

Future Takes

Your Platform For Future Related Issues

Volume 3, No. 1

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Inside this issue:

From the President	2
Outreach/Exchange program Being launched	3
Activities Old and New	6
Future Lite	7
Global Insights on Emerging Issues	9
Discussion Threads	14
Membership Form	17

Biometrics: A Future Take

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Place your hand on an electronic pad to open a door. Log on to your computer by looking into the monitor. Determine the identity of a person from a photo taken 20 years ago. Speak into your car's keyhole to both unlock the door and verify sobriety. You will accomplish all this and more in part through biometric technologies.

Biometric technology makes use of identifying characteristics that are unique to an individual, such as fingerprints, an iris pattern, facial features, voice, or hand geometry. These

characteristics can be encoded into software that is installed in a variety of electronic devices, such as computers, scanners, television monitors, and credit-card-size "smart cards."

The science fiction thriller **Minority Report** depicted a world in which human identity boiled down to the shape of an eye. Everyone's movements and habits were linked and identified by their unique pair of eyes. Marketing computers scanned people's retinas, so they could identify individuals and constantly offer "the perfect" products and services. The movie main theme depicted futuristic and proactive law en-

forcement procedures based on this biometric technology.

Today, biometrics are used primarily as a means of controlling access to buildings or computer systems. The technology required to electronically verify biological signatures has become cheaper and easier to use. Research in biological signatures and biometrics is growing rapidly.

Biometrics could hold great promise for security, but there are also concerns, exemplified in the movie **Minority Report**. The hero (a police officer) tries to conceal his true identity from the police by having

(Continued on page 4)

Beating Swords, Shields and Plowshares into Planetary Defense

by Martin Schwab
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In the years following the massive impacts of fragments from Comet Shoemaker-Levy 9 into

Jupiter in 1994 scientists around the world have been increasing optical detection of asteroids and comets that are on Earth Crossing Orbits (ECOs). Slight changes in the speeds of these objects in space can result in potentially catastrophic

collisions with Earth, or the avoidance of such collisions.

Of growing concern are the estimated one million (near Earth objects) NEOs that are 50 meters across or larger. NASA

(Continued on page 5)



From The President

by Limor Schafman

I recently listened to a presentation exploring the basis and merits of President Bush's Space Initiative, and was struck by a comment of one of the panelists to a question – "we don't need futurists, they can't predict the future." I found the comment fascinating because it showed what little understanding there is about what futurists do and the important role they play in the success of our society, and on numerous levels.

Futurism is not about predicting the future. As we see in "Future Lite" of this issue of *Future Takes*, the best minds have often erred on topics on which they themselves were the definitive leaders. Predictions may be possible, but they are not the essence of futurist thought. Rather, futurism is about exploration, thought, analysis, and strategy. It is about paying attention and asking questions. It is about taking the mundane and every day event of life and exploring its implications on numer-

ous levels. One topic explored in this issue of *Future Takes* is the Aging of America and Europe. What does this fact mean for our and other country's demographic make-up, the impact on the types of jobs that will be needed, the skills training that will need to be developed, the economic impact on youth, and trends in housing and transportation development? Biometrics, presented in another article, introduces the prospects of personal identity being used as a tool for security and a weapon for identity destruction. What does this mean for us, our privacy and our rights, as we continue to develop increasingly sophisticated biometric tools?

Every period in history and in the future has its moments of transition and challenge. We are faced with such a time now and it is incumbent on us to approach this time with eyes wide open and intellects fully charged. Engaged minds coupled with understanding gained

from interested exploration of ideas, trends, philosophies and approaches can help us manage change by preparing for it.

We at NatCapWFS make it our mission to bring our members that wide range of perspectives which will enable you to understand the world and its happenings just that much better, 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. So now, let's stride into the future together as we learn more about our world with *Future Takes* issue Vol. 3, No. 1.

Enjoy!

Limor Schafman
President

[Editor's note: We've made organizational history. Limor Schafman is the first woman president of the NatCapWFS!]

From The President*

by Eric Garland, President Emeritus
Washington Must Continue Non-partisan Dialogue on Our Legacy: WFS is the right organization at the right time

As we enter a new year, I am excited to report that chapter membership is up and that we have a whole season of speakers, interactive seminars, and professional short courses. I couldn't be more excited to serve this group of individuals dedicated to advancing foresight in Washington. I believe that this

chapter can serve a vital role in the intellectual life of this city.

The attacks of September 11 have caused a crisis that still reverberates. Especially in Washington, we have been so busy prosecuting multiple wars that time to reflect on the future has been tough to come by. Also, much to my dismay, certain political elements in the past two years have insinuated that it is unpatriotic to engage in dialogue about the long-term effects of the War on Terror, the environment, our relations with allies, pri-

vacy versus security, the Constitution, indeed almost all critical aspects of American life. As if talking openly about our weaknesses would lead to their exploitation.

Since 1967, the World Future Society has stood for an open dialogue on these and all other facets of life that will affect the legacy we leave to our children. What makes our chapter so strong is that we represent a space in which people of different political persuasions, career back-

(Continued on page 15)

Future Takes

Future Takes is the newsletter of the National Capital Region World Future Society (NatCapWFS). The National Capital Region chapter, serving Maryland, Virginia, and the District of Columbia, maintains the following objectives as delineated in its charter:

1. To contribute to a reasoned awareness of the future and the importance of its study, without advocating particular ideologies or engaging in political activities.
2. To advance serious and responsible investigation of the future.
3. To promote the development of methods for the study of the future.
4. To increase public understanding of future-oriented studies.
5. To facilitate communication and cooperation among organizations and individuals interested in studying or planning for the future.

The chapter accomplishes these goals by assembling like-minded individuals interested in the future, by promoting dialog that exchanges ideas and viewpoints, by providing networking opportunities for mentoring and career advice, and by sponsoring programs, professional training, and other activities that support studies of the future.

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Outreach / Exchange Program Being Launched

Leadership Opportunities Available

A grand vision of **Future Takes** is to publish our authors, including YOU, "far and wide" – via newsletter exchange with other organizations. Most people want to be heard, and we futurists are no exception.

Extending the concept further, we can enrich the NatCapWFS itself, the membership experience, and even "sister" organizations by encouraging members of these other organizations to publish with us (and thereby "far and wide") on future-related matters in their respective areas of interest. For example, a local professional society or interest group dealing with healthcare may have members who would like to contribute an article to **Future Takes** on the future of healthcare, particularly if their own organization does not have a newsletter. Similarly for education, the arts, nanotechnology, etc.

To get there from here, we need your recommendations regarding professional societies, interest groups, and other organizations that may want to join us in this venture. You may already be a member of one or more such organizations. If so, start there. If you can send points of contact (for example, the name of an officer and the contact information) to **Future Takes**, that will be even more helpful.

Best of all, if you would like to help spearhead this effort, avail yourself of a leadership opportunity as an "exchange editor" or "outreach editor." If this interests you, let **Future Takes** know.

These measures will enhance our stature considerably, both as a professional society to join and as a professional society of influence. As an added benefit, we will have a larger membership base that in turn will support a broader spectrum of activities. Additionally, we can provide new opportunities for members and prospective members to get published, and with maximum exposure.

As immediate past (interim) chapter president Martin Schwab and others have envisioned, we can indeed be an intellectual foundation for other NatCapWFS activities and an interdisciplinary resource from the field of future studies. Perhaps building our own think tank or otherwise becoming a highly respected national asset is in the cards. We have the deck.

Onward!

Give your colleagues in your other organizations a platform so that they can be heard! Let us know which of your professional societies and other organizations have members who can put a "future perspective" on topics in their respective areas of interest.

Biometrics

(Continued from page 1)

his eyes surgically removed and replaced with someone else's eyes. This was necessary because a higher-ranking policy official was manipulating the system to frame the hero! The possible theft of fingerprints, retinal or voice print data isn't fiction.

The National Academy of Sciences struggles with the complex and unnerving issues surrounding protection of biometric data, in terms of ensuing both security and personal privacy. They note that the biggest reason biometrics are vulnerable to misuse is that unlike computer passwords or bankcard PIN numbers, they're not secret. Biometrics are unique human qualities that anyone can see and even steal, given the proper tools. For example, an industrial spy could lift someone's fingerprint off a glass or window, much the same way crime scene analysts do, and use the print to gain access to a facility or proprietary information. The financial services industry considers this a major security threat and vulnerability.

In order to ensure thieves can't use biometrics, whether replicated or in real form, the sensitivity of the device reading the biometric data must be increased. In the case of a fingerprint scanner at a cash machine, that might mean requiring the human digit bearing the print to be presented at a certain temperature—specifically, 98.6 degrees Fahrenheit. But what if you are running a fever? Or what if, you need money from an outside cash machine and it is a very cold day in Chicago? Also, if someone were suffering from a cold or laryngitis, it's conceivable a voice reader would have trouble recognizing that person. False readings could trigger frustration, even outright hostility, among those being scanned. It

is conceivable that certain legal groups would reject the use of biometrics based on the fact that biometrics are not 100% accurate.

Biometrics also have some innate security features. Guessing a biometric code isn't as easy as guessing someone's password or using a computer program to randomly generate PIN numbers until the right one has been found. In order to use someone's biometric information, a thief would need the original or an exact copy. That's why in addition to the risk posed by someone swiping a fingerprint, there's also a security trapdoor lying in the databases that hold the copies used to validate the real identifiers. If those massive caches were ever compromised the results could be catastrophic.

Gaining access to a repository of biometric data is not only possible, it's conceivably not that hard to do. The best way to keep a database from being hacked is to keep it separated from an electronic network that could be easily accessed. Therefore, as more locations are added to a biometric network, the more vulnerable that network becomes. Hacking a biometric database isn't a major threat right now, because the technology isn't that widely used. But as biometrics systems become more prevalent, the risk will grow. The National Academy of Science recommends that biometrics should not be used for remote authentication; in other words, scans should not be sent over a network and to a central location for validation. That would mitigate the risk of the biometric code being captured in transit.

It would be far more damaging to compromise a database of biometrics than, for instance, a cache of PIN numbers. If PIN numbers are confiscated, they can be canceled, and their owners can

choose new ones. But once someone has stolen your biometric signature, we can't just ask you to change it. Anyone who steals the electronic version of a fingerprint or retina has "a digital derivative of your actual, physical being. It can't be replaced.

[Editor's note: Speak up! What possible implications of biometric technology deployment can you identify? Think in terms of a futures wheel, with "biometric technology deployment" as the event, or try brain-writing if you prefer. Send your thoughts to the editor's]

Meet a Member

Juanita Tamayo Lott is an optimistic futurist focusing on public policy, empirical data, and gut feelings. She is a transplanted San Franciscan via the University of Chicago. She is now involved with civic activities from the Interfaith Prison Ministry for Montgomery County, MD to BSA Troop 473 to anything nurturing younger generations and honoring our ancestors.

Juanita serves as senior staff on human capital management at the U.S. Census Bureau. She is the author of *Asian Americans: From Racial Category to Multiple Identities*, Alta Mira Press, 1998 and *The Common Destiny of Multigenerational Americans: Four Generations of Filipino Americans* (forthcoming).

Members in the News

At the Annual Meeting of the American Psychological Association in August, **Doug Griffith** assumed the Presidency of Division 21 (Applied Experimental Engineering Psychology).

Planetary Defense

(Continued from page 1)

does not currently have the facilities to search for these smaller but still significant threats. An example of this was the discovery of 2002 MN by the Lincoln Near Earth Asteroid Research (LINEAR) program on 17 June 2002, estimated to be between 50 and 120 meters across. LINEAR is an MIT program funded by NASA and the USAF. 2002 MN passed within 120,000 kilometers of the Earth on 14 June, three days before its discovery. Had it struck Earth in the right place, it could have destroyed a large city. While NASA is currently focused on finding one kilometer or larger NEOs, because of their potential for global devastation, NASA is also initiating a feasibility study for conducting searches for these smaller objects.

In addition to ensuring the preservation of the human species, it can be argued that planetary defense will also build prestige, confidence and relations among powers, great and small alike. These secondary effects, while seemingly separate, serve as the keystones to an architectural analogy of the cathedral of refuge against fire and brimstone. The smaller the units of politics (grains of powder versus pebbles), the greater the density and impermeability the eventual "mortar" will be when cured – in terms of watchfulness in the overall dome or arch of planetary defense. This conceptualization therefore supports a regional or continental approach to planetary defense, rather than a great power or even a state-based approach through the United Nations. Especially in regard to detection, there is much that even sub-state politics can contribute to a planetary defense regime (PDR).

An argument can be made against planetary defense or at least the public disclosure of it, because it may cause panic. This assertion can be argued the other way around. If done through effective global political leadership, citizen knowledge of and involvement in PDR could bring about initial solidarity of purpose among citizens worldwide. This might be carried over into other areas of peacemaking and the maintenance of human civiliza-

tion.

For this to occur, the United States cannot be perceived as "running the show," as if PDR is a Hollywood script. America would do better to "request" and "invite" technological assistance from the rest of the world. The United States can use PDR to rebuild the depleted prestige of large nations in Europe and Asia in a positive way. These include but are not limited to France, China and North Korea, each of which has ballistic missile capability. The problem of depleted prestige has been the result of obvious U.S. dominance; economically, socially, politically and militarily. From the perspective of the depleted, it does not matter whether this dominance has been benign or not. Furthermore, the prospect of average people worldwide, feeling empowered and connected – either vicariously through regional space programs or through smaller contributions to PDR will create bonds that will be harder to break, though never impossible.

Planetary defense captures the imagination. It promises to make full use of available global human capital and technology as a means to achieve human security and solidarity. Global solidarity has always been an objective of the American experiment in republican democracy. *E Pluribus Unum*, From Many One: "The cause of America is, in a great measure, the cause of all mankind." Thomas Paine, *Common Sense*, 14 February 1776.

The North American Aerospace Defense Command (NORAD) is an appealing template for PDR. NORAD is an international organization comprised of the United States and Canada. It is dedicated to preserving human life by determining the velocities and trajectories of threatening objects that are outside of Earth's atmosphere. Still, when preparing to defend Earth from asteroids and comets, Earth bound defense policymakers must take into account counterintuitive facts concerning out-of-plane dynamics.

The obvious terrestrial-oriented response to an approaching NEO is to "deflect" it sideways so that it will miss Earth. This countermeasure would only cause the object to wobble

in its orbit before it would still arrive at future points close to the original predictions. Instead, force (preferably non-explosive) should be directed along the flight path of an NEO, to slow it down from in front of its direction or to actually speed it up from behind. Both of these countermeasures would alter the energy of the orbit and cause the NEO to pass by the predicted intersection point before Earth would have arrived at that point in space. PDR should use re-directable space probes to rendezvous with NEOs as far away from Earth as is practicable. This factor depends on the number, optical capability, data analysis and information dissemination capabilities of the eventual constellation of NEO detection/redirection micro-satellites.

In a truly identifiable emergency that occurs before these countermeasures can be developed and tested, a United Nations resolution authorizing the use of nuclear force against an inanimate object in outer space might be quickly negotiated. However this alternative, likely to only cause fragmentation of the NEO, cannot be relied upon as a substitute for effective planetary defense planning.

Whatever form PDR ends up being, the international community should always remember the sentiment and vision of the late Representative George Brown of California:

"If some day in the future we discover well in advance that an asteroid that is big enough to cause a mass extinction is going to hit the Earth, and then we alter the course of that asteroid so that it does not hit us, it will be one of the most important accomplishments in all of human history."

Having our Cake and Eating It, Too!

Activities Old and New

Like many other organizations, we face the challenge of maximizing participation and appeal across the various demographic groups. Ever sensitive to the variation in interests and in "participation challenges" that characterize different age groups, your Council has been identifying new types of activities to complement our monthly dinner programs, a proven "winning hand." (As futurists, we know that in a non-static world, today's winning hand can become tomorrow's losing hand – just look at some corporations as well as organizations that are no longer around. This can certainly prove true for us if we let it, but we're too smart for that!) In addition, we've already begun diversifying our dinner programs.

In seeking to expand our inter-demographic appeal, we've already learned much from our reachout to college students, a chapter initiative that has actually been in place for several months. From their ranks will come the next generation of NatCapWFS leadership and membership, and they can enrich our chapter substantially. At the same time, a number of college students can benefit from association with those of us "who have gone before." While many of these students are less schedule-constrained than are those of us in the workforce, they have their own participation challenges that call for a second "winning hand," particularly if they find the price of our dinner programs out of reach. To accommodate them, we have been discussing (1) a "dinner optional" provision for our evening programs and (2) complementary

activities such as lens groups and book discussion groups. We welcome additional ideas – yours!

While these ideas are in the discussion and planning stages respectively, we've successfully implemented alternative formats for our dinner meetings. In June 2003 and again in December 2003, our evening programs featured interactive workshops on futurist methodologies as opposed to our usual programs that feature expert speakers. (These two interactive workshops are summarized elsewhere in this issue of *Future Takes*.) Then, instead of a single speaker, our January 2004 program featured a four-member panel on "Futurism – is it making a difference?" Again, we want to get the right mix of expert speaker vs. "other" programs, so "weigh in." Let your Council members know what types of programs you would like.

Back again to a proposal that is still in the embryonic stage. Your Council is also discussing the possibility of alternate venues for the evening programs – venues that give us variety (e.g., casual vs. elegant) as well as geographic diversity that includes Maryland, Virginia, and District locations. At first glance, there are tradeoffs. For example, casual venues may be more affordable for college students but less appealing to members who are more accustomed to the somewhat more elegant restaurants at which we have been meeting. The geographic tradeoffs are more obvious. A member or prospective member who has a high interest in a particular topic may choose to brave the ever-worsening traffic congestion to attend a related program on the other side of town. Those members whose interests are primarily social and/or networking will opt for activities closer to their homes or offices. Our challenge is to find the right venue mix.

So, how do we sponsor ac-

tivities that attract new demographic groups without alienating those members who have been our mainstays for years – and attain the added benefit of intergenerational dialog that will keep our chapter vibrant? How do we maximize the value of participation – for college students, members of the workforce, and retirees – for the time and money expended? How do we have our cake and eat it too?

An offer you can't refuse!

Calling All Graphic Artists!

Here's a contest. We're looking for a new layout for *Future Takes*, primarily from an aesthetic and impact standpoint. In addition, the layout needs to be one that can be readily implemented using standard, readily available desktop publishing or equivalent software. The winning design earns a free dinner (paid for by Dave Stein, Editor-in-Chief) at a NatCapWFS evening program.

The "fine print": The *Future Takes* Editorial Board members, excluding those who participate in the contest, will serve as the judges. The dinner must be claimed within six months after the announcement of the winner.

Give Us Your Perspective on the Future

We are looking for people with vision in any area of interest or expertise to write a future-oriented article for *Future Takes*. Your vision may come from personal experience, reading, lecture notes, or a topic that in your view is important for the future. Please share your thoughts with our chapter members, preferably in 1000 words or less. Send your contribution to Dave Stein, Editor-in-Chief at M742503402@cs.com

"The Other Side of the Future"**Future Lite**

by Lindan Lee Johnson
lindanlee@hotmail.com

Welcome to **Future-Lite**. 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.

Today's column is dedicated to every brave and fearless Futurist who has ever found himself or herself trapped in a room filled with the horrible, the terrible, the hideous, the soul-sucking **Subject Matter Experts!**

These SMEs (*pronounced shrilly as SMEEEEEEEEEEEEEs*) are the same cretinous creatures that would respond to your amazing, brilliant, awe-inspiring presentation with something profound like:

"That boat will never float."

And then they would laugh uproariously, congratulating each other in the triumph of the status quo and say something witty like:

"Okay, enough fantasy, Future Girl, let's get back to the Real World."

Please note: This experience has absolutely nothing to do with a certain meeting that I happened to be at yesterday. I would never ever abuse the power of the press for my own selfish reasons... unless they were very very good reasons.

However, it still provides an excellent opportunity for us to take a moment to reflect on the reality checks provided by other Subject Matter Experts in other conference rooms along the time-space continuum.

CULTURE

1486: *"...so many centuries after the Creation it is unlikely that anyone could find hitherto unknown lands of any value."* Committee advising King Ferdinand and Queen Isabella regarding a proposal by Christopher

Columbus

1905: *"Sensible and responsible women do not want to vote."* Grover Cleveland, former U.S. President

1929: *"Stock prices have reached what looks like a permanently high plateau."* Yale University Professor of Economics Irving Fisher, two weeks prior to the stock market crash and the start of the Great Depression

1944: *"You better learn secretarial work or else get married."* The director of Blue Book Modeling Agency advising Marilyn Monroe

1954: *"You ain't going nowhere, son. You ought to go back to driving a truck."* Jim Denny, manager of the Grand Ole Opry, in firing Elvis Presley after a performance

1967: *"If anything remains more or less unchanged, it will be the role of women."* Social scientist David Riesman

1962: *"We don't like their sound, and guitar music is on the way out anyway."* President of Decca Records, rejecting the Beatles in 1962

SPACE

1921: New York Times editorial about Robert Goddard's revolutionary rocket work: *"Professor Goddard does not know the relation between action and reaction and the need to have something better than a vacuum against which to react. He seems to lack the basic knowledge ladled out daily in high schools."* Note that the day after Armstrong walked on the moon in 1969, the New York Times printed a short-boxed item on page 2. It read in full: ***"Errata: It has now been conclusively demonstrated that a rocket ship can travel through the vacuum of space. The Times sincerely regrets the error."***

1936: *"A rocket will never be able to leave the earth's atmosphere."* New York Times

1956: *"Space travel is utter bilge."* Dr. Richard van der Reit Wooley, Astronomer Royal, UK space advisor to the government, the prior to Sputnik orbiting the earth

1957 (two weeks before Sputnik orbited the Earth): *"Space travel is bunk."* – Sir Harold Spencer Jones, Astronomer Royal

of the UK

MEDICAL

1830s: *"Rail travel at high speeds is not possible because passengers, unable to breathe, would die of asphyxia."* Dionysius Lardner (1793-1859), Professor of Natural Philosophy and Astronomy at University College, London, and author of *The Steam Engine Explained and Illustrated*

1873: *"The abdomen, the chest,*

(Continued on page 8)

Future Takes Bulletin Coming!

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

Dave's Think Tank

Issue of the quarter: How do you envision quality of life in the year 2020 in relation to the present? What are the relevant drivers, and what metrics would you use to measure quality of life? You may focus on the US or on another geographic region of your choosing, but specify.

Have your views on this topic published and considered by your peers in the National Capital Region. Send them to the Editor-in-Chief (m742503402@cs.com).

(Continued from page 7)

and the brain will forever be shut from the intrusion of the wise and humane surgeon." Sir John Eric Ericksen, British surgeon, appointed Surgeon-Extraordinary to Queen Victoria

1839: *"The abolishment of pain in surgery is a chimera. It is absurd to go on seeking it. . . . Knife and pain are two words in surgery that must forever be associated in the consciousness of the patient."* Dr. Alfred Velpeau, French surgeon

1954: On smoking: *"If excessive smoking actually plays a role in the production of lung cancer, it seems to be a minor one."* W.C. Heuper, National Cancer Institute

TECHNOLOGY

1876: *"The Americans have need of the telephone, but we do not. We have plenty of messenger boys."* Sir William Preece, Chief Engineer, British Post Office

1901: *"I am tired of all this sort of thing called science here ... We have spent millions in that sort of thing for the last few years, and it is time it should be stopped."* U.S. Senator Simon Cameron, on the Smithsonian Institute

1901: *"Man will not fly for 50 years."* Wilbur Wright, to brother Orville after a disappointing flying experiment two years prior to their first successful flight in 1903

1908: *"I confess that in 1901 I said to my brother Orville that man would not fly for fifty years. Two years later we ourselves made flights. This demonstration of my impotence as a prophet gave me such a shock that ever since I have distrusted myself and avoided all predictions."* Wilbur Wright in a speech to the Aero Club of France

1909: *"That the automobile has practically reached the limit of its development is suggested by the fact that during the past year no improvements of a radical nature have been introduced."* Scientific American, Jan. 2, 1909

1921: *"The wireless music box has no imaginable commercial value. Who would pay for a message sent to nobody in particular?"* Radio pioneer David Sarnoff

1922: *"The radio craze will die out in*

time." Thomas Edison, 1922

1927: *"Who the hell wants to hear actors talk?"* H.M. Warner, Warner Brothers

1842: *"I watched his countenance closely, to see if he was not deranged ... and I was assured by other senators after he left the room that they had no confidence in it."* U.S. Senator Smith of Indiana, after witnessing a demonstration of Samuel Morse's telegraph

1943: *"I think there is a world market for maybe five computers."* Thomas Watson, Chairman of IBM

1946: *"Television won't last because people will soon get tired of staring at a plywood box every night."* Darryl Zanuck, Movie Producer, 20th Century Fox

1949: *"Computers in the future may weigh no more than 1.5 tons."* Popular Mechanics, forecasting the relentless march of science

1959: *"The world potential market for copying machines is 5000 at most."*

IBM to the founders of Xerox, 1959

1968: *"But what ... is it good for?"* Engineer at the Advanced Computing Systems Division of IBM, commenting on the microchip.

And finally, I offer a toast to one of my favorite Subject Matter Expert's predictions:

1981: *"640K ought to be enough for anybody."* Bill Gates

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!

Look What You Missed!

The Restoration Economy

Synopsis of the May 22, 2003 chapter dinner program; summarized by Dave Stein and Ken Harris

You've probably noticed many local restoration projects such as the \$3 billion Pentagon restoration, the \$100 billion Chesapeake Bay restoration, the rehabilitation of thousands of old houses and office buildings, etc. However, did you realize that restoring our natural and manmade environments now accounts for over a trillion dollars per year worldwide? Our May speaker, Storm Cunningham, has discovered that this economic sector comprises eight component industries, which together are the fastest-growing portion of the global economy and which even in economic downturns are relatively robust.

Beginning with a historical perspective, Mr. Cunningham discussed the consequences of over-investment in new development at the expense of restorative development – specifically, that this *modus operandi* can lead to crises that imperil a civilization. These crises or failure modes have been contamination (pollution), corrosion (of infrastructure), and constraint (or lack of available land that is not already doing something for someone). The unique characteristics of the present era are that these three crises are occurring simultaneously –

(Continued on page 9)

Futurist Link of the Quarter

<http://www.singularitywatch.com/>

Who is your favorite futurist?

Please nominate for this column.

(Continued from page 8)

and globally – with two being driven by population growth.

A pioneer in helping businesses, investors, and governments achieve dramatic economic growth via restorative development, Mr. Cunningham identified the new restorative industries that are focused on areas such as the ecosystem, the watershed, fisheries, agriculture, brown fields, the infrastructure, and heritage. In addition, he discussed the payoff value and cost effectiveness of restoration. For example, restoration has monetary value to the local community. If a building is restored, the block gains value. If a block is restored, then an entire neighborhood gains value, and so on. Similarly, adaptive re-use of abandoned buildings puts them back on the tax rolls and into the active economy.

Another new paradigm is to reconnect people with their waterfronts after years of displacement by docks, warehouses, and factories. Likewise, improvement in scenery often leads to substantial increases in value of the adjacent properties. In one instance, the restoration of a watershed cost less than one-fourth the cost of the alternative course of action, the construction of a water filtration plant.

In some cases, as Mr. Cunningham noted, restoration can even be as simple as the passive measure of stopping the activity that is creating the damage. Considerable synergy can be attained by integrating the activities of all of these restorative industries in a given locale.

A key to restorative growth, as identified by Mr. Cunningham, is value replacement in the long term. He discussed the pitfalls of replacing a watershed that has been producing for more than a million years with a shopping mall that has an expected life of thirty years.

Mr. Cunningham believes that

we are at the turning point from “frontier mode” to revitalizing the vast territories we’ve developed over the past centuries. The near future will include numerous opportunities for revitalization including Base Realignment And Closure (BRAC) 2005. He further asserts that the future belongs to those entrepreneurs, community leaders, inventors and investors who adopt the principles of **integrated restoration**. This strategy restores the natural and the manmade worlds together, thus triggering powerful, economic, social, and ecological synergies.

Global Insights on Emerging Issues

(reprinted with permission from the August 2003 edition of *Alternative Futures*, the newsletter of the Institute for Alternative Futures, Alexandria, Virginia; Marsha Rhea, editor)

As Europe ages and economic vitality follows the workers to developing countries, the European middle class will be redefined into two potential groups: those moving up will be global, mobile, and closer to other Europeans, according to Per Lundgren of Kairos Future in Stockholm. Those moving down will be nostalgic, dissatisfied and nationalistic, creating the potential for the conditions of the 1930s.

The most destabilizing geopolitical force in the world today is the vast number of young men without jobs and other opportunities, according to Edie Weiner of Weiner Edrich Brown, Inc. of New York. She also forecast that U.S. young people of Generation Y may be the first generation seeking job opportunities overseas to avoid a job market still dominated by longer-working boomers.

Our inherited mental maps don't fit today's challenges, creating an

Where Were YOU?

Interactive Foresight Exercises

Synopsis of the June 19, 2003 chapter dinner program; summarized by Dave Stein

In a locally unprecedented, out-of-the-box adventure under the leadership of then-chapter president Eric Garland, the National Capital Region World Future Society (NatCapWFS) featured interactive foresight exercises during its June 2003 evening program. A departure from our normal series of dinner speakers, the exercises were led by three leading local area futurists, Joe Coates, Eric Garland, and Dick Smith.

THE DELPHI METHOD

Leading off with a participatory overview of the Delphi method, Mr. Coates pulsed the participants with the question, "The energy consumption in the US in 1960 was X quads (quadrillion BTUs). In 2000, it was Y quads. What will the energy consumption in the US be in 2025?" The participant responses ranged from levels far above Y quads to levels considerably below Y quads. The reasons identified for increased energy consumption in 2025 were (1) a large increase in the population, (2) new energy sources that make energy more readily available, (3) new energy efficiency technologies that lower the energy costs, (4) a sense of manifest destiny, and (5) an increase in the number of energy-consuming devices. Other par-

(Continued on page 15)

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ticipants envisioned a reduction in energy consumption in 2025, basing their responses on (1) different lifestyles in which there is less need to consume energy, (2) a drastic reduction in population as a result of war or other catastrophic event, (3) improved conservation, (4) an aging population that needs less energy, (5) a further transition to a post-industrial, IT-based society, and (6) new technologies.

To illustrate the method, Mr. Coates plotted the responses on an axis and identified three points that together represented the "average" response and the breakpoints between the mainstream responses and the upper and lower outliers. It is the outliers that represent thinking that is not yet incorporated into the conventional wisdom. As Mr. Coates put it, "the experts know and the non-experts think." Most "experts" extrapolate current trends and don't allow for discontinuous, nonlinear events. A few true genius experts will be out in front of a group of non-experts, but the non-expert group is generally smarter than most experts. Under the Delphi method, the new insights are incorporated, after which the group is pulsed again. In "real life," such pulsing is sometimes accomplished in a group setting and at other times is via correspondence.

As the exercise masterfully illustrated, Mr. Coates was quick to point out that the Delphi method does not provide "the answer" but instead indicates the specific studies that are needed for further information. Noting that a group with a shared base of knowledge will sometimes converge rapidly on an answer, Mr. Coates indicated that such convergence is not the primary objective of the method, nor is it necessarily desirable.

Variations on the theme in-

clude questions such as "In what year will [an event] happen?" or "How important is each of these factors on a 1-10 scale?"

To baseline or calibrate the group of participants, "almanac" or surrogate questions (for which the answer is already known) are sometimes used. For example, suppose the real question involves the level of cotton production in Alabama in 2015. Surrogate questions, based on the known trends leading to the level of cotton production there in 1940, can be presented to the group before they turn to the question of interest.

WHEELING AND WHEELING

The next exercise, spearheaded by Eric Garland, was the futures wheel, another technique often used by professional futurists. It is helpful to start with a template that consists of several irregularly-spaced circles on a single sheet. The technique involves identifying an event and writing it in a circle near the center of the page. Then, one asks what will result from the event. These primary consequences are placed in the circles that immediately surround the event circle. These consequences, in turn, nucleate ideas on secondary and tertiary implications, which are placed in circles progressively more distant from the event circle. The pre-exercise example, an event in the past, was the advent of the automobile as the preferred means of transportation. The primary consequences identified were (1) more privacy and freedom for teenagers, (2) the decline of the extended family, and (3) new living and working patterns – specifically, the freedom to live in one place and work at another. The decline of the extended family, in turn, led to (2a) the loss of intergenerational wisdom at home and (2b) the rise of long-term care facilities. At the same time, the freedom to live in one place and work at another ultimately led to

lengthy commutes that resulted in a loss of leisure time and with it, a new *de facto* slavery. [Author's note: In addition, it prolonged the absences of parents from homes, in turn adversely impacting family life (and possibly divorce rates, juvenile crime, and juvenile drug use). Furthermore, let's not forget the impact on the ability to maintain a balanced lifestyle with adequate rest, exercise, nutrition, and family/leisure time – and how does this impact health care costs?]

For the exercise, the participants were divided into groups. One group's event was a biological attack in Ireland, resulting in 400 deaths. The possible "fallout" included (1) a stock market crash, (2) an impact on the travel industry, (3) calls for more surveillance, (4) a revitalization of the IRA, (5) increased church attendance, (6) an increase in charitable contributions from Irish people in other parts of the world, (7) new Irish folk songs, (8) the fall of the Irish government, (9) an Irish government request to the United Kingdom government to share more intelligence, (10) an increased flow of refugees to Northern Ireland, (11) new travel restrictions, and (12) an overload of hospital facilities. A stock market crash might well precipitate a general economic downturn. In the case of the travel industry, the secondary consequences might be (2a) an initial worldwide industry decline, which itself might lead to a general economic downturn as a tertiary consequence, followed by (2b) a rebound in which travelers prefer other destinations over Ireland. The calls for more surveillance might (3a) adversely impact privacy, (3b) precipitate a shifting of budget priorities within various governments, and (3c) result in higher security for biological labo-

(Continued on page 11)

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ratories. Increased church attendance might conceivably lead to a reduction in divorce rates in Ireland. If the UK does not oblige Ireland's request for intelligence sharing, tensions between the two countries might increase. Tensions might likewise be exacerbated by a refugee problem. Increased travel restrictions might themselves give rise to a general economic downturn. Finally, an overloading of the hospital facilities by those who later die or by those that survive but become very ill might increase the health risks to other patients.

The second group considered an event of a substantially different nature, specifically, the growth of the Chinese middle class to a size that eclipsed the US middle class. The primary consequences identified were (1) a change in the diets of China's citizens, (2) increased mobility among China's citizens, (3) a growth of democracy in China, (4) an increase in the number of entrepreneurs in China, and (5) increased demand for and consumption of world resources. In turn, the envisioned secondary consequences of the diet change included (1a) new markets for US agribusiness and (1b) health implications of fast food diets (if such diets represented the direction of change), possibly extending to new leading causes of mortality in China.

The third group considered the discovery of a cure for AIDS. They envisioned primary consequences that were not only diverse but also contradictory in some cases (and contradictory consequences are permitted and even encouraged!). These primary consequences included (1) an increase in the African population as more people live normal lifespans, (2) a decrease in the African population as priorities shift away from having large families, (3) the development of cures for other

diseases, (4) a new leading cause of mortality in regions where AIDS had been prevalent, (5) more investment by African nations in education as more resources were freed up, (6) impact on the women's movement and sexual freedom, and (7) favorable or unfavorable impacts on the pharmaceutical companies, depending on whether they discover the cure or whether biotech companies do so.

A fourth group considered the retirement of the baby boomers. The primary consequences included (1) new ways of self-enjoyment and self-actualization and (2) new types of housing and new ways to build it. Still another group looked at a hypothetical increase in the inner city populations coupled with a corresponding decrease in the suburban populations. The primary consequences were (1) a downturn in car sales, (2) an increase in mass transit, (3) restoration of old buildings (a secondary consequence of which might be a shot-in-the-arm to the construction industry), (4) an increase in community spirit, and (5) a plummeting of suburban values (leading to the secondary consequence of mass bankruptcies).

BRILLIANT IDEAS!

At this point, with the participants' minds already stretched, Dick Smith took the stage to enlighten them on a third futurist methodology, ideation. In ideation, future worlds are built by mixing and matching disparate trends, and these worlds become the backdrops for strategic planning and analyses. This particular exercise had a commercial focus, in that each group of participants was asked to hypothesize one or more new products that would have a large market in which ever "brave new world" was presented to them.

The trends left over from the futures wheel exercise gave the partici-

pants one leg up in creating the future worlds for the ideation exercise, as it was these trends that were mixed and matched. World 1 was characterized by increased democracy, more community spirit, less privacy, and new ways of physical enjoyment. The descriptors for World 2 were increased mass transit, increased attendance at religious activities (church, synagogue, mosque, temple, etc.), and an increasing pervasiveness of the North American fast food lifestyle and diet worldwide. You get the idea.

The new commercial products and services hypothesized for World 1 included (a) voting machines that make public who votes and who doesn't, (b) a free community co-ed spa membership for citizens who vote, (c) a community clothing line, and (d) an herbal pill that make one feel good in what ever manner he or she wants to imagine. World 2 markets might include (a) increased mass transit to religious institutions, perhaps arranged by the churches, synagogues, mosques, and temples themselves, (b) fast food stands at the mass transit stops, perhaps catering to the special dietary needs of people attending religious activities, and (c) similar fast food provided by the religious establishments themselves.

You Missed It!

Interactive Foresight Exercises II

Synopsis of the December 16, 2003 chapter dinner program; summarized by Dave Stein

Back by popular demand, Nat-CapWFS presented an evening of interactive foresight exercises led by two local area professional futurists, Joe Coates and Eric Garland. The exercises were in conjunction with the 2003 holiday season mixer on December 16.

"BRAIN WRITING"

The evening started with an exercise in "brain writing," a variant of brainstorming. The participants were divided into three groups, and each group was time-warped to a future characterized by a "new development," the possible consequences of which they were to identify. The "new developments" were (1) "renewable energy sources provide 27% of all energy consumed," (2) "the cost of obtaining one's own genome is only \$5.00," and (3) "voter participation drops to 28%." The rules of engagement stipulated that each participant list three to five possible consequences of the development and then pass his/her response sheet to the right. Upon receiving another participant's response sheet, each participant was asked to add new consequences and/or build on those already listed. As in conventional brainstorming, critical comments were not permitted, although contradictory consequences were. The process continued until each response sheet found its way back to its originator, at which time the participant responses were consolidated into a group report.

As evidenced by the consequences identified, this exercise was

indeed thought-provoking. As in the May 2003 **Interactive Foresight Exercises I**, primary consequences led to secondary and tertiary consequences and beyond. Consequences identified for the "renewable energy" development were as follows:

1. Pollution reduction, leading to reduced incidence of illnesses and increased longevity – in turn exacerbating the population explosion and the social security crisis,
2. Independence from Middle Eastern oil, in turn impacting national interests, US foreign policy, and the US military force structure,
3. A collapse in the Middle Eastern economy resulting in a lowering of the living standard there and perhaps in an overthrow of some regimes,
4. A lowering of personal transportation costs, possibly leading to nomadic lifestyle for more people,
5. An increase in the water supply as desalinization plants became less costly to operate,
6. Increased energy usage as energy became cheaper and more available, perhaps eventually nullifying the advantages of the cheaper energy,
7. Increased international travel, resulting in more inter-ethnic and inter-cultural marriages,
8. Improvement in the standards of living for "have-nots" (people and nations), in turn reducing wealth gaps and socioeconomic polarization.

Similarly, the "genome" group identified possible consequences of their own new development:

1. More pre-emptive identification of individuals at risk for certain diseases,
2. Increased discrimination by employers and by insurers,

accompanied by the resulting ethical and legal challenges,

3. Genetic-based dating and selection of spouses,
4. Genetic-based bigotry,
5. New and terrible biological weapons that target specific ethnic groups,
6. Increased use of genetics to study human evolution and migration, possibly leading to the proof or disproof of the contemporary theory of evolution.

Not to be outdone, the third group presented their own insights regarding the possible consequences of low voter participation:

1. An increase in the cost to mount a political campaign, such that the candidate pool is more wealthy on the average and/or special interest groups gain control,
2. A new voting process, perhaps via e-mail or in conjunction with tax return filings,
3. A new law making voter participation mandatory, as is presently the case in Australia,
4. A change in the Constitution (no details specified),
5. Either increased or decreased accountability by elected officials to their constituents (no consensus on this one),
6. Increased alienation of the population, possibly leading to a sense of fatalism,
7. An armed revolution,
8. An opportunity for a despot to seize control.

YOUR SCENARIO OR MINE?

This first of three exercises was followed by a mini-lesson in scenario development, presented by Joe Coates. Mr. Coates began with a brief discussion of the two primary purposes of a scenario or sce-

(Continued on page 13)

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nario-based study. A study might be undertaken to promote policy discussion that provides input into policy thinking. Conversely, it might be focused on reaching a policy conclusion, which is an output from policy thinking. Some participants may have been surprised to learn that scenario development is not the initial step in a future-oriented study. The study begins with identifying the relevant "drivers" – that is, those factors that shape the planning space and that can impact the optimum choice for a policy, strategy, or course of action. In the commercial sector, for example, a business would want to choose markets and strategies that maximize the bottom line. It is equally important to know the range or scope of each driver (e.g., global, regional, national, or local) and how they interrelate.

With the drivers identified, the next step is to develop scenarios or "pictures" of the various alternative futures that are to be considered. On a typical study team, everyone might write a scenario that takes into account each driver or variable in a non-quantitative way. The scenarios may range from a static future to ones in which the drivers are pushed to their extremes in various combinations. A best- or worst-case scenario is often one in which all of the possible developments happen.

As Mr. Coates explained, scenarios can be written in any of several formats such as a report, a political speech, or a newspaper story, but they need to be complete (in terms of considering all variables) and satisfy a "soundness" test. In addition, they should generate interest. As a picture of an alternative future "now," each scenario typically has a history of how

the world arrived at the now. These histories are often developed by "backcasting" from the future "now."

Within a particular study, scenarios should be selected on the basis of policy richness, as Mr. Coates advised. He further suggested that as a hedge against domination of the study by an "average" or "middle" scenario, an even number of scenarios be written and used. Furthermore, each scenario should have a name that is easy to remember and associate with the scenario, or in futurist parlance, "adhesive." Even the need to manage the management was emphasized, as early involvement of the management will often constrain the study if the management lacks a good view of the external world. Finally, when the study is complete, each conclusion reached should be examined for robustness – that is, the number of scenarios that support it. A conclusion that is highly sensitive to the alternative future that emerges is less general and often less useful.

In the supporting exercise, participants were asked to identify drivers that can impact the future of a well-known automotive company. These drivers (no pun intended) included alternative modes of transportation, demographics, living and working patterns, consumer demand (buying power to purchase and operate cars), congestion, overseas consumer demand, environmental regulations, and

traffic congestion. Among the brilliant scenario names suggested were "beyond combustion," "who needs a car?," "[the company] drives worldwide," "what was a [brand name]," and "beam me up, Scottie."

CROSS-IMPACT ANALYSES

Mr. Garland led the third exercise, which featured a cross-impact analysis of drivers that influence the future of the newspaper industry. As in any study, it was first necessary to identify the drivers. In spite of the time constraints imposed by the late hour (or perhaps because time flies when one is having fun!), the participants identified numerous drivers including (1) internet availability and usage, (2) alternative sources of news, (3) literacy rates, (4) credibility of the news, (5) the advertising industry and their choices of media, (6) the readership, (7) the ecology, (8) demographics, (9) production costs per page, and (10) availability of free time to read newspapers. Drivers such as these are often interactive. For example, if the readership goes down, then newspapers become less attractive to advertisers.

To facilitate this cross impact analysis, these drivers were used to head the rows and columns of a

Drivers THEN ►	1	2	3	4	5	6
IF ▼						
1	N/A	++	–	+	+	0
2	+	N/A	0	+ / –	0	0
3	0	+	N/A	0	–	–
4	– –	–	0	N/A	+	0
5	0	0	+	–	N/A	+
6	+	0	++	0	+	N/A

(Continued on page 15)

Discussion Threads

This issue continues two discussion threads, one on demographics and one on cultural diversity. *Future Takes* welcomes supporting, opposing, and other relevant commentary. ***Discussion Thread on Demographic Issues: Demography as Destiny***

by Juanita Tamayo Lott,
jtloott@capaccess.org

Part 2: The Demography of Aging

The introductory article for this discussion thread stated that demographic transition and future sustainability can be viewed within the global village. With respect to aging, such a view would cast Europe as very old, North America as middle age, and Africa, Latin America, Asia and the Middle East as adolescents and children. The aging of the United States population and other post-industrialized nation states has developed in the last century. In 1900, half of the U.S. population was less than 22.9 years old. By the end of the 20th

century, this increased to 35.3 years old, the country's highest median age ever. In 1900, children younger than 15 years of age comprised over one-third of the U.S. population (34.5 %) while persons 65 years and older comprised only 4.1%. By 2000, children younger than 15 years old were only one-fifth (21.4%) of the U.S. population while the older population of 65 years and older had more than doubled to 12.4%. The most rapid growth of the older population in the 1990s was for the oldest age group, 85 years and older, which increased from 3.1 million to 4.2 million. On a comparative level, 15.5 % of the European population is 65 years and older, 6% for Asia (except for Japan at 17%), 5.5% for Latin America and the Caribbean, 4.3% for the Middle East and North Africa, and a low of 2.9% in sub-Saharan Africa. The lower proportions of elderly individuals outside of Europe and North America mask the fact that developing countries

are aging as well, often at a much faster rate than in post industrialized countries.

More rapid growth of the U.S. population age 65 years and over will begin in 2011 when the first of the baby boom generation reaches age 65 and will continue throughout this generation's senior citizen phase. This growing aged population affects the future worker/dependent ratio and society's ability to sustain resources for an elderly and increasingly dependent population. Already, baby boomers also labeled 'the sandwich generation' are coping with care for their decreasingly independent parents, oftentimes while their own children are still dependent and living at home. Various living arrangements for the older U.S. population, ranging from full independence to total assistance, are welcomed by them to accommodate their changing needs. On the other

(Continued on page 15)

Discussion Thread on Cultural Diversity

By Tommy T. Osborne, COL, USA
(Ret), TheOsbornes16@msn.com

You [Dave] ask key questions which are central to the survival of homo sapiens. Cultures are one of the principal tools we developed to evolve. I emphasize tools (plural) against the current trend to count mega cultures, or major civilizations. Among major civilizations, one could list Islam, Judeo-Christianity; Hindu; Buddhist – this would forget the micro-civilizations which a few thousand developed

and used when the world was much younger and we were much less numerous. A few hundred thousand spread over the globe are more likely to develop alternate means of survival than clumps totaling 6 billion!

Loss of cultural diversity follows loss of biodiversity for both demographic and hegemonic reasons, I think.

Demographic because there are fewer places where the big cultures/big populations aren't in control. Hegemonic because many have difficulty living in proximity to those

whose cultures are dramatically different. The hegemon wins by enculturation – ask any Amish how easy it is to escape the "modern world" even when you're not so different. As the exotic cultures and languages die we do lose, as Dave posited, alternative operating systems that we can turn to when the world changes and/or our current *modus operandi* doesn't work. As a minimum, it is useful to catalog and record the fullness of human cultures, so we can reach back when need be to another paradigm.

(Continued from page 14)

hand, high quality care assumes substantial assets and is time and labor intensive. While baby boomers appreciate the variety of living arrangements for their elders, they do not see the same opportunities available to them when they will exhibit similar dependent needs. The growth in elderly populations, requiring varying levels of dependent care, coupled with the proportional decrease in younger populations who are the source of the future workforce, is a challenge in general for society and in particular for futurists.

This article was based on data gleaned from the following sources:

1. Hetzel, Lisa and Annetta Smith, "The 65 Years and Over Population: 2000" Census 2000 Brief, U.S. Census Bureau, issued October 2001.
2. Hobbs, Frank and Nicole Stops, *Demographic Trends in the 20th Century*, Census 2000 Special Report, U.S. Census Bureau, issued November 2002.
3. Kevin Kinsella and Victoria Velkoff, *An Aging World: 2001*, International Population Reports, U.S. Census Report, issued November 2001.
4. Lott, Juanita Tamayo, "Economic Implications of Demographic Shifts," prepared for the U.S. Economic Policy Seminar, League of Women Voters, Wash-

(Continued from page 13)

matrix or grid, on which the arithmetic symbols +, -, and 0 indicated positive correlation, negative correlation, and no correlation respectively.

This methodology not only stimulates discussion, analysis, and out-of-the-box thinking but also highlights relationships that require additional data. Each matrix cell represents a relationship, and a relationship is generally

understood, at least to first order, if strong positive or negative correlation (respectively ++ or --) is indicated. In these cases, there is little need to expend additional effort to characterize or prove the relationship. Conversely, entries of +/- or +/-0 indicate relationships that are not well understood with confidence, have more than one interpretation, or for which there is otherwise a lack of consensus. For these relationships, additional data are needed, and in "real life," a study team may assign one of their members to obtain the additional data. A comprehensive characterization of these relationships can serve as the basis for a computer model. However, this was an exercise involving only one portion of a normal study, and the hour was late.

EMPOWERED FUTURISTS!

And so, as the participants mastered the lessons of the evening, they moved a step closer to becoming wise in the ways of the futurists. Perhaps their thoughts again turned to the automotive company exercise as they mounted their own iron horses for the trek home. It was an evening to remember, and the "real thing" was far better than can be captured here after the fact – so, why read about it second hand when you, too, can have a front row seat and a part of the action?

(Continued from page 9)

urgent need for an evolution in consciousness. This "next enlightenment", as Walter Truett Anderson coins it in his upcoming book, will be a transformation in identity.

Democratic institutions are not sufficiently participatory or anticipatory and need reinvention, according to Richard

Lamm, former Colorado Governor and director of the Public Policy Department at the University of Denver. Bezold, who moderated the closing plenary with Lamm, Joel Barker, and James Canton, took up the challenge and volunteered to organize a track of sessions on reinventing democracy for next year's WFS conference.

Five Regions of the Future. Joel Barker, president of Infinity Limited, Inc., wowed the closing plenary by introducing five regions of the future he calls TechnoEcology. Different world views determine the technologies that are emphasized. SuperTech stresses technological solutions; LimitsTech stresses limits to growth and conservation thinking; LocalTech is centered on community-based solutions; NatureTech takes its design cues from the biological world; and Hu-

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grounds, and ages can share perspectives on how our actions will play out in the future. Let our chapter of the World Future Society be the place for discussion about the future impacts of our policies and business decisions.

The strength of this organization increases when it gains more members from more diverse backgrounds. For these reasons, our goal for membership by June 2004 is 300 members. This is up to us all individually. Feel free to forward our meeting announcements to your colleagues, friends, and anyone who appreciates this open exchange of information. We will supply you with promotional materials and a website with ample information. The more the merrier, and the more interesting!

I am excited to see how this year will turn out and honored to

(Continued on page 16)

Capital Science 2004

**Presented by the Washington Academy of Sciences
and its Affiliated Societies
March 20 - 21**

Capital Science 2004, presented by the Washington Academy of Sciences and its Affiliated Societies, will be held on the weekend of March 20-21, 2004 at the National Science Foundation, 4201 Wilson Blvd. near the Ballston Metro Stop.

A schedule of lectures, round-tables, and seminars presented by eminent local scientists will cover the spectrum of scientific disciplines and will provide a unique opportunity to explore the multifaceted scientific community working in the Capital area.

The conference will feature:

- 📁 Luncheon Addresses by Nobel Laureate William Phillips and by Director of the Executive Office of Science and Technology Policy, John Marburger III.
- 📄 Dinner keynote address by NSF Director Rita Colwell
- 📄 A Memorial discussion of the multi-faceted contributions of Nobelist Ilya Prigogine, presented by a panel consisting of Andrew Vogt, Prof and Head, Dept. of Mathematics, Georgetown University, Joseph Earley, Prof. and Head, (Retired), Dept. Of Chemistry, Georgetown University, Ali Cambel, Prof. and Dean, (Retired) College of Engineering, George Washington University, and Robert Arigiani, Prof and Head, History Dept., US Naval Academy.
- 📄 A weekend's worth of sessions on science policy, history of science, disciplinary, and interdisciplinary studies.

And specifically from our National Capital Region World Future Society (NatCapWFS):

Futurists are preparing for and in some cases designing our future. Hear seven of the areas most captivating futurists speak on topics that range from the broadest possible public concern to areas in our lives that are held most private.

Come early and as we speak, watch the future unfold before your very eyes:

- 2:00pm Donna Heivilin - *Future thinking at the U.S. General Accounting Office*
- 2:25pm Lt Col Dave Stein, USAFR (Ret) - *Future of U.S. Defense Planning*
- 2:50pm Martin Schwab - *Future of Planetary Defense*
- 3:15pm John Meagher - *Future of Self-Driving Automobiles*
- 3:40pm Gary Marx - *Future of Education*
- 4:05pm Natalie Ambrose - *Future of Philanthropy in the U.S.*
- 4:30pm Joseph Coates - *Future of Sex*

Attendance Fees:

Members of the Washington Academy of Sciences or an Affiliated Organization: \$50.00 before February 29, \$75.00 thereafter.

Non-members: \$100.00 before February 29, \$150.00 thereafter.

Full Time students (as space allows): \$0.00 before February 29, \$25.00 thereafter.

Fees include both Saturday and Sunday attendance, continental breakfasts, and coffee breaks. Lunches and dinners will be charged separately.

Please check our website at <http://www.washacadsci.org/Website/Index.htm> for further details. Contact: Peg Kay, Conference chair - pk@vertechinc.com

(Continued from page 15)

share the journey with you.

Yours sincerely,
Eric Garland
President

National Capital Region World
Future Society

*[Editor's note: Eric Garland was Chapter President at the time he authored this column. In conjunction with his subsequent relocation to Vermont, he has resigned his office and his council post. Eric's vision will continue to be a driving force in the NatCapWFS for the months ahead, and he will continue to

share the journey with us.]

National Capital Region World Future Society Membership Application and Renewal Form

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

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

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

Date _____

Your Name _____

Your Spouses Name (for Family membership) _____

Organization _____

Address _____

Phone _____

Email _____

Areas of interest _____

Interest in helping the chapter? _____

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

Charge my ___ Visa ___ MasterCard ___ American Express ___ Diner's Club
Card No. _____ Exp. Date _____

() \$30 for family membership (includes spouse)

() \$20 individual membership

() \$10 Full-time student