**Religious Hierarchy.** More and more people are viewing the world's religious traditions as a buffet from which they can pick and choose. In this environment religious hierarchy is crumbling fast. The notions of consumer choice and local control have stormed the religious realm. Moses and Christ did not involve focus groups in the Ten Commandments or the Sermon on the Mount but today's megachurches are powered by market research.

Pentacostalism has no hierarchy but its divisions and rivalries have generated an entrepreneurial energy that has made it the fastest growing Christian movement in the world. They have proven that sometimes religion without hierarchy can endure and even thrive.

-Harvey Cox, professor, Harvard Divinity School

**The Chinese Communist Party.** Let's assume that China can continue to grow its economy at 5% a year. By 2040 this would imply an annual per capita income of about \$7000.

Professionals, private property owners, and hard-working capitalists will number in the hundreds of millions. If history is any guide, it will be next to impossible for an authoritarian regime to retain power in such a modern society, let alone one as large and diverse as China's. The experience of General Suharto's Indonesia suggests that predatory autocracies have trouble turning high rates of economic growth into political stability. By 2040 the Chinese Communist Party will be 119 years old and in power for 91 years. Today, the world has no septuagenarian one-party regimes. One-party regimes have no intrinsic incentive to reengineer themselves and little capacity to correct course.

-Minxin Pei, director of the China Program at the Carnegie Endowment

**Auto Emissions.** By 2040 harmful vehicle emissions will be a thing of the

See 35 years, continued on page 19



## 35 Years

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past. Lead, sulfur and benzene have been progressively reduced or removed from new vehicles. In the United States, lead emissions have dropped by about 95 percent. If only a third of the cars in 2050 run at 60 miles per gallon rather than 30 miles per gallon, carbon dioxide emissions will decline by 1 million tons a year. New refinery technology is producing ever cleaner fuels and engines, whether hybrids or upgraded internal combustion machines, are becoming cleaner fuel burners.

*-Lord John Browne, group chief executive, British Petroleum*

**The Public Domain.** The public domain has always lived alongside the private domain—the part of culture that is owned and regulated, that part whose use requires the permission of someone else. Traditionally, the law has kept these two domains in balance. However, digital technologies have made it easy—indeed too easy—for creative work in the private domain to spread without permission. Lawmakers have lost the sense of balance and the public domain is rapidly disappearing.

*-Lawrence Lessig, professor of law, Stanford University*

**Doctors' Offices.** Governments, insurers, and taxpayers around the world will be forced to confront a complicated and inefficient system that focuses too much on managing disease when it arrives and not enough on preventing people from getting sick. A critical step in reforming the system will be making visits to a doctor's office a last resort rather than a first step. Innovations in computing, communications, biology, nanotechnology and robotics will ease the way. Doctors will assess options for prevention rather than shepherding patients through their offices.

*-Craig Mundie, senior vice president, Microsoft*

**The King of England.** In 1948 the embattled Egyptian King Farouk said that soon only five ruling royals would be left: the kings of hearts, clubs, diamonds, spades and the English monarch. It now looks like he was off by one. The monarchy will not, however, drown in a wake of republican sentiment; nor will it be discarded because it fails. The crisis, when it comes, will be provoked by the unwillingness of the royal family to carry on with the job. Both William and Harry realize that the job of king is now utterly unappealing what with their parents suffering from the public and media intrusion into their private lives. As Charles grows old, the boys will choose to be pensioned playboys rather than dutiful royals.

*-Felipe Fernandez-Armesto, professorial fellow at Queen Mary, University of London.*

**The War on Drugs.** The model recreational drug of the future is already here in the form of crystal methamphetamine. It's cheap and easy to make—little more than Sudafed doctored up with plant fertilizer. One hundred percent of the profit goes to the manufacturer; no intermediary or army of couriers is required. Made of locally acquired materials in one's home the drug's production is nearly impossible to stop. By 2040 the illicit professionals who remain in the business will be custom drug designers catering to the wealthy. Eventually even these drugs will be able to be manufactured in the home. Users will look a lot like you and me.

*-Peter Schwartz, chairman of the Global Business Network*

**Polio.** Eradication of this disease is a matter of immunizing more children in more developing countries. Civil war and cultural mistrust of western organizations are the biggest obstacles but these are being overcome. In 1988 350,000 cases of polio were reported worldwide in 2005 just 760 cases have been reported.

*-Julie L. Gerberding, director of the U.S. Centers for Disease Control and Prevention*

**Sovereignty.** Sovereignty—the notion that governments are free to do what they want within their own territory—has provided the organizing principle of international relations for more than 350 years. Thirty-five years from now, sovereignty will no longer be sanctuary. Powerful new forces and insidious threats will converge against it. Nation states will not disappear but they will share power with a larger number of powerful non-sovereign actors than ever before, including corporations, nongovernmental organizations, terrorist groups, drug cartels, regional and global institutions and banks and private equity funds. Dominant issues over the next 35 years will be greenhouse gases, goods, dollars, drugs, viruses, emails and weapons within and across borders. This type of traffic challenges one of the fundamentals of sovereignty: the ability to control what crosses their borders. Many nation states have willingly given up some sovereignty to organizations like the World Trade Organization and the Kyoto Protocol.

*-Richard N. Haass, president of the Council on Foreign Relations*

**Anonymity.** The internet once promised individuals new opportunities to explore the world without showing their face. Instead it is turning out to be a powerful force against anonymity. Most information about an individual's online actions and communications is traceable—if someone with resources cares to go through the trouble. Younger generations thirst for recognition causes them to join multiple networking sites, rate themselves and friends on various scales, fill in online questionnaires. Even as individuals evince more and more concern about privacy and identity theft the flood onto the Web as themselves, publishing blogs, posting photos and revealing all on dating sites. People are trading anonymity for connection. In 2040 the big question will be: are we getting as much as we are giving up?

*-Esther Dyson, editor of Release 1.0*



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### Visiting Washington DC?

The WFS US National Capital Region Chapter invites you to visit us! Our schedule of dinner programs, luncheons, book discussion group meetings, workshops, and other chapter activities is available on our Web site: [www.natcapwfs.org](http://www.natcapwfs.org).

For information on other World Future Society chapters, visit [www.wfs.org](http://www.wfs.org), then navigate to "chapters."

### Commentary

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assignments, debate, recitation, team work (interactive listening and discussion), simulation, gaming, e-textbooks, and interactive media that is multilinked, audio, and visual. At issue here is having astute experts, knowledgeable in a wide range of learning strategies, analyze the student's learning needs and match the strategy to the need.

The format for expert/non-expert interaction varies although blended learning is currently the format of choice requiring face-to-face time as well as electronic interaction. Given the nature of the global community, the necessity of the face-to-face component is under scrutiny. The elimination of face-to-face raises a plethora of questions related to integrity, honesty, ethics, plagiarism, interpersonal observation, and measurement or evaluation of learning. Secure electronic systems will solve some of the concern, but what is the trade-off for eliminating the face-to-face interaction between expert and non-expert?

Osborne suggests that the age of 18 is too late to learn new modes, but I believe it is never too late to learn. Perhaps the learning curve is steeper and the time longer with age, but we continue learning different behaviors as long as we live. Case in point, consider humans who lose anatomical functioning and adapt by learning new strategies to function and cope. Granted, we may get lazy and comfortable using old modes but if challenged, stimulated, rewarded, and required, we can learn new modes, especially for survival.

I welcome a reply from Tommy Osborne and invite you to join us in our dialogue.

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