



[Dr. George Poste, Director.
(May 29, 2007). Overview:
Converging, Combining,
Emerging. Highlands Forum 32,
77 pgs., Arizona, The Biodesign
Institute, Arizona State
University. Source: [https://
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[Go to Highlands Group
website capture \(141 pgs.\)](#)

[Go to Whistleblower Affidavit
of Highlans Group
participants](#)

Overview: Converging, Combining, Emerging

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Highlands Forum 32, Arizona, 29 May 2007

Robo-

Cogno-

Info-

CONVERGENCE

Eco-

Nano-

Bio-

Robo-

Cogno-

Info-

CONVERGENCE

Eco-

**new interaction
patterns and
complex adaptive
- systems**

Nano-

Bio-

**Non-linear Discontinuous
Changes Evoked by Novel
Interactions in Far From
Equilibrium Systems**

**Accelerating
Convergence**

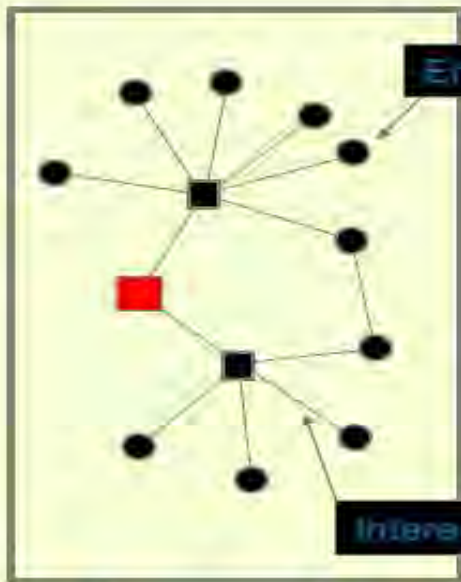
**Systems
and
Systems
of
Systems (SoS)**

COMBINATION
**the architecture
of complex adaptive
systems**

Emergence

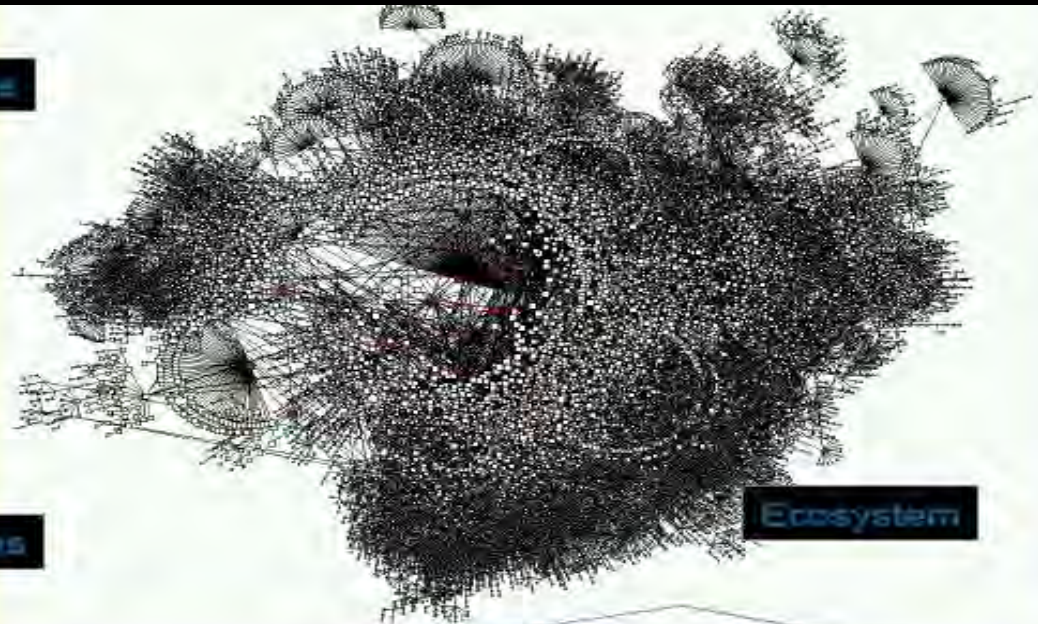
**Pathways
Modules
Networks**

Components



Entities

Interactions



Ecosystem

Individual Actions lead to Complex Ecosystem

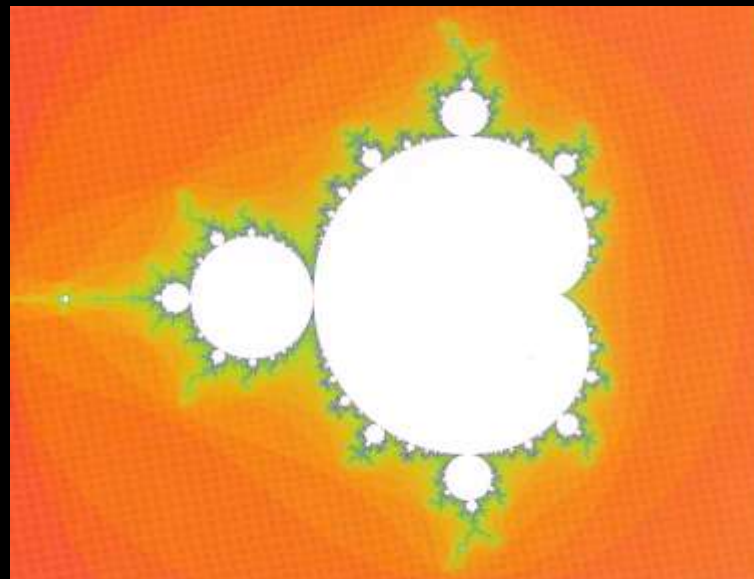
Complex Adaptive Systems

- specialized, modular, hierarchical multiscale structures with enormous 'hidden' complexity
- robust to uncertainties that are commonly encountered
- highly optimized tolerance
- vulnerable to unknown or neglected perturbations and design flaws

ROBUST BUT FRAGILE

- far-from-equilibrium systems
- edge-of-chaos, criticality, near bi-furcation, phase changes, inflection points, tipping points

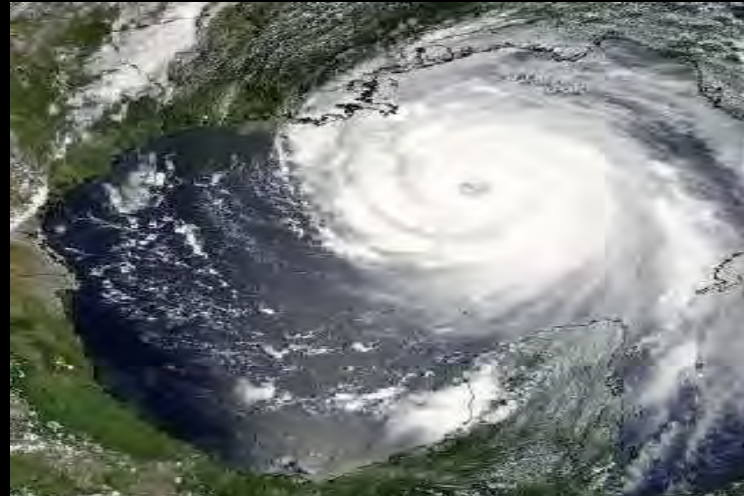
Emergence: Discontinuous Non-Linear Macro-Level Change Triggered by Convergence of Micro-Level Events



**“For most of us design is invisible.
Until it fails” Bruce Mau. Massive Change. 2004**



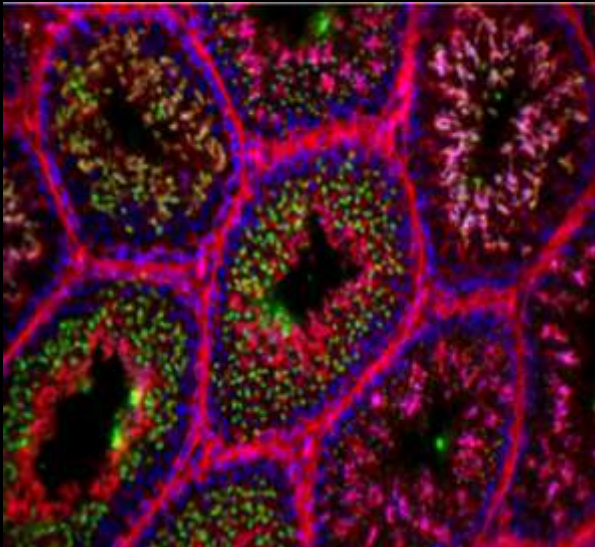
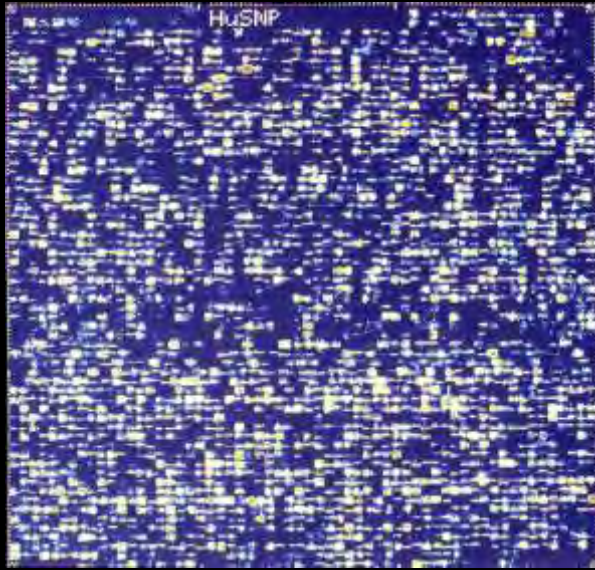
The Poverty of Imagination



The Poverty of Imagination: An Enduring Theme in History

- **foveal vision: focus on known indicators and threats**
- **the recurrent myopia of individuals, companies and nations in recognizing new disruptive technologies**
 - **complacency, risk aversion**
- **disruptive technologies are created disproportionately by individuals/companies operating at the mainstream margins**
 - **risky topics, investor timidity, corporate arrogance and conservatism**
- **profound societal implications of ‘rude surprises’**
 - **recurrent conflicts, crises, catastrophes**

Comprehending Biological Design: The Design of Complex, Adaptive Networks of Increasingly Higher Structural Order



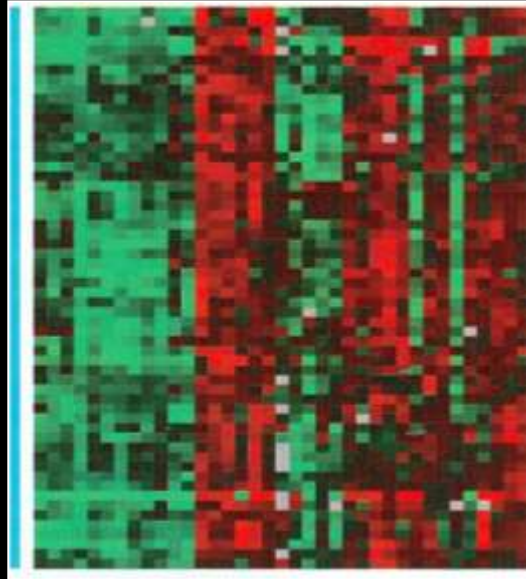
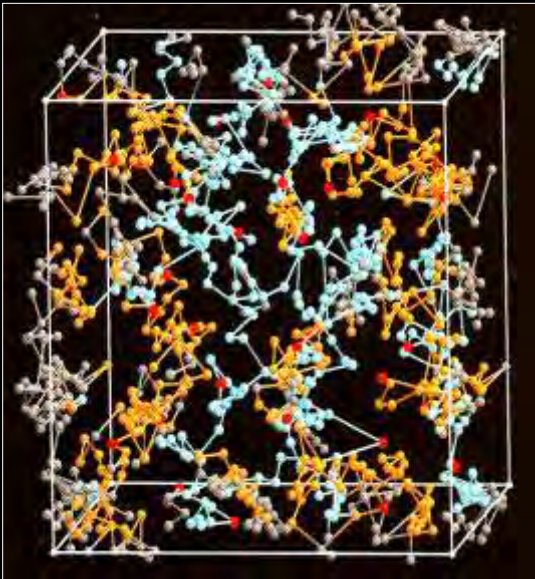
The Life Sciences

- from descriptive to mechanistic
 - the rise of molecular biology
- from reductionism to systems biology
 - assembly and regulation of complex adaptive systems
- from systems biology to synthetic biology
 - exploring ‘combinatorial’ biospace

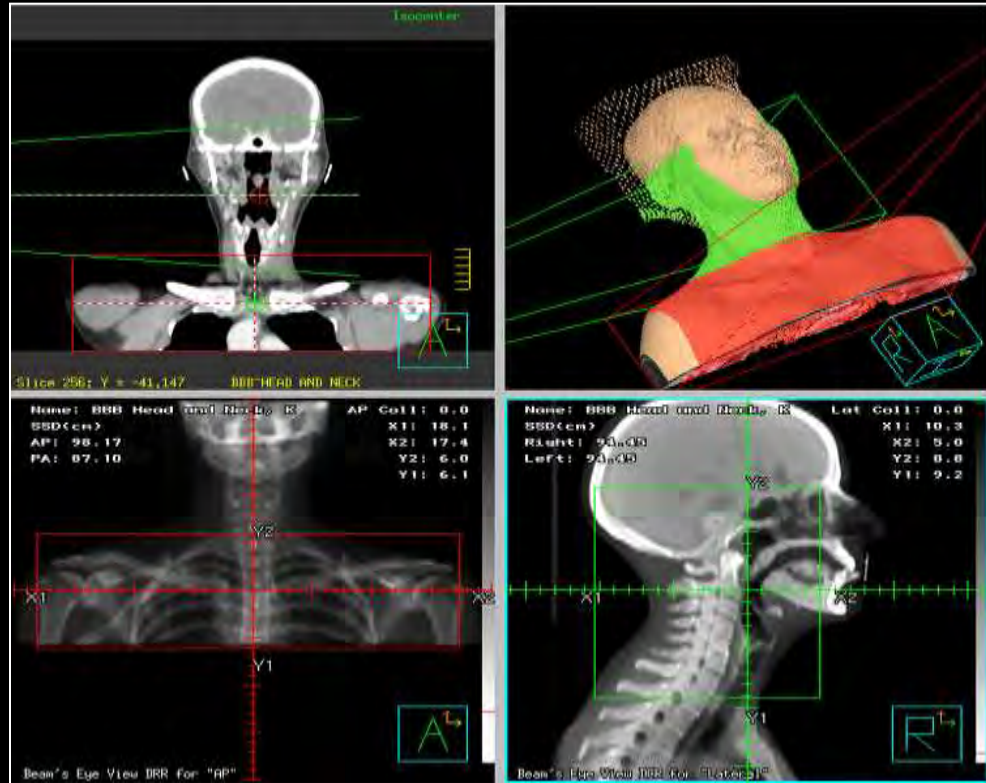
**Rapid Proliferation of Dual-Use
Technology Platforms**

From Treatment of Illness to Aggressive Promotion of Wellness

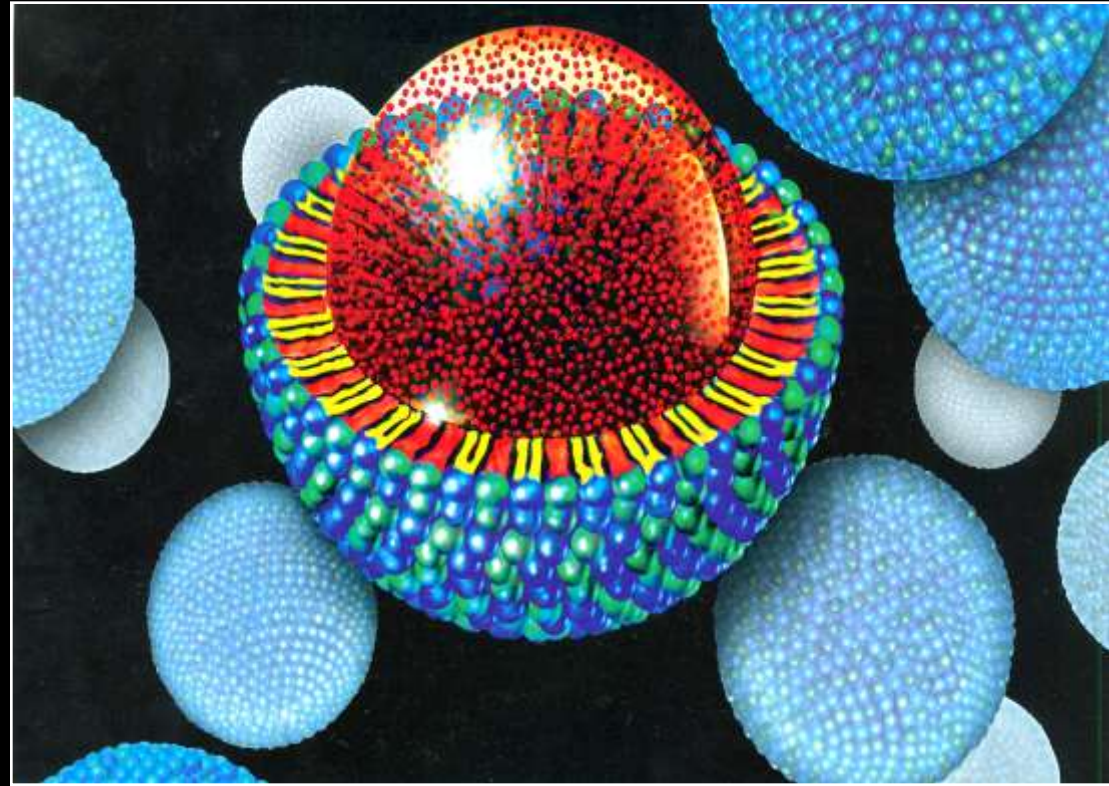
- mapping the molecular 'signatures' of disease
- proactive detection of disease
- predictive medicine
- preventive medicine
- personalized medicine



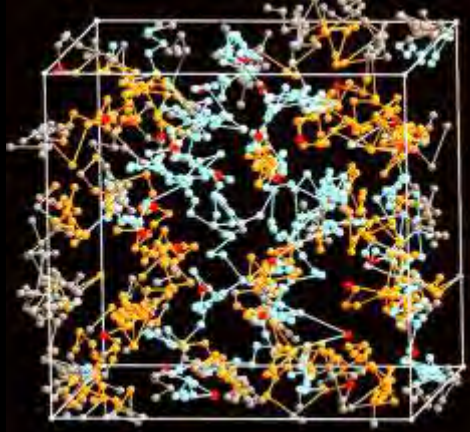
Advanced Body Imaging Systems



Nanoscale Encapsulation of Drugs and Imaging Agents for Targeted/Stealth Delivery Systems



Imaging at Cellular Level and Real Time Dynamics



- **future biothreats will not be limited to microorganisms**
- **mapping of genetic control circuits/networks for key homeostatic functions**
 - major advances in medicine
 - simultaneous ID of “nodes” for perturbation
- **creation of biological circuit disrupters (BCDs) will be easier than microbial modification**
 - screening of large combinatorial chemical libraries
 - small molecule BCDs

Constructing The Tree of Life

CAROLI LINNÆI

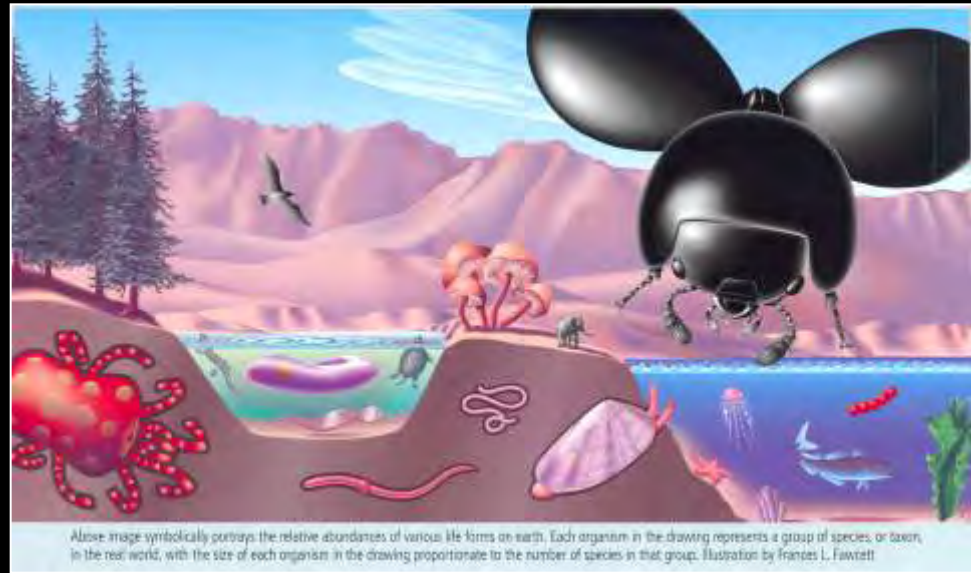
I. QUADRUPEDIA
Civis, bestia, feras, domestica, humana

II. AVES
Civis, bestia, feras, domestica, humana

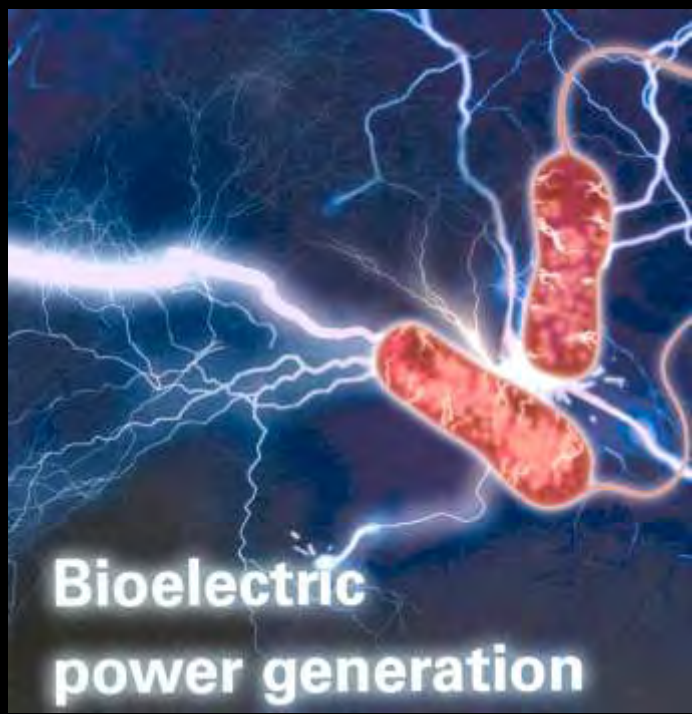
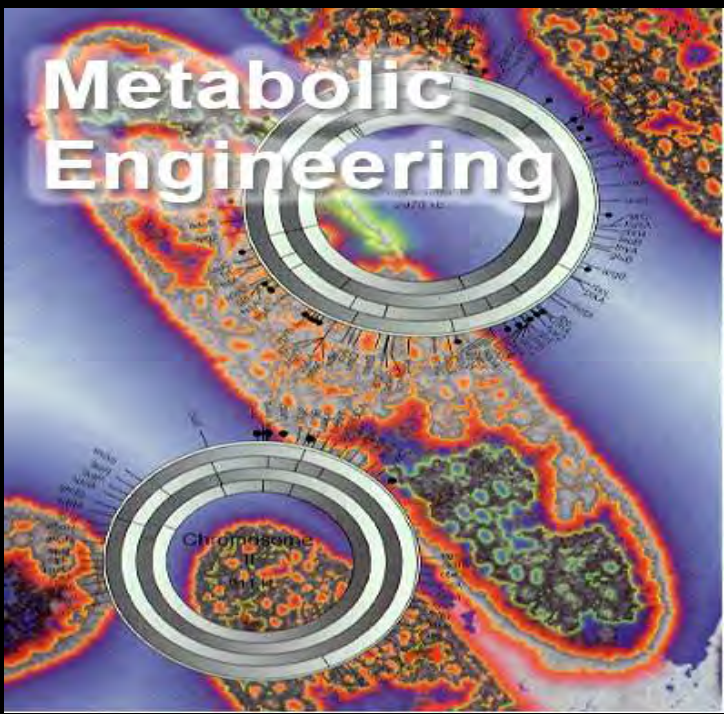
III. AMPHIBIA
Civis, bestia, feras, domestica, humana

PARADOXA

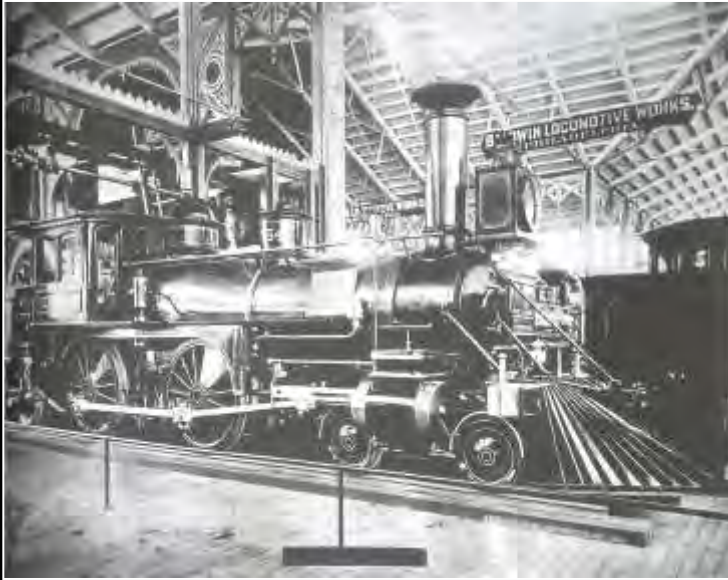
Facsimile of the first edition of *Systema Naturae* (1735)



Synthetic Biology and Biomimetic Design: Forging a New Industrial Ecology



The Industrial Era: The Machine Metaphor



**“The mechanical explanation of nature
finally hardened into a dogma of science”**

Alfred North Whitehead

The Era of Biological Design: “Exploring Biospace”

“The machine age is about to meet a new challenger.

The machine age view is incomplete.....

Our best innovations will increasingly look like living things.

Not life in the traditional sense,

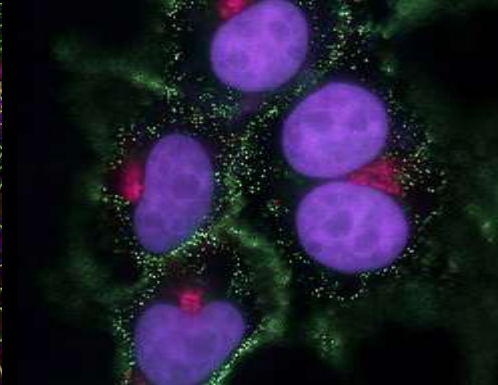
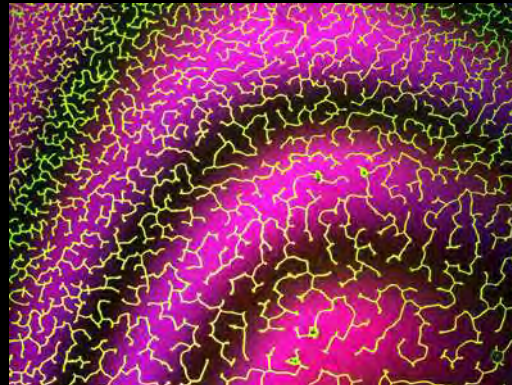
but a biology that has been consciously crafted by humans

- a new biology

Robert Freynay (2006)

Pulse,

Farrar, Straus, Giroux, New York



“Exploring Biospace”

The Design and Construction of Novel Biological Functions and Life Forms

Minimal Genomes

- building cellular chassis’ as universal recipients for transferred genes

Building Increasingly Complex Modules and Feedback Controls

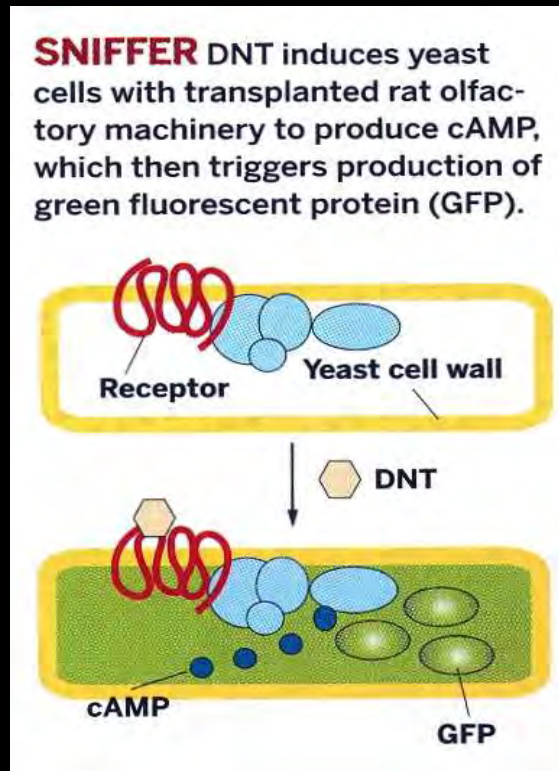
- modulation and control at different hierarchical levels
 - subcellular
 - cellular
 - tissue
 - organ

De Novo Design and Incorporation of Novel Functions

- novel combinatorial assemblies
- synthetic genes and regulators
- non-natural coding/information elements

“Plug and Play Genetics”

Engineering Sentinel Organisms as Environmental Sensors



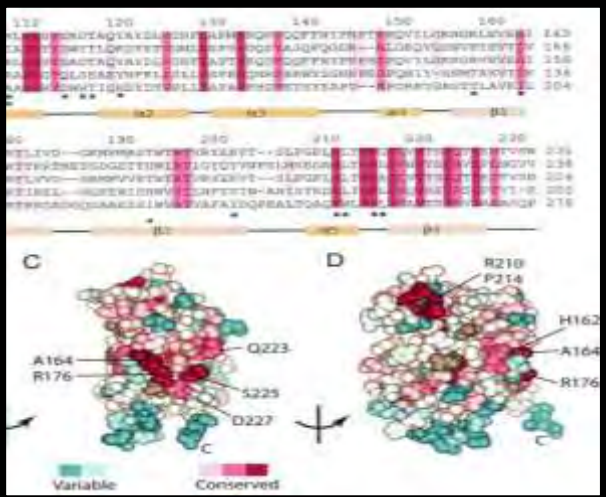
D. N. Dhanasekaran et al (2007) Nature Chem. Biol.

DOI: 10.1038/nchembio882

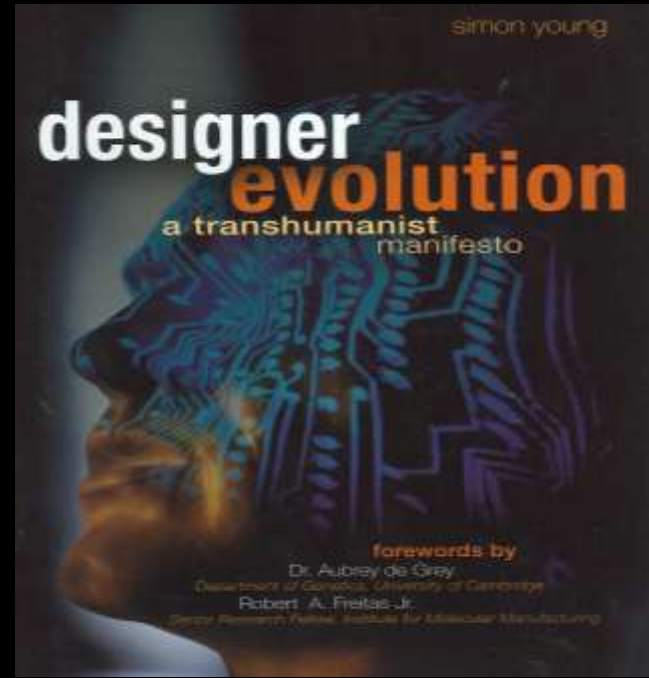
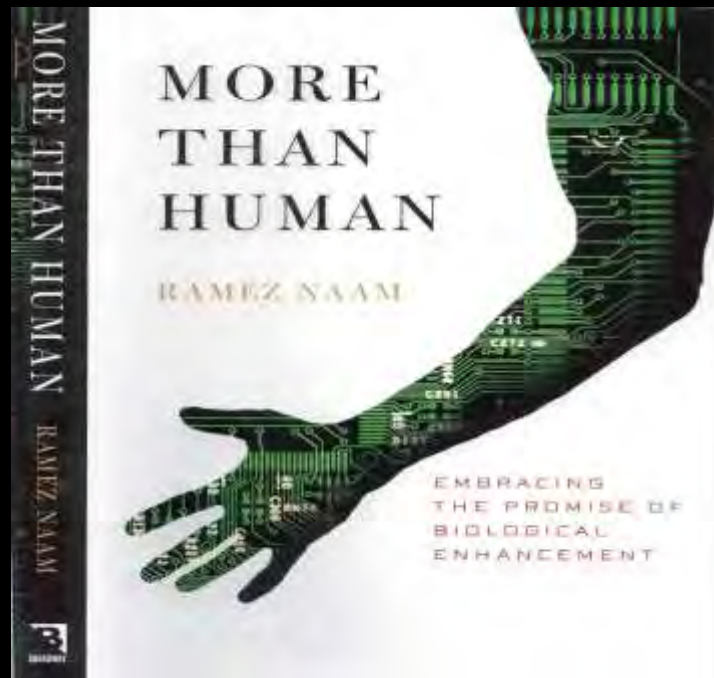
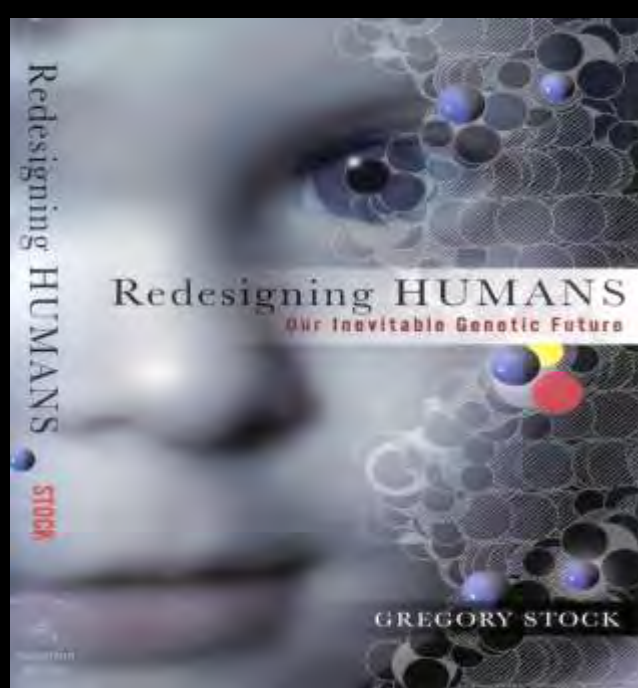
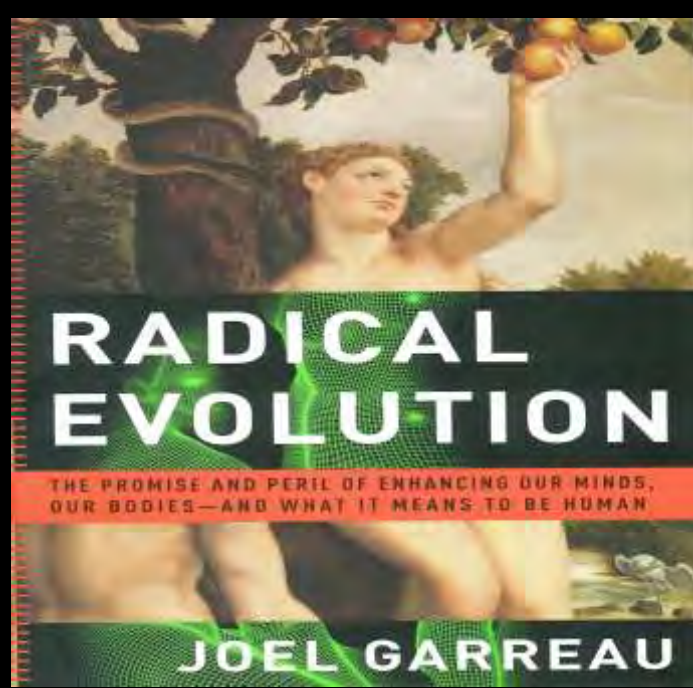
Metagenomics and Ecogenomics: Mapping the Extraordinary Genomic Diversity and Biosynthetic Capabilities of Microbial Life

eco-niches

comparative genomics



extremophiles



Science (2007) 315, 1723

Emergence of Novel Color Vision in Mice Engineered to Express a Human Cone Photopigment

Gerald H. Jacobs,^{1*} Gary A. Williams,¹ Hugh Cahill,^{2,3,4} Jeremy Nathans^{2,3,4,5}

Changes in the genes encoding sensory receptor proteins are an essential step in the evolution of new sensory capacities. In primates, trichromatic color vision evolved after changes in X chromosome–linked photopigment genes. To model this process, we studied knock-in mice that expressed a human long-wavelength–sensitive (L) cone photopigment in the form of an X-linked polymorphism. Behavioral tests demonstrated that heterozygous females, whose retinas contained both native mouse pigments and human L pigment, showed enhanced long-wavelength sensitivity and acquired a new capacity for chromatic discrimination. An inherent plasticity in the mammalian visual system thus permits the emergence of a new dimension of sensory experience based solely on gene-driven changes in receptor organization.

Regenerative Medicine

Embryonic Stem Cells

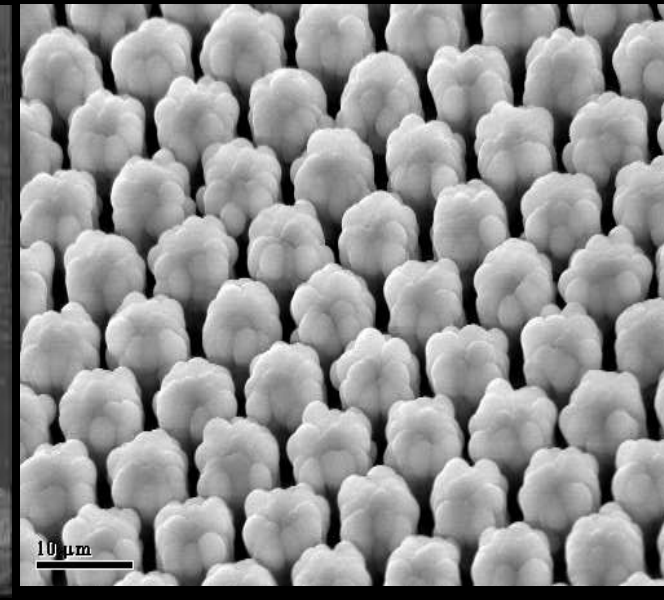
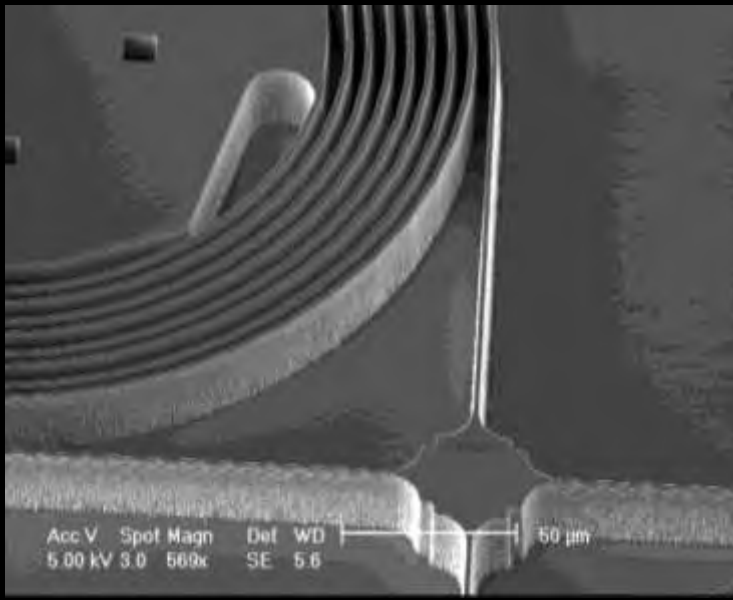
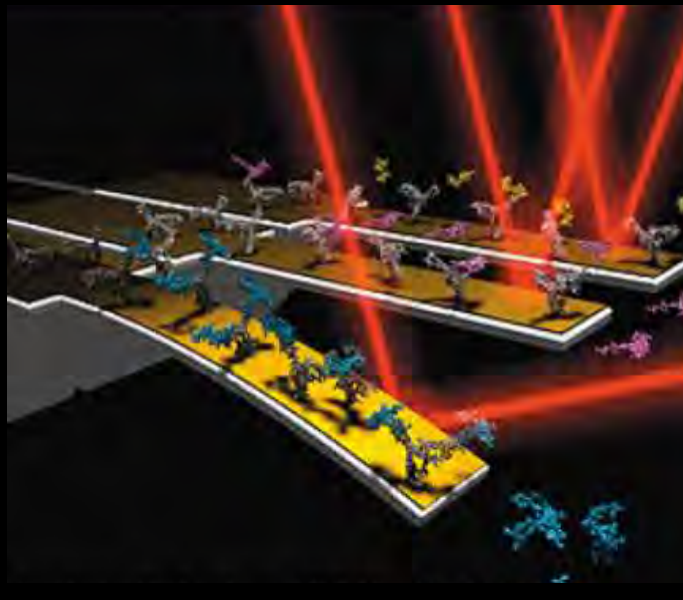
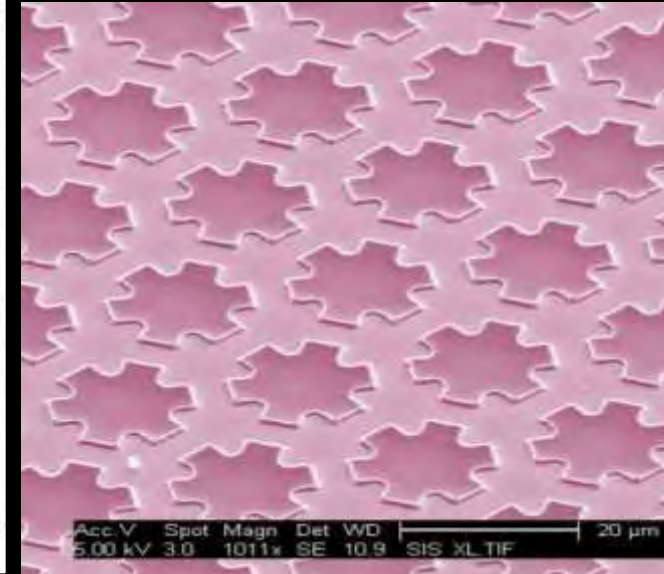
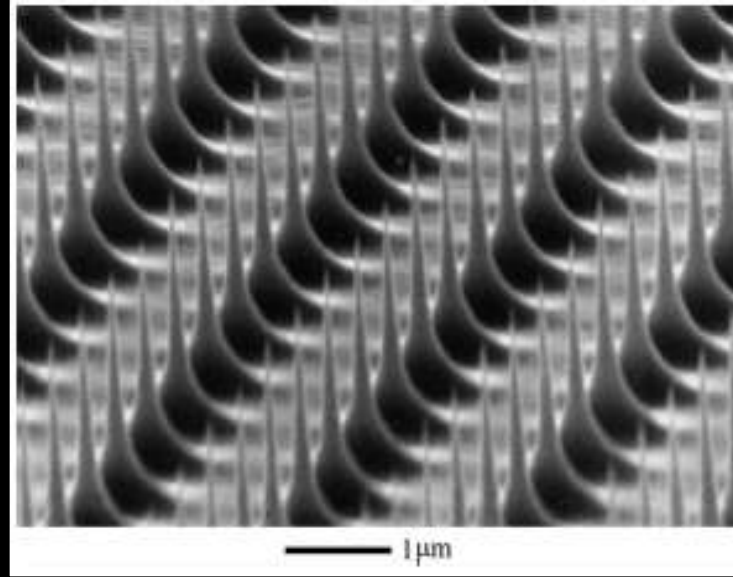
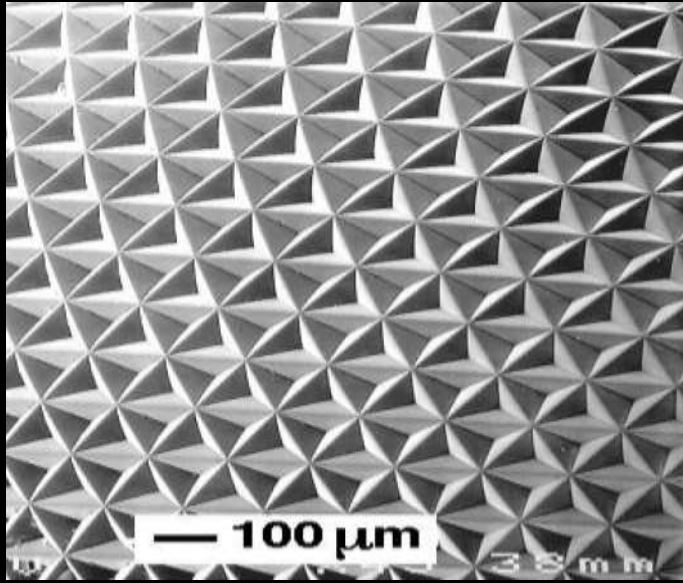


Tissue Engineering

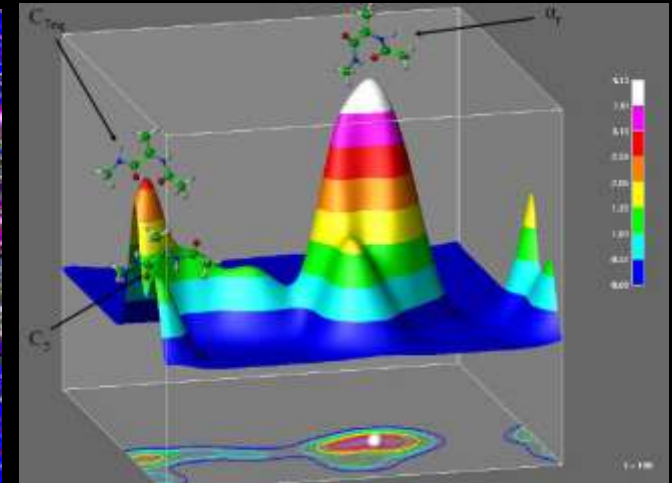
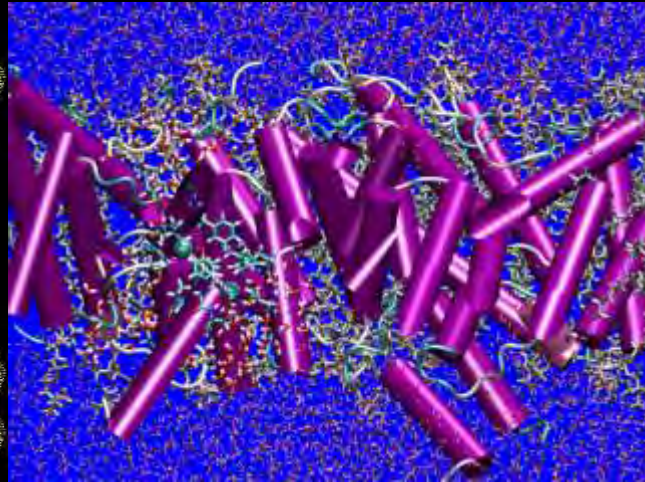
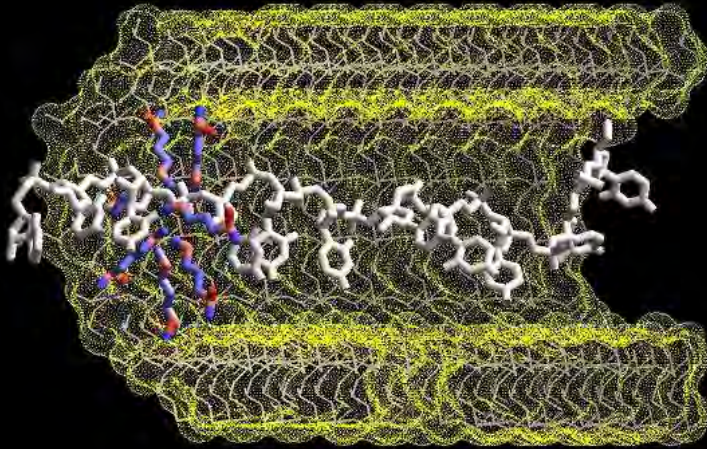


Xenografts: A Distant Future

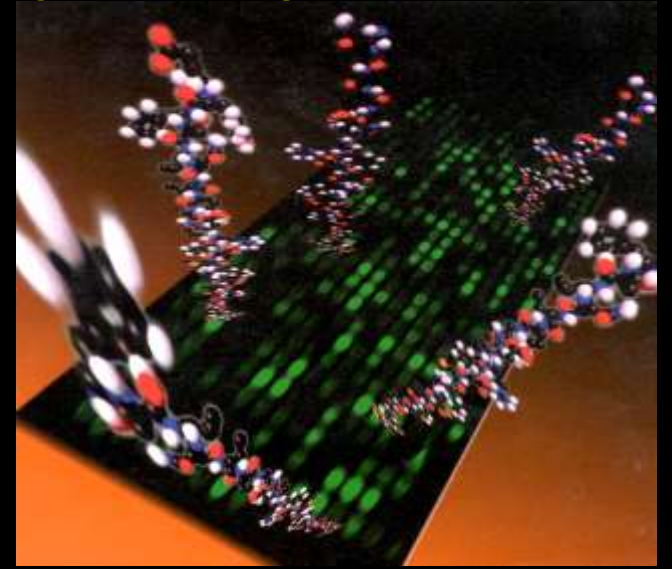
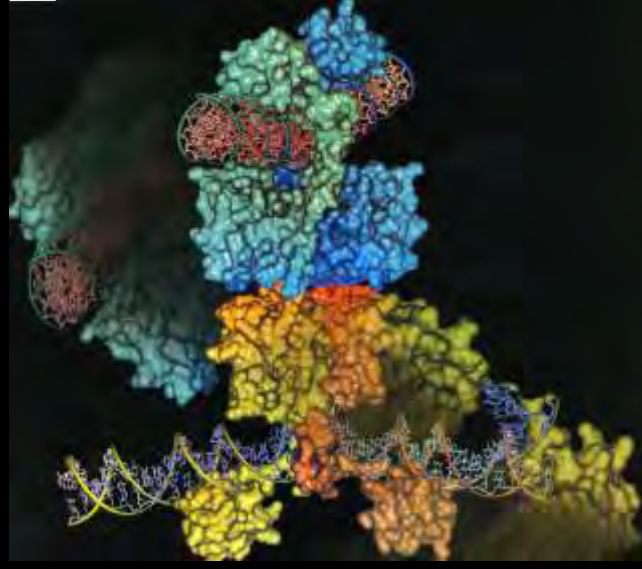
Nanotechnology: Our Shrinking Prospects



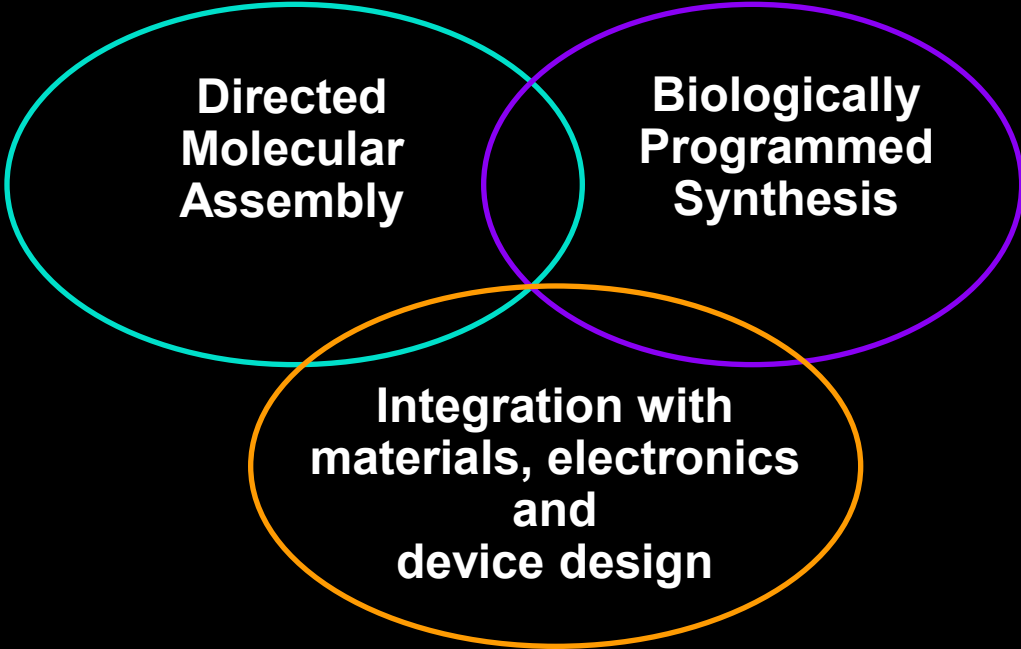
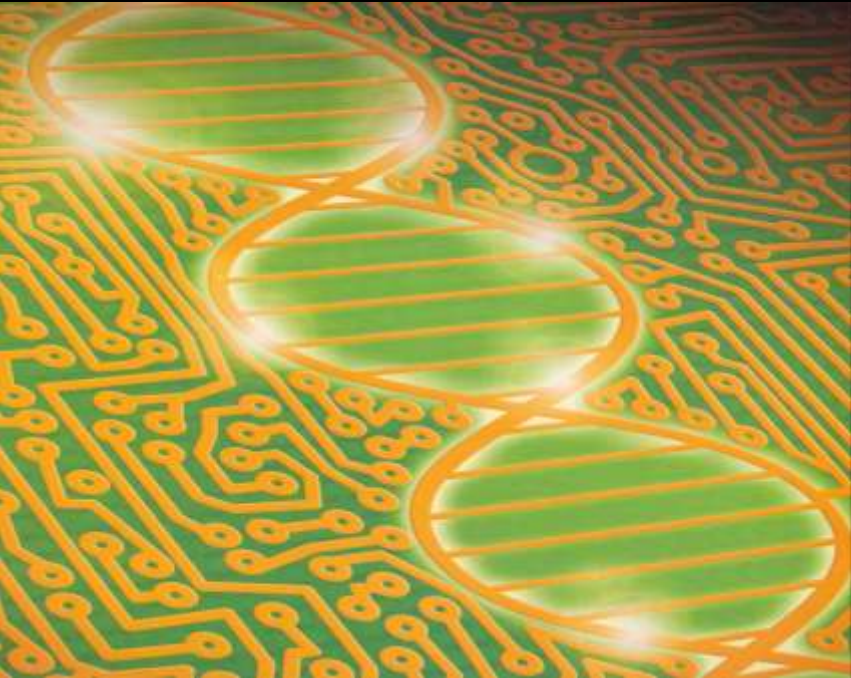
Understanding Molecular Dynamics and Quantum Scale Effects



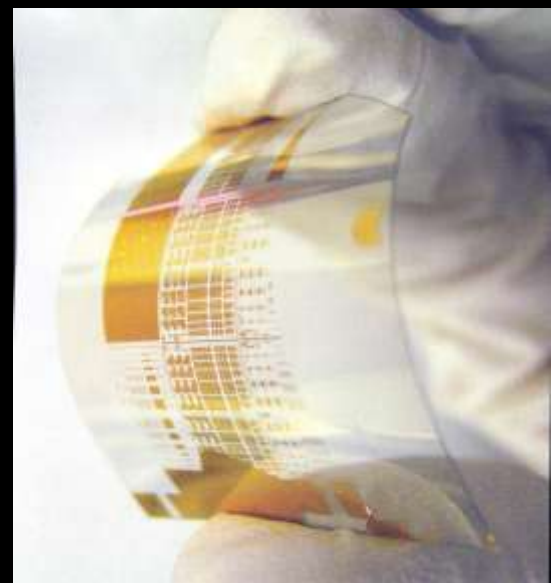
Directed Molecular Assembly: Addressable, High Feature Density Displays



Novel Hybrid Materials: Combining Biological (Organic) and Non-Biological (Inorganic) Components



Novel Materials



- flexible superfast silicon electronics

- non-reflective coatings
- black body materials

- metamaterials

- switchable materials

Nanoelectronics

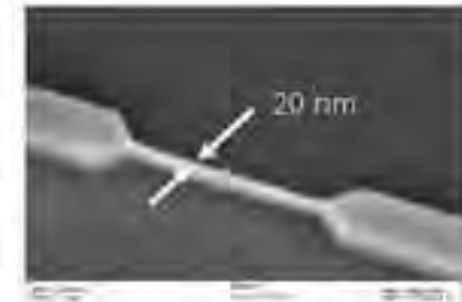
Quantum Transistors ($d \sim \lambda_e$)



Single electron transistors



Carbon nano tube Molecular devices

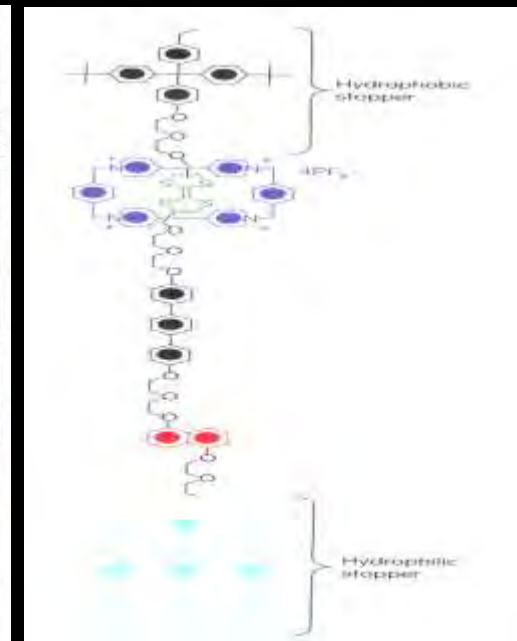
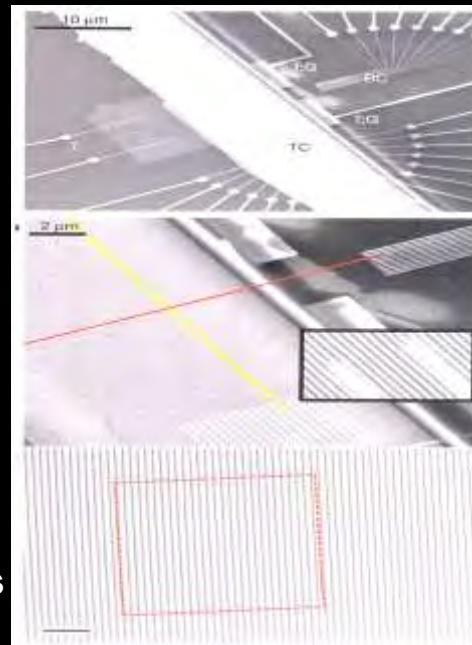


LETTERS

A 160-kilobit molecular electronic memory patterned at 10^{11} bits per square centimetre

Jonathan E. Green¹, Jaag Wook Choi¹, Akram Boukal¹, Yuri Burakovich¹, Ezekiel Johnston-Halpin¹, Eric Delonho¹, Yi Luo¹, Bonnie A. Sheriff¹, Ke Xu¹, Young Shik Shin¹, Han-Rong Tang¹, J. Fraser Stoddart¹ & James R. Heath¹

- 400 Si bottom-nanowire electrodes
 - 16 nm wide, 33 nm pitch, phosphorus-doped, $n=5 \times 10^{19} \text{ cm}^{-3}$
- 400 Ti top-nanowire electrodes
 - 16 nm wide, 33 nm pitch
- sandwiched monolayer of bistable rotoxanes
- memory cell size $0.0011 \text{ } \mu\text{m}^2$



The Infocosm: Emerging Networks of Global Connectivity



Everything of Value Will Be Tracked Everywhere: Challenges for a Trustworthy Information Society

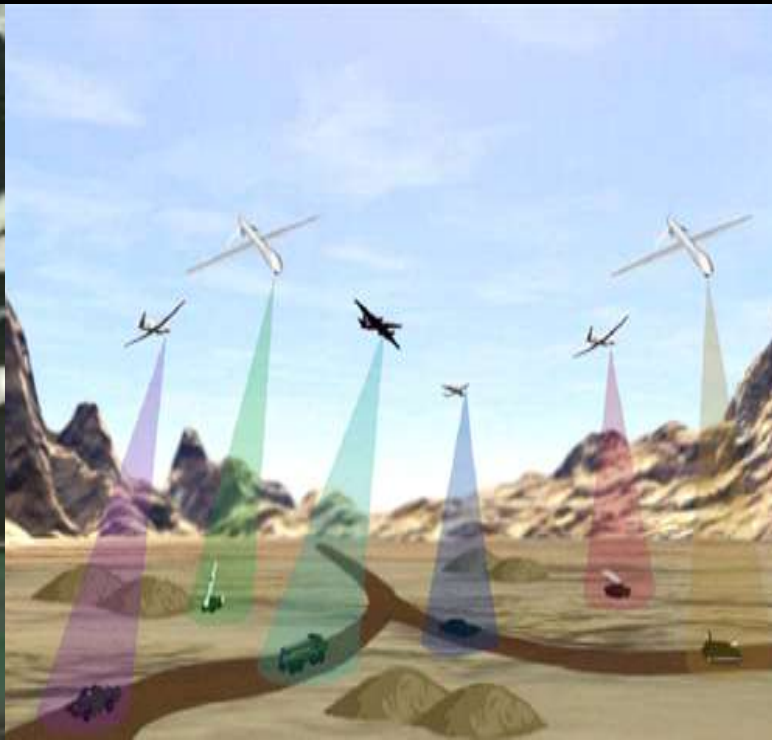


- decentralized systems design and network topology
- heterogeneous data and semantic interoperability
- complexity limit of scaling up
- quantum limit of down scaling
- consequences of open systems
- multi-scale concepts (emergence)
- new computing paradigms

SECURITY, PRIVACY, LEGALITY

Tagging, Tracking and Locating (TTL)

New Technological Platforms for Enhanced National Security Capabilities in Surveillance and Interdiction





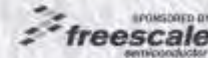
Welcome to Mechatropolis.



MECHATROPOLIS

www.mechatropolis.com

Where the community of mechanical and electronic engineers connects.

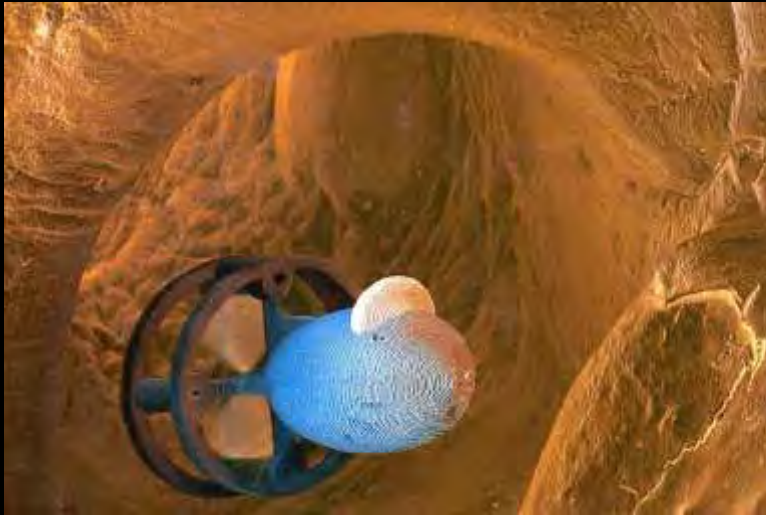


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On Body: In Body Sensors/Devices



Human Signatures Analysis and Profiling

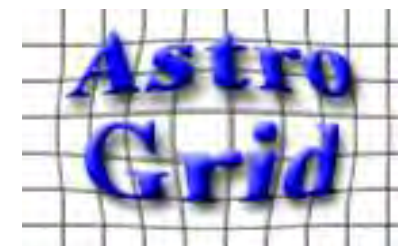
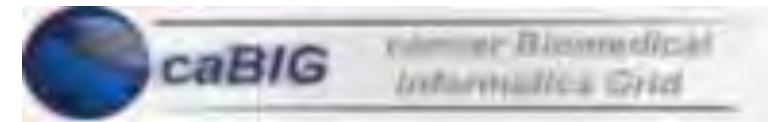
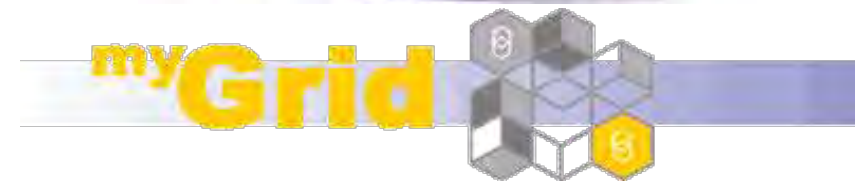
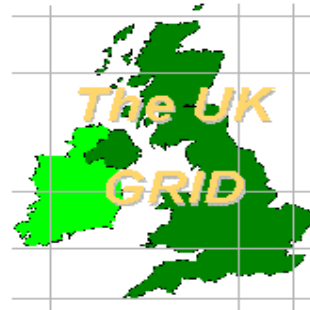


“Invisible” Customized Networks



Mr. Smith... please remember to get your annual physical

Grids of All Flavors



Ubiquitous Sensing and Ambient Intelligence: Embedded Sensors and “Disappearing Electronics”

- environment sensitive, adaptive and responsive to people and objects
- augmenting individuals and systems via smart non-explicit assistance
- from 10's cm³ to 10's of mm³ /μm³ /nm³
- from 10's to 100's μW to 0.001 to 1μW

Privacy and Information

- 2010: 15 Petabits (10^{16}) / \$250,000
- Human Genome: 10 Gigabits (10^{11})

For a few million dollars, one could store the complete genome of every American and European

...for several more, could add credit card records, telephone logs, travel history,...



Who Controls the Information, Wins?



“Google might pose a national defense concern at some point simply by virtue of its singularly massive storehouse of data, the crude oil of the information economy”

George Dyson

Author: Darwin Among the Machines:
The Evolution of Global Intelligence
Quoted in Business Week 9 April 2007

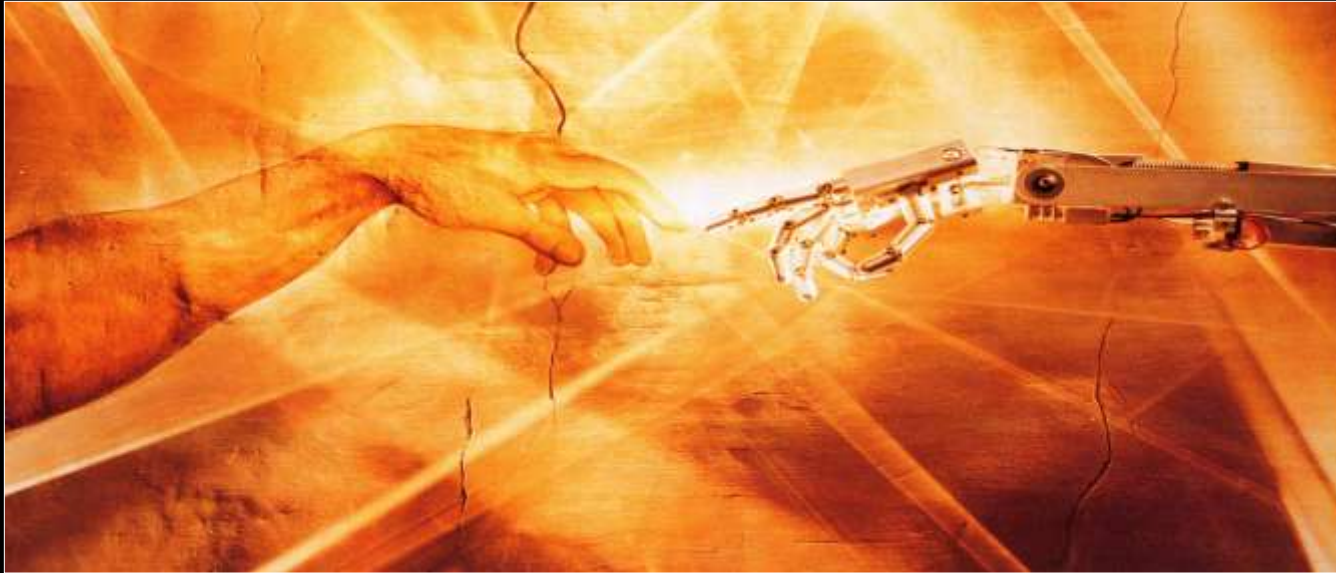


“If Google succeeds in its mission, then we’re doing everything.”

L. Page

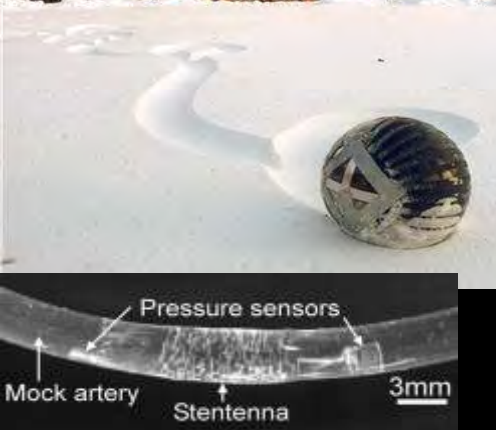
Co-Founder, Google

Business Week 9 April 2007, p. 52

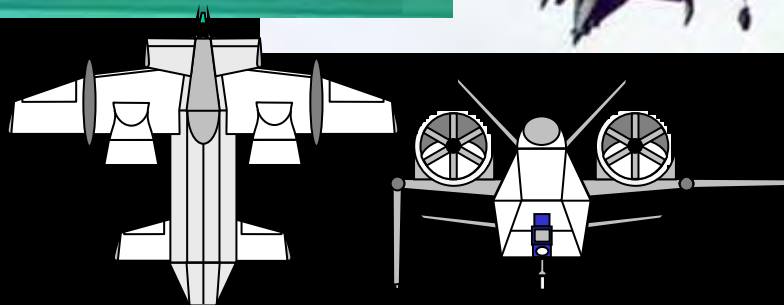


**“As we improve our machines
they will become more organic, more biological,
more like life itself,**
**Someday the difference between machines and biology
will be hard to discern**
The organic and the machine are merging”
Kevin Kelly (1994)
Out of Control: The New Biology of Machines

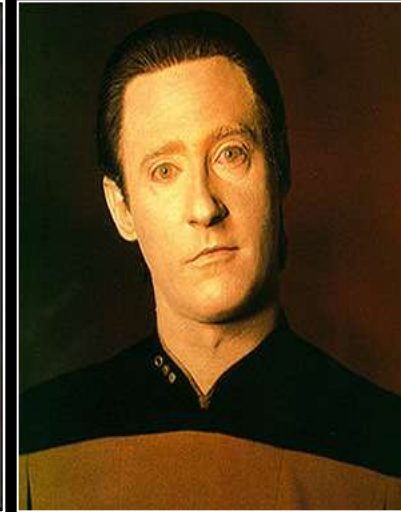
Robots of All Shapes and Sizes



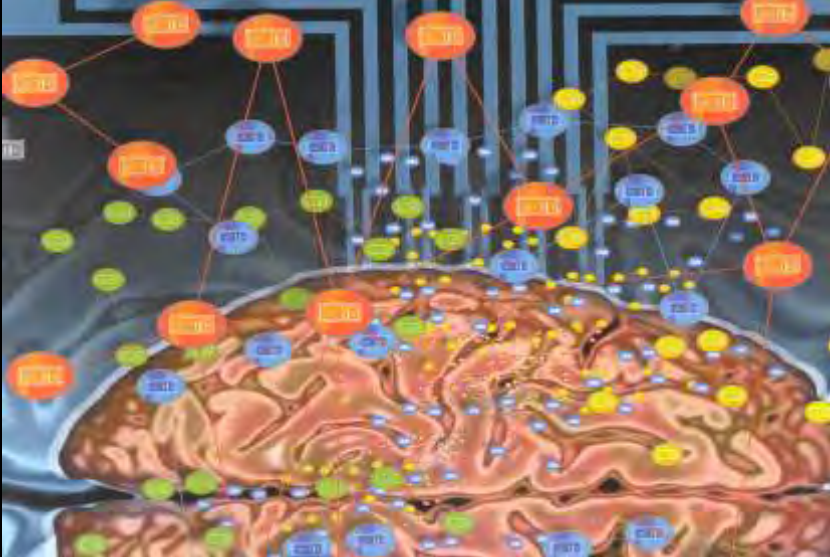
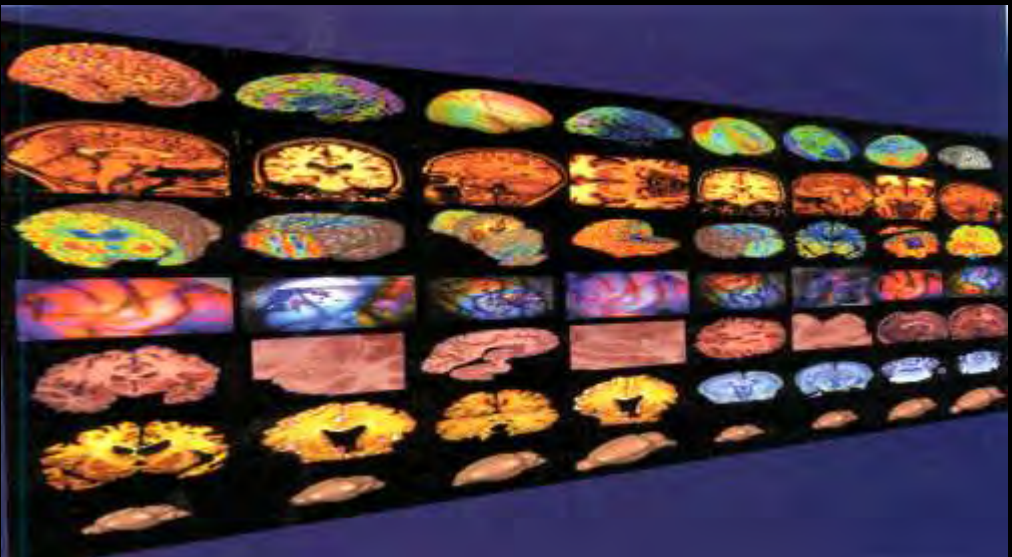
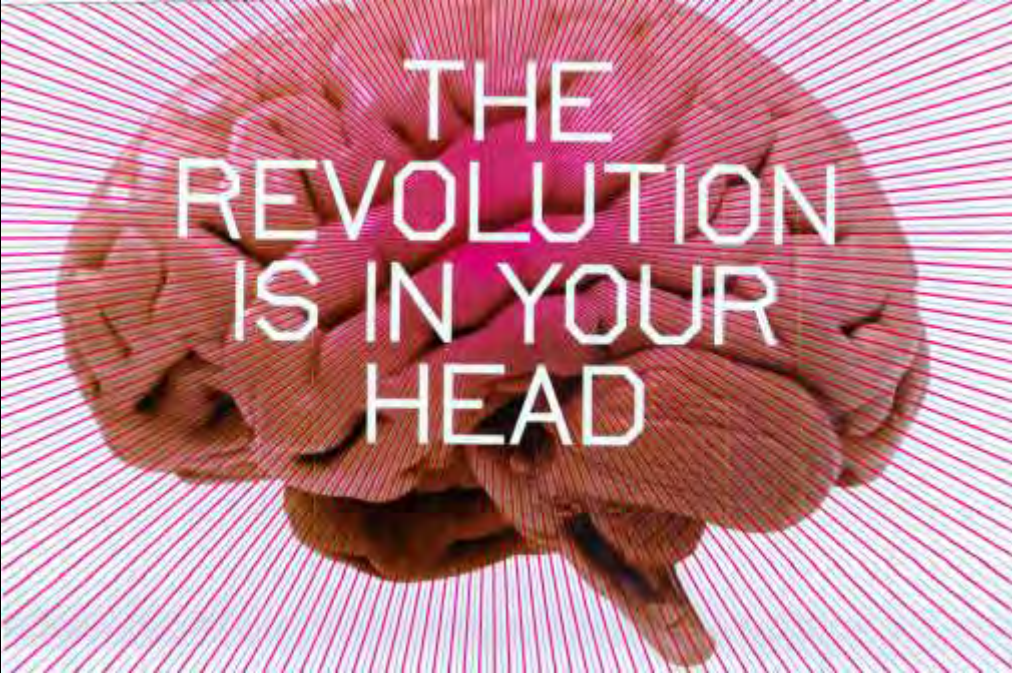
UAVs and UAV VTOL Technology



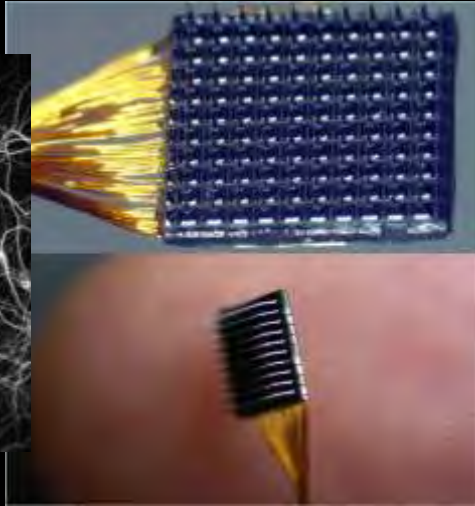
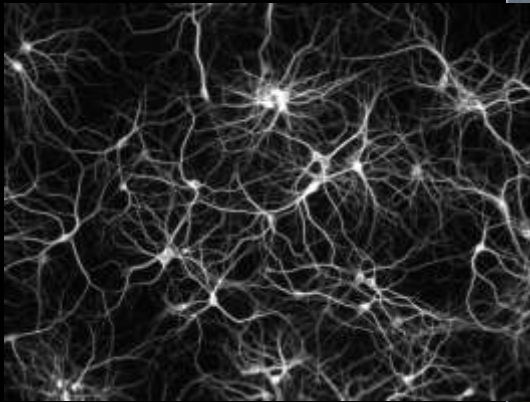
Towards Sociable Robots: Evolving Human-Robot Relationships



- **human aware**
- **interact, communicate, understand, respond and teach humans**
- **pro-active intelligent (?) instrument (creature?), not an appliance**
- **control of adverse behavior**
- **ethics**



Intelligent Adaptive Neural Systems and Devices for Circumventing Disability



Neural Signatures of Motor and Cognitive Functions

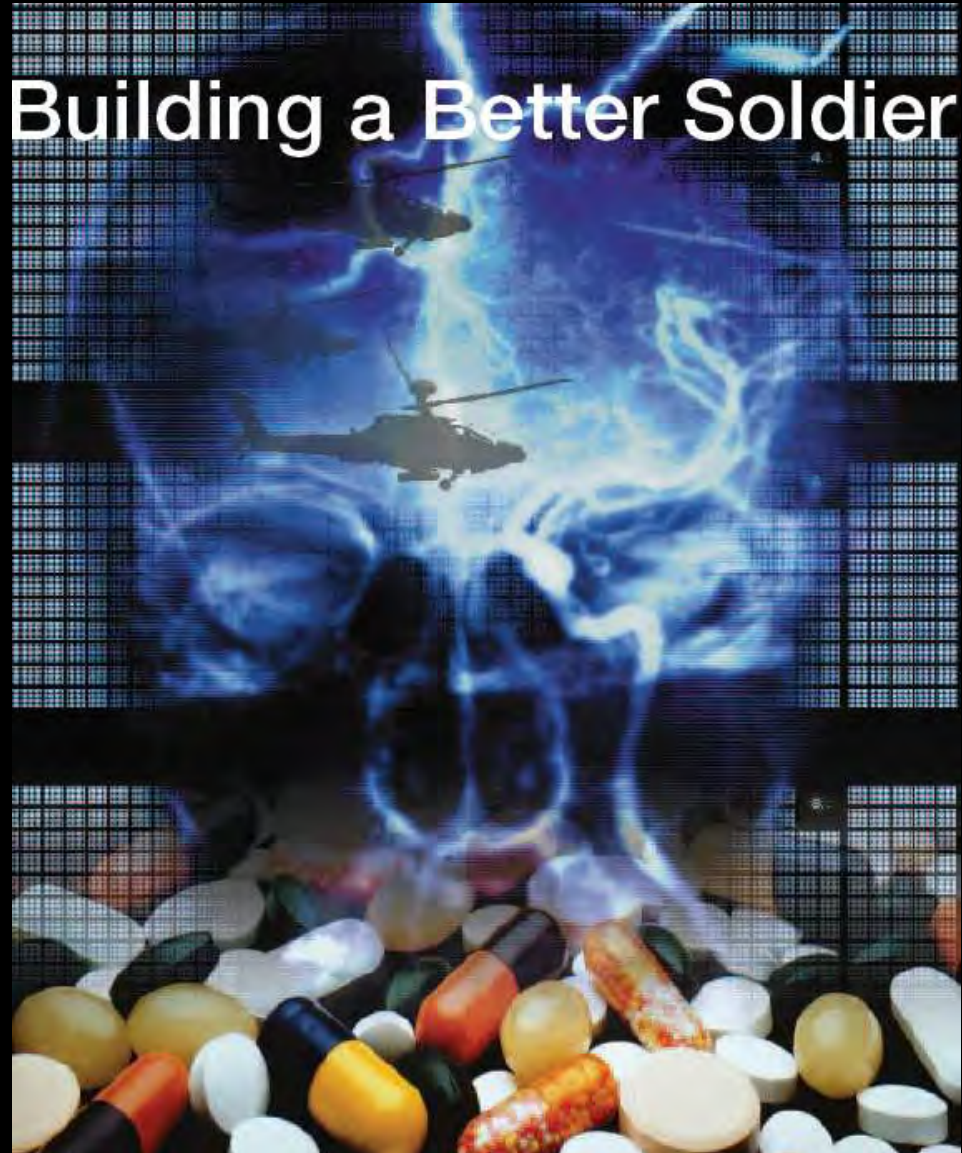


Neuro-Controlled Robotics

Intelligent Prosthetics

Neural Control of Peripheral Devices

- from invasive to non-invasive controls
- non-invasive, real-time coupling of brain decision codes to control peripheral devices or systems
- ID of neural and force dynamic codes for complex motor/sensory activities
- novel materials for device design and responsiveness to neural code instructions



Building a Better Soldier

Human Performance Optimization and Military Missions

May 2009



Human Performance Optimization

Final Report

Written by:
Dr. Adam Russell
Bartlett Bulkeley
Christine Gellion

Completed for:
Director, Office of Net Assessment

SAIC Project No. 01-1536-04-2520
Contract No. GS-10F-0297K



Human Performance Optimization and Military Missions

Neuropharmacology and Neuromodulation



“Accentuate the positives, medicate the negatives”

Actress Amy Sedaris

- **human performance optimization**
- **optimized learning**
- **memory modulation**
- **induced states**
 - **aggression, fear, lethargy, addiction**

Neuroenhancement

“Mental health is the ultimate competitive weapon.

Even if just a few people choose to use neuro-enhancements, their choice will change the basis of business competition for the rest of us”

Zack Lynch

Managing Director, NeuroInsights

**AAS Symposium on Impact
of Human Enhancement**

**[www.aas.org/news/releases/
2006/0609enhancement.shtml](http://www.aas.org/news/releases/2006/0609enhancement.shtml)**

Neuroenhancement

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Zack Lynch

Managing Director, NeuroInsights

**AAS Symposium on Impact
of Human Enhancement**

**[www.aas.org/news/releases/
2006/0609enhancement.shtml](http://www.aas.org/news/releases/2006/0609enhancement.shtml)**

(and nations too?)



- **mapping neurocircuitry: the ‘signatures’ of motor, sensory and cognitive states**
- **coupled feedback from attentive computer interface and on-body: in-body sensors**
- **language translation**
- **inter-memetic engineering: sharing concepts**
 - **specialized knowledge**
 - **cultural fusion**
 - **conflict reduction**

Herd Behavior: 1.3 Million Bathers, Coney Island 1951



The changing nature of social interaction



The new “virtual” community

Virtual Worlds: The Largest Design Space in Technology Today

- avatar-inhabited, multiuser on-line worlds
- immersive spaces in web-based ecosystems
- accommodate complexity, dynamism, diversity and selection
- the emergent synthesis of the global collaboratory
- irreversible, symbiotic (?) interaction with the human nervous system



Q (Bus. Week):

“Is Google really creating a true artificial intelligence or thinking machine, as Goggle’s founders have set up as a goal?”

A (Eric E. Schmidt, CEO, Google)

“In the next few years, cognition, or real understanding, remains a research goal”

Bus. Week 9 April 2007

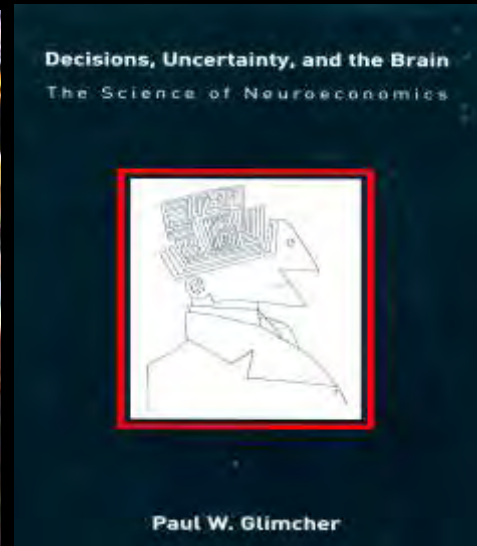
The Neurobiology of Decision



choice



risk reward

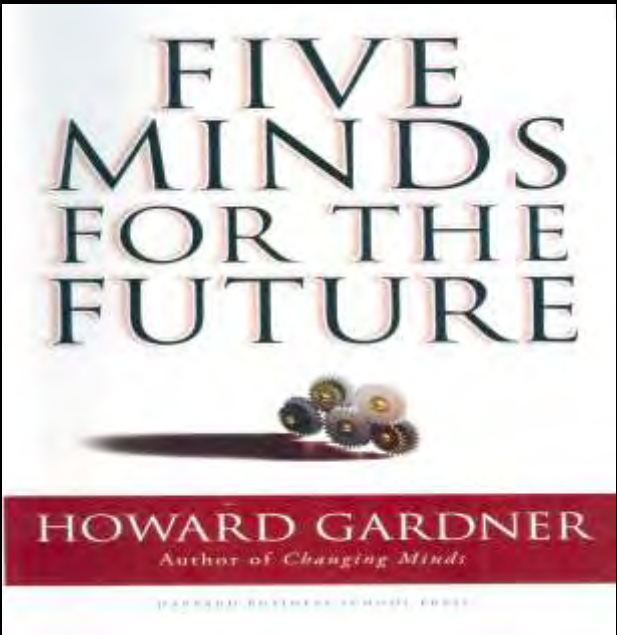
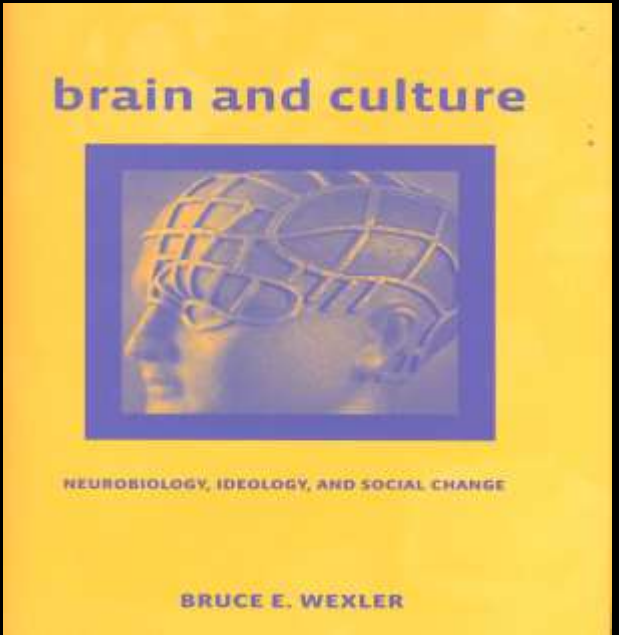
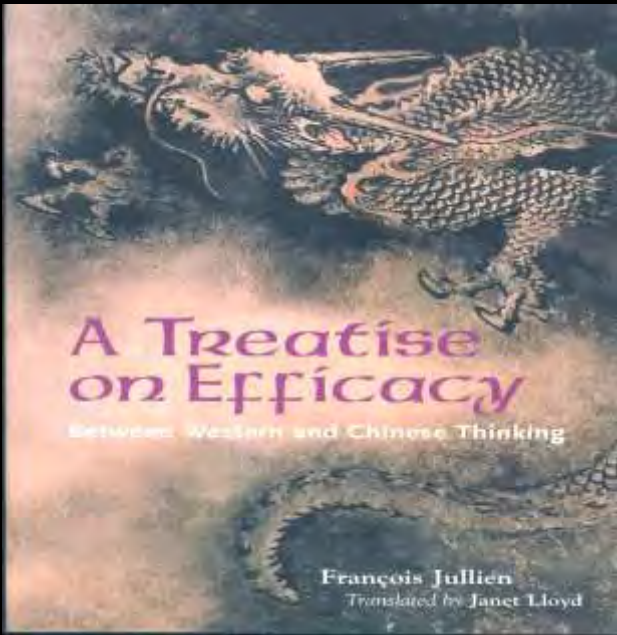
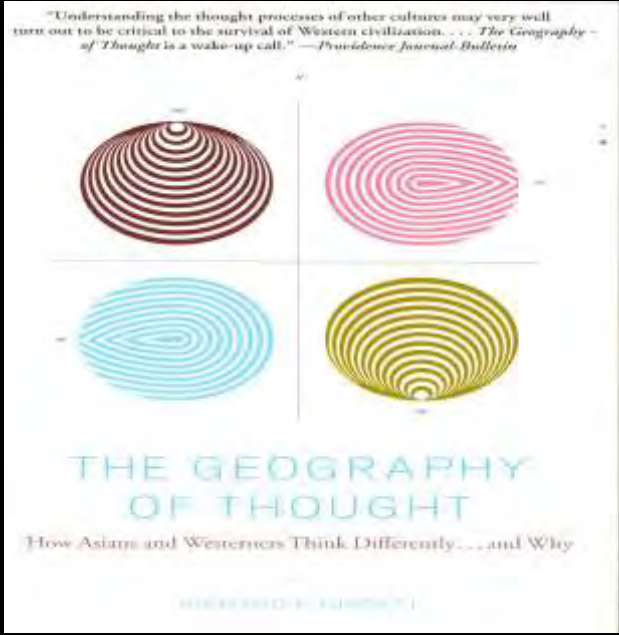


rational (?)
economics



religion

Kinds of Minds?



Behavioral Genetics: A Non-PC But Unavoidable Domain of Cognitive Neurosciences



Eco-: The System of Systems Sustainable Society: “Finite Earth”

- **understanding complex adaptive systems (CAS) and evolutionary dynamics**
 - **networks, interdependence and prediction of emergent properties**
 - **the choreography of materials, energy and information**
- **superimposition of complex interactions of human activities**
 - **accelerating pace of S&T**
 - **rapid technology diffusion**
 - **industrialization of developing countries**



Sustainability Imperatives



Reduced GHG
and Carbon Footprint



Energy Independence
and Security



Reduced Depletion
of Non-Renewable Resources



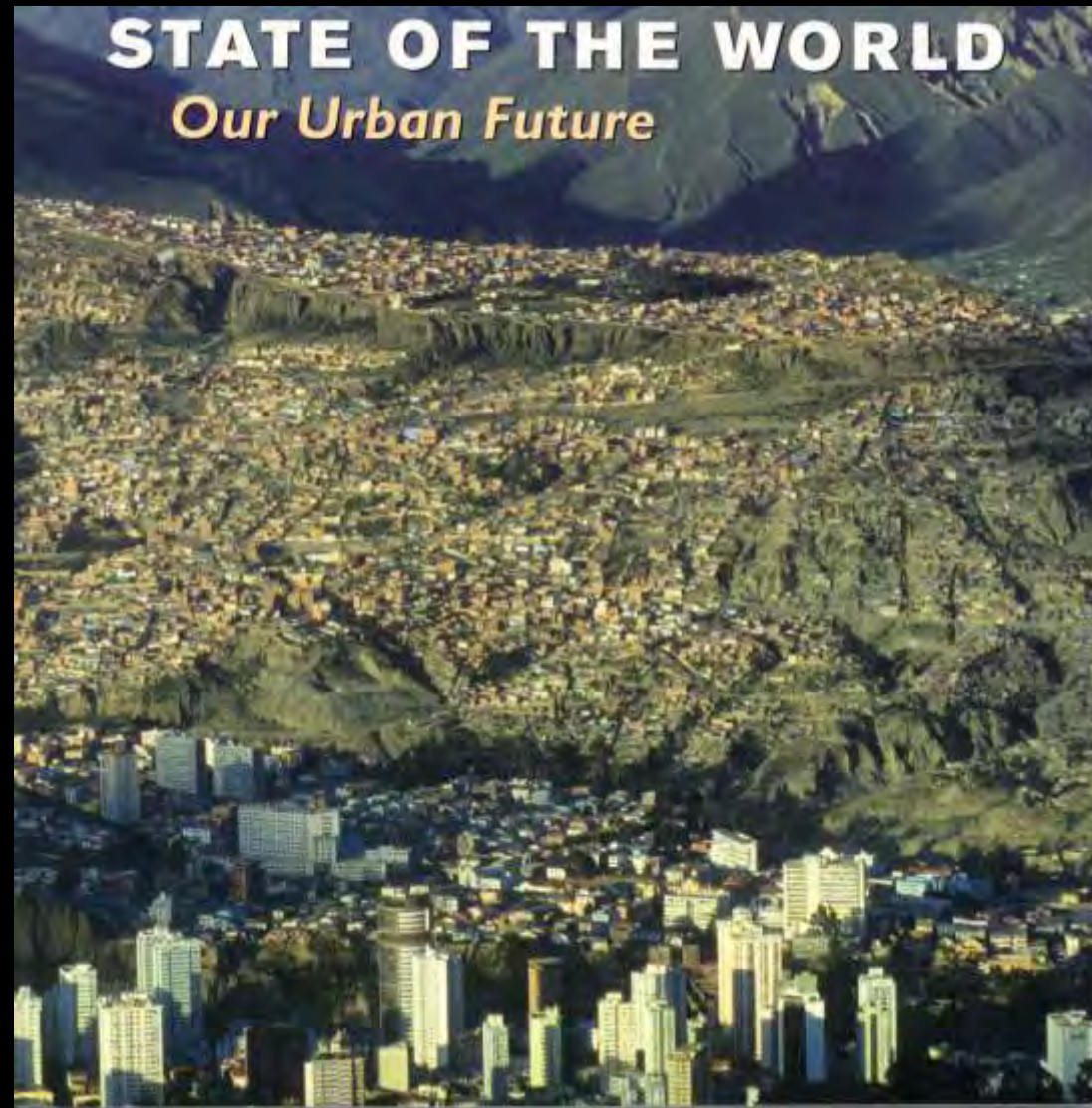
Urbanization and Global Public Health



Safe Water Supplies and Health



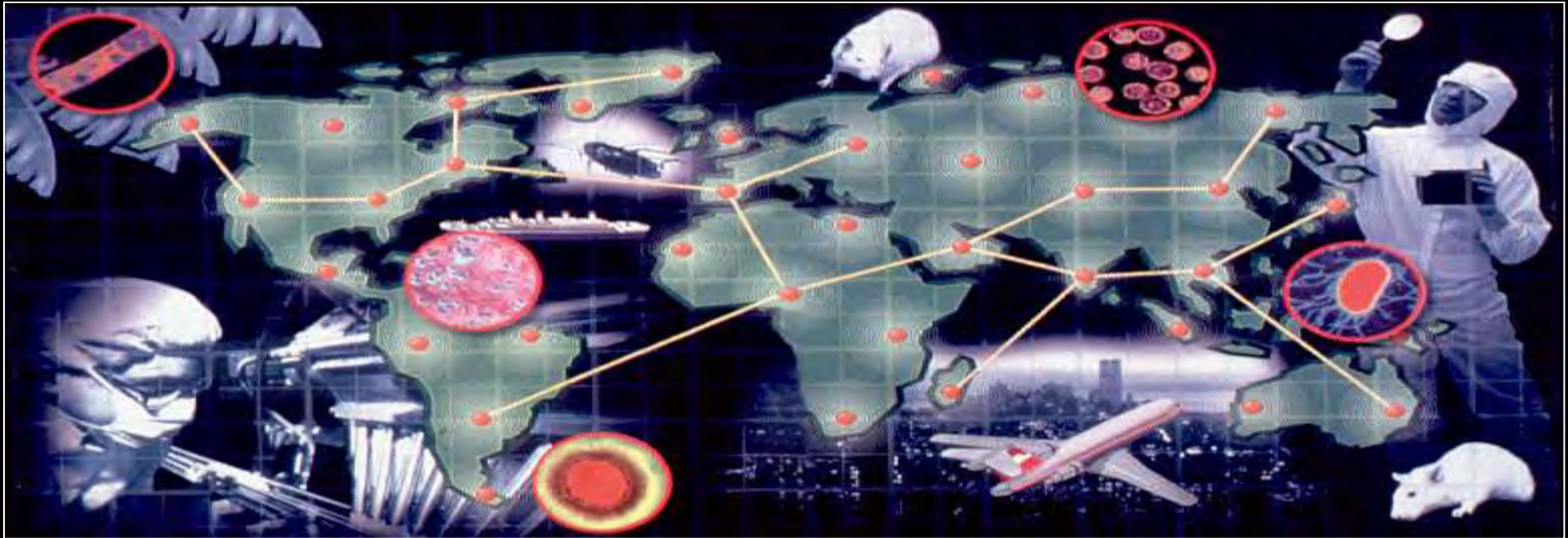
Toxic Waste and Bioremediation



The Lack of Public Health Infrastructure in Developing Countries: Urbanization and New Zoonoses



EIDs: Global Reach and Global Consequences

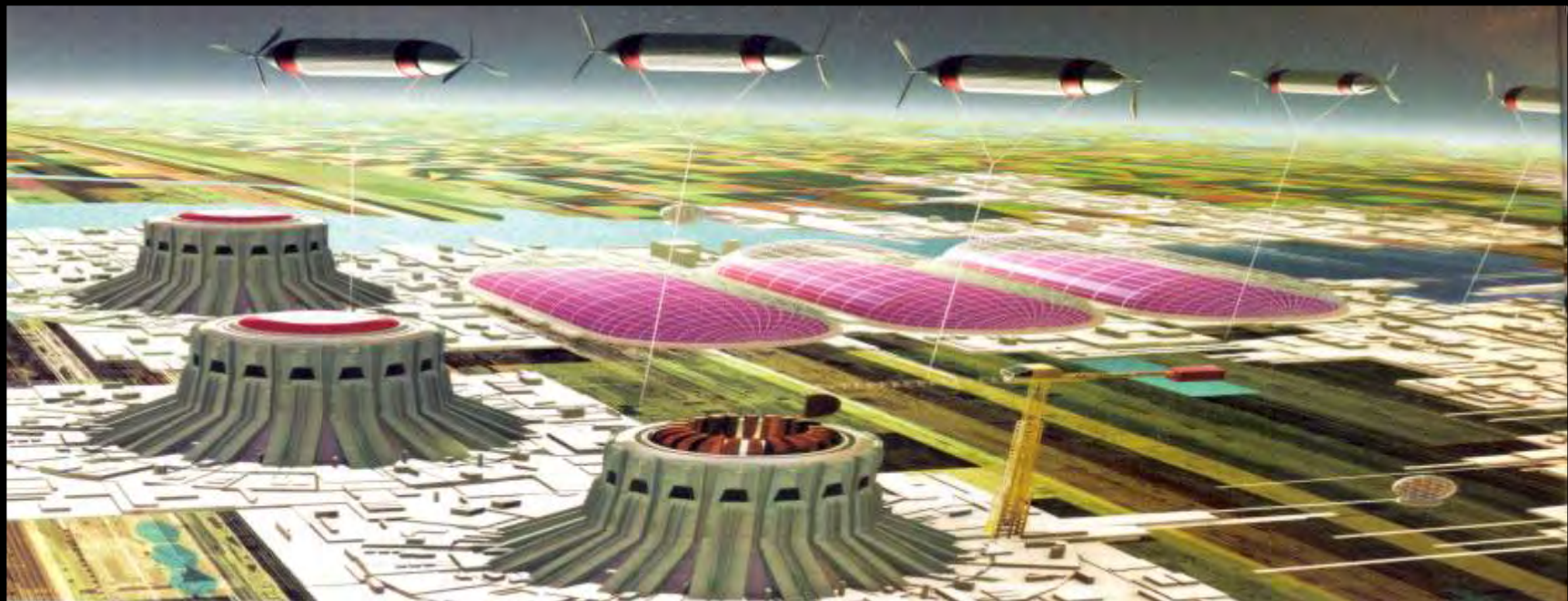


Water: Supply and Safety

A Source of Future Geopolitical and Economic Instabilities

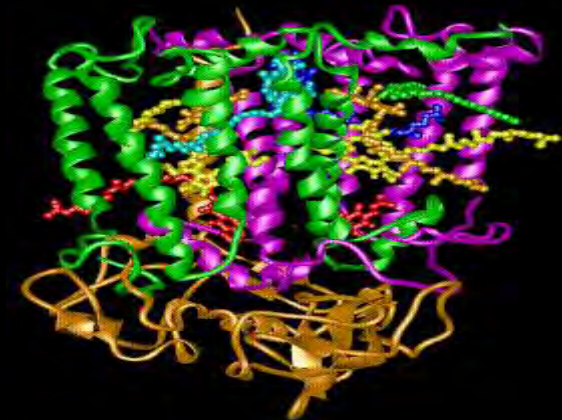
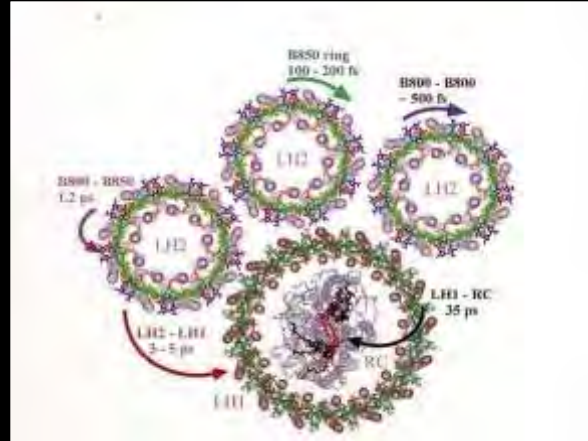


Charting Sustainable Energy Sources

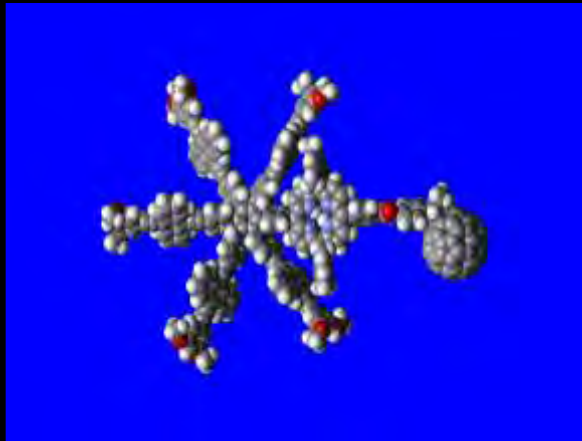




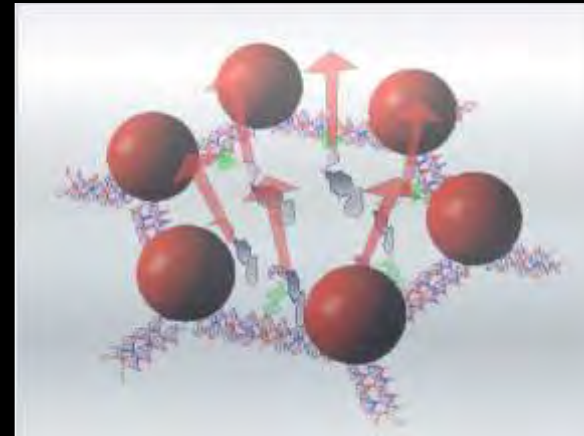
Design of Biomimetic Molecular Photovoltaics by Directed Molecular Assembly on DNA Scaffolds



Natural Photosynthetic (PS) Systems



Artificial PS Reaction Center



Artificial Reaction Centers on DNA Grid

The Tiniest Power Plants

Scientists are seeing a host of possibilities in electricity produced by microbes

BY JOHN CAREY

LONARD M. TENDER HAD A little demo in his office at the Naval Research Laboratory in Washington that could wow visitors. His computer screen showed air and water temperature data transmitted from a buoy in the nearby Potomac River. The surprise was the power

"the microbes are starved for a place to put the electrons." When scientists bury an electrode in sediment and connect it in a circuit, the bugs glom on to it and happily supply electricity. The result is one of the world's most unlikely power plants.

Tender hopes to turn these microbes into power supplies for sensors and instruments in lakes and oceans. That will be a boon for researchers and military sleuths

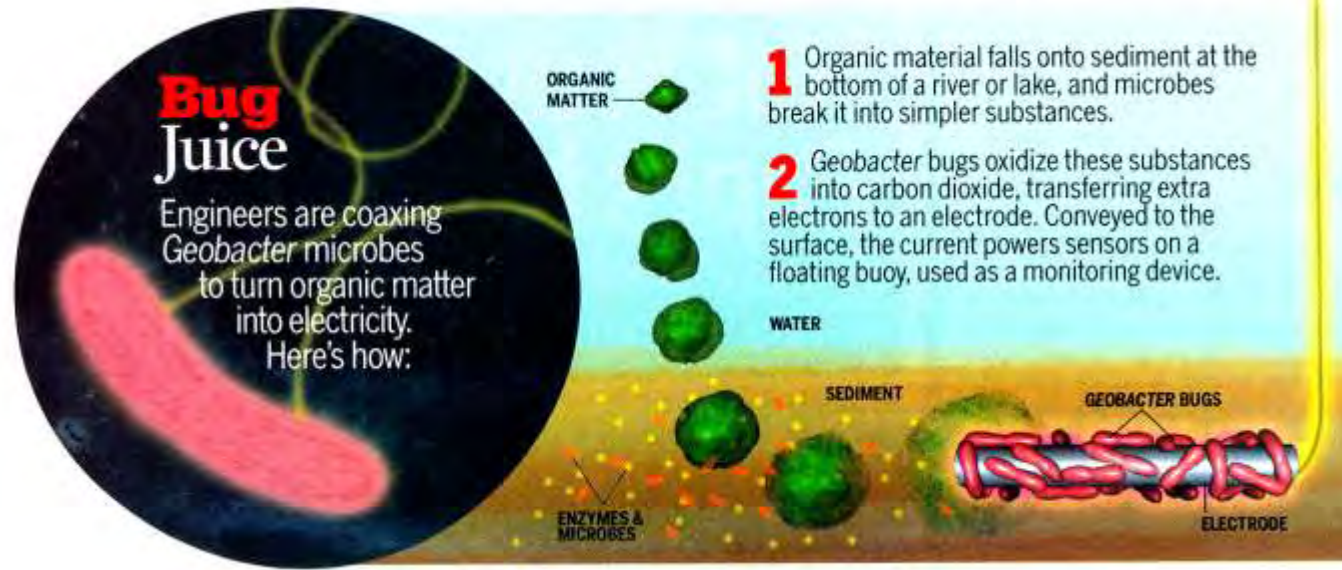
FILAMENT FLOW

LOVLEY RECENTLY made an important discovery. Some species of electricity-producing microbes, such as *Geobacter*, have long, wispy filaments extending out from their cells. At one of his son's soccer games, Lovley broached the "crackpot" idea with another dad that the filament could be natural wires. The talk led to experiments proving that electrical current flowed down the filaments. "It's still quite amazing to me," says Lovley.

The find has important practical implications. Lovley and others had thought

the grip of oil-producing nations by providing alternatives. The research "is at a very, very early stage, but the potential is huge," says Patrick L. Brezonik of the National Science Foundation.

At the University of Massachusetts at Amherst, microbiologist Derek R. Lovley has figured out how these bugs work. To prove their potential, he has designed microbial cells powerful enough to drive toy SUVs and other devices.

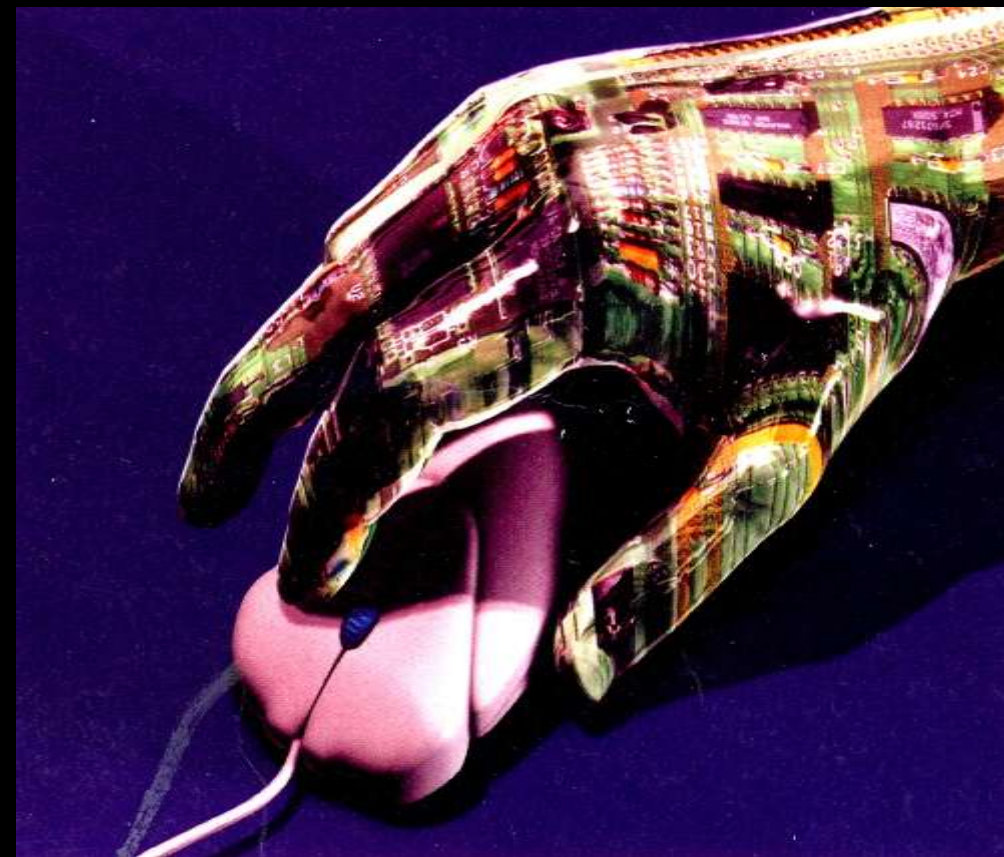


Synthetic Biology: Bioremediation and Ecologically Sound Bio-inspired Manufacturing Processes

**“You can’t throw things away.
There is no away”**

Paul Hawken

Convergent Technologies and Radical Shifts in Complex Adaptive Systems (Emergence)



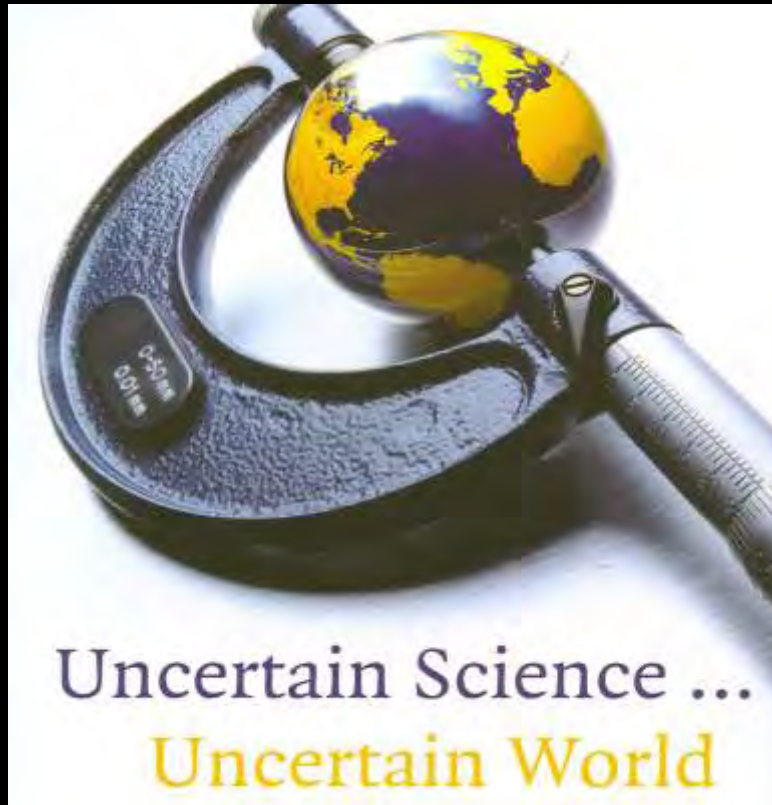
Transformational Technologies and the Relentless Destabilization of Societal and Institutional Relationships



- globalization and cultural homogenization
- new aspirants and future competitiveness
- the widening economic divide between the haves and have nots
- new political tensions, fundamentalism and anti-western ideologies

Managing Technological Risks: Oversight and Regulation





**“The aim of science
is not to open the door to infinite wisdom
but to set a limit to infinite error”**

Bertolt Brecht

No Ambiguity, No Error (No Problem)

Mr. Spock: “Insufficient data, Captain”

**Captain Kirk: “Insufficient data is not sufficient, Mr. Spock.
You’re the Science Officer.
You’re supposed to have sufficient data
all the time”**

**Star Trek
The Immunity Syndrome**

“Transcending the Limits of Us”

Michael M. Crow (2007) Issues in Science and Technology, Winter p 1

- **affluence, comfort and complacency reinforced by political populism: a potent prescription for “Quick Fixes”**
- **pervasive and dangerous scientific illiteracy among policy makers and socio-economic elites**
- **current educational system and institutional structures lack the flexibility, resilience and responsiveness to assess large-scale and long-term consequences**
- **better understand the limits of collective ability to acquire, integrate and apply knowledge**
- **imperative for new approaches to comprehend and manage complex adaptive systems**

is that
an implant?

The future went
that way . . . sir



[Archivist Note: This website was captured and archived on October 9, 2017. It has since been removed after the general public was made aware of its existence. The removal of this site from public review is remarkable considering the profound public interest policy value of these discussions. These "public-private" forums violate Federal Advisory Committee Act (FACA) because they are no-bid participation in discussions t future government spending. These essentially secret DoD Office of Net Assessment discussions, along with the participation of many of their colleagues in the Senior Executive Service (SES), with private industry, banks, media, academia, technology, pharmaceuticals and politics is the definition of fascist



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- FEEDBACK
- CONTACT

The founder of the **Highlands Group** ca. Feb. 1995 was **Andrew W. Marshall**, founding member of the **Senior Executive Services (SES)** in 1978 (see 1980 Plum Book, p. 149). He was the director of the **Office of Net Assessment** in the Department of Defense until his death on March 26, 2019. Marshall provided over \$1 million in consulting contracts to **British-American spy Stefan Halper** HQ003416P0148 (9/29/2017), HQ003415C0100 (9/24/2015), HQ003414C0076 (7/31/2014), HQ003412C0039 (5/30/2012). **Halper spied for the FBI in the Trump-Russia Hoax.**

[See Affidavit attached ([click here](#)) from a participant in these meetings]

▶ IDEAS

▶ PERSPECTIVES

▶ READINGS



[2014 Highlands Reading List](#)



[2013 Highlands Reading List](#)

Networks, Social Evolution, and Power

By David Ronfeldt

David Ronfeldt is a RAND researcher and author whose life work has been on building a framework to understand the organizing forms of society: Tribes, Institutions, Markets, and Networks, or TIMN.

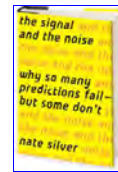
[READ MORE >](#)

How it all began ...

By Dick O'Neill

A core element of the Highlands Group activity has been the Highlands Forum. **Almost fifty meetings later**, we take a look back at "*how it all began*".

[READ MORE >](#)



[VIEW ALL >](#)



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TRANSCRIPTION

Highlands Group / Forum Participants

Sponsor: U.S. Secretary of Defense, Office of Net Assessment, Andrew W. Marshall, director
(Private meetings with military-industrial complex cronies in gross violation of FACA)

See Affidavit attached (click here) from a participant in these meetings

Organization
1L3
Annenberg Center for Public Policy
Aspen Institute
BEA
C.I.A.
Cassatt
Defense Advanced Research Project Agency (DARPA)
Deloitte & Touche
Disney
Goldman Sachs
Google
Government Accounting Office (GAO)
GOVEXEC.com
Harvard Business
Harvard Law
Harvard University
Havard Law
IBM
Imperial College
Independent Institute
Information Assurance
Infosys
JC Penney
Johns Hopkins University
McKinsey & Co
Microsoft
MIT

National Defense University
National Security Agency (NSA)
National Security Council (NSC)
Procter & Gamble
RAND Corp
CERN (European Organization for Nuclear Research)
Rice University
Santa Fe Institute
SAP
Singapore Ministry of Defence (MINDEF)
Sun Microsystems
Towson University
U.S. Department of Defense
U.S. Department of Defense CIO
U.S. Office of Secretary of Defense (sponsor)
U.S. Securities & Exchange Commission (SEC)
University of Southern California (USC)
University of Chicago
University of Maryland
Wired Magazine
World Economic Forum (Davos)
Xerox
Person
Anandan, Padmanabhan Microsoft
Bookstaber, Richard U.S. SEC, Morgan Stanley, U.S. Treasury Dept, Bridgewater Associates
Brin, Glen David DoD, CIA, Procter & Gamble, SAP, Google
Brown, John Seely Xerox PARC
Coleman, William T. BEA, Cassett, Alsop (Gilman) Louie, In-Q-Tel, C.I.A., Sun Microsystems, Warburg

Pincus, Palm, Veritas Technologies, Carlyle Group, Symantec
Derrick, K. Scott Government Accounting Office (GAO)
Dyson, Esther EDventure, HICcup, Oppenheimer Holdings, O'Reilly Media, TrustID, Bloomberg
Friel, Brian GOVEXEC.com
Gopalakrishnan, Kris Infosys, Axilor Ventures)
Hagel III, John McKinsey & Co, World Economic Forum (Davos), Aspen Institute, Deloitte, Santa Fe Institute, Independent Institute, Harvard Law, Harvard Business
Crocker, Stephen D. Shinkuro, ICANN
Chandler III, James P. Clinton/Podesta national security advisor, IBM, Judiciary, Congress, Harvard Law, Leader Technologies patent attorney
Gross, Ben Microsoft, Linde Group, UC Berkeley
Hean, Teo Chee Singapore Defense
Jacobson, Don 13L
Joy, William N. Sun Microsystems
Kretkowski, Paul D. Dept. of Homeland Security's DNSSEC (Domain Name System Security Extensions) Deployment Initiative, Shinkuro (w/ Stephen D. Crocker, ICANN)
Lockhart, Clare Harvard, Aspen Institute
O'Neill, Richard P. Highlands Group / Forum
Ozzie, Raymond Lotus, IBM, Microsoft
Plunkett, Debora A. NSA, NSC, Johns Hopkins Univ., Univ. of Maryland, JC Penney, Towson University
Rasulo, James A. 'Jay'

Disney, Pixar, ABC, ESPN, Comcast, Muppets
Ronfeldt, David F. RAND Corp
Shirky, Clay Business 2.0, The New York Times, the Wall Street Journal, the Harvard Business Review and Wired
Smalley, Richard E. Rice University
Venables, Philip J., Goldman Sachs (Cryptocurrency)
M. Mitchell Waldrop Massive Open Online Courses, aka MOOCs, Transform Higher Education and Science, Fast Company, Nature
Wells II, Linton DoD Deputy CIO, Harvard
Wladawsky-Berger, Irving IBM, MIT
Wooley, Kitty U.S. Department of Education
Yam, Tony Tan Keng Singapore Defense

See Affidavit attached ([click here](#)) from a participant in these meetings.



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[Highlands Group Team](#)

[Island Forum 2006](#)

[The Origins of the Internet Map](#)

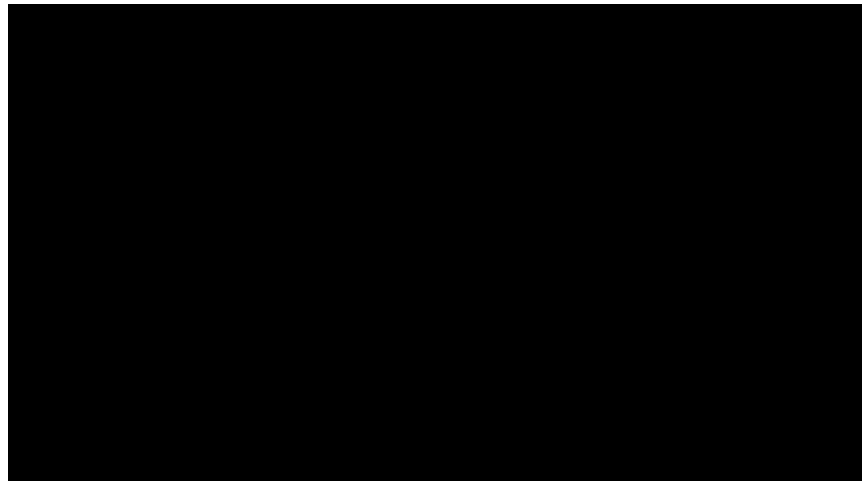
[Highlands Forum: the gatekeeper visits Newport](#)

[Revolt of Privilege, Muslim Style](#)

[The New Frankenstein](#)

Highlands Group Overview

The Highlands Group is an international consulting network that has been interestingly termed an *"intellectual capital venture firm"* with extensive experience assisting corporations, organizations, and government leaders frame issues and consider alternatives in the achievement of their objectives. The Highlands Group is a leader in helping clients to explore the edges for new ideas and approaches, create new networks, manage creativity, and succeed. The Highlands Group provides clients with a wide range of services, including: strategic planning, scenario creation and gaming for expanding global markets, and special events planning and assistance. The Highlands Group assists clients in identifying new technologies, ideas, and opportunities. Highlands draws on a network of subject matter experts and facilitates cross-disciplinary gatherings of creative thinkers, working with clients to build strategies for execution. We are a small and agile firm, supported by the strengths of a global network of experts, and provide our clients with personal involvement and dedication. The Highlands Group is headquartered in Washington, D.C. and Carmel Highlands, California, and is supported by a network of companies and independent researchers. It is truly a collaborative effort with great contributions from our sponsors; our Highlands Forum partners for the past ten years at SAIC; and the vast Highlands network of participants in the Highlands Forum, Singaporean Island Forum, the St. Michaels Forum, and the Information Engagement Forum.



Richard P. O'Neill is the founder and President of The Highlands Group. Mr. O'Neill previously served in government, in his last position as Deputy for Strategy and Policy in the Office of the Assistant Secretary of Defense. In 1994 he created (and still directs) The Highlands Forum, an internationally recognized idea engine and cross-disciplinary forum of leaders from industry, academia, government, the arts and the professions, to support high level government policy and strategy development. Since 2002 he has directed the Island Forum for the Republic of Singapore. Mr. O'Neill has briefed public and private sector leaders on a broad range of topics at the Presidential Commission on Diplomacy; Presidential Commission on Critical Infrastructure Protection; President's Foreign Intelligence Advisory Board; Center for Strategic and International Studies; French Embassy (US-French Technology Issues); American Bar Association Committee on National Security and the Law. Additionally Mr. O'Neill has delivered lectures to the Institute for World Politics, Harvard University, Georgetown University, Tufts University, National Defense University, Naval Postgraduate School, Foreign Service Institute, the Meridian Institute, the Oxford Centre for Islamic Studies, and the Secretary of State Forum. He has published journal articles on conflict in the information age; and dichotic hearing, sensory overload, and decision making. He served in the United States Navy, retiring as a Captain.



On the highlighted links to the left you will find more about the Highlands Group in the words of others.



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The Highlands Group has engaged in a breadth of activities over the past decade, from supporting U.S. and global policy makers with ideas from the edge (The Highlands Forum, The Singaporean Island Forum, The St. Michaels Forum, The Information Engagement Forum), to creating rich contexts and scenarios for storytellers in the film industry. Along the way, many remarkable people have joined us in our pursuits and allowed us to join their networks, enriching us all. Here are some of the many people that form our networks.



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"I'm an active member of the (informal) Highlands community, and it is a wonderful thing. The Forums are an opportunity to meet with high-level military officials in a meaningful way. As a civilian and a pretty skeptical one, I'm impressed with the practicality of the operating military. They are not sitting around making policy; they work on the ground to make things happen. It's definitely worth helping them to be more effective and accountable, which is the goal of Highlands."

Esther Dyson, *Chairman, EDVenture Holdings*

"Dick is an amazingly talented individual and tremendous "connector" in terms of bridging between the public and private sector. Through the Highlands Forum I have had a chance to establish productive, long-term relationships with individuals in defense and intelligence communities, with influential individuals in NGOs, with fascinating authors and independent thinkers, and with other notable figures from the commercial world. Highlands' approach to catalyzing relevant conversation and high-level connection is, in my viewpoint, unique and uniquely valuable".

Ray Ozzie, *Chief Software Architect, Microsoft*

"The Highlands Forum is a unique operation. It examines key topics and brings together the people who really understand what's happening. Dick has a unique ability to frame the questions and bring the right people together. He does a lot of homework, he has a huge network of very smart people, and he's amazingly poised and comfortable with high egos. I have attended quite a few Highland Forums and always find they hold my attention and teach me things I didn't know. The Highlands Forum started as a unpublicized operation within the Defense Department many years ago, and blossomed into one of the most enduring and useful forums for assembling specialists on technology of every sort. It's a real treat to attend."

Steve Crocker, *CEO of Shinkuro*

"Dick is one of the rare breed of people whose network you'd actually pay to join. However, his connections are so special that the entry fee cannot equate to money (it's priceless!) it depends on knowledge, intelligence, integrity and willingness to engage and share with others. In short, he 'collects' very smart people, all of whom value him more than they value working with anyone else. His natural enthusiasm, charm and wit, disguise a keen mind and supreme intellect and also ensures that if he wants to get you involved in a project he's hard to turn down. To top it all, as one of my former colleagues said, "He's one of the nicest people on the planet!"

Ken Lyon, *Founder and Chairman of Sourcereer (UK)*

"Dick O'Neill and his team, in putting together the Highlands Forum, convene one of the more thought-provoking gatherings I've attended".

Dan Gillmor, *founding director of the Knight Center for Digital Media Entrepreneurship at Arizona State University's Walter Cronkite School of Journalism and Mass Communication*

"One of the great privileges in my life has been to get to know Dick and to be an occasional participant in the Highlands Forum gatherings. In meaningful ways, the Forum embodies Dick's character -- generous, inquisitive and curious, civil and empathic towards all, and oriented towards understanding what matters in the world today. His ability to discover and bring together into an ongoing dialogue other individuals of unusual qualities who can make a difference is something rare and special in these times".

Robert Gehorsam, *President of Forterra*

"Highlands Forum is still in a class by itself. Keep up the good work".

George Heilmeier, *Chairman Emeritus of Telcordia Technologies (formerly Bell Communications Research, Inc), Director of MITRE Corp.*

"What an incredible reading list (the Highlands year end reading list for 2007). I re-read all the reviews over the weekend and prioritized a shopping list. While a few subjects will not be easy to bear, all seem quite important. My B.A. was in Humanities; Friday night it struck me that this is "Advanced Humanities." It may be advanced citizenship, as well".

Kitty Wooley, *Office of Management, Department of Education*

"I am reading some of the content of your latest forum. It is fascinating!!! Congratulations on another innovative meeting and the excellent reading material that comes out of it".

Thomas Dunbar, *CISM, CISSP, Global IT Chief Security Officer, XL Global Services*

"I've had the honor to work with Dick in the context of his work at The Highlands Group during my tenure as Director of the Krasnow Institute for Advanced Study. Dick has a unique ability to bring together talented individuals from disparate corners of academia, business and the government who, together, add value by dint of collaborating in Highland Forum events, such as workshops. His professional network of such individuals may be the finest I've seen in Washington DC area".

James Olds, *Director Krasnow Institute for Advance Study and Professor of Neuroscience, George Mason University*

"Upon meeting Dick in preparation for Strong Angel III, I knew this was an incredibly talented individual in listening and recommending valuable suggestions to an organisation that is in a constant state of flux - which Strong Angel III is - by design. During the actual Strong Angel III event, Dick created unique forums of social discussion groups that could immediately grasp the nature, intent and capabilities of the event. The forums and dialogue that he created during the event were extremely valuable for the attendees and contributor / volunteers at the event. A true statesman and facilitator, I would gladly work with Dick on any project he desires".

Doug Hanchard, *Executive Committee, Strong Angel III*

"Dick is truly one of the smartest and most capable professionals I've ever known. Through his work at Highlands, he has had extraordinary impact on national policy".

Christopher Michel, *Founder and Chairman, Military Advantage, Inc. (Military.com)*



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Email: rpon@highlandsgroup.net or deb@highlandsgroup.net



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[Rick Bookstaber on Financial Risk](#)

[One Night in Tehran](#)

[Island Forum 2009](#)

[Island Forum 2006](#)

[Island Forum 2004](#)

[The Inaugural Island Forum, 2002](#)

2014 Highlands Reading List

Links, Ideas, Activities, and Events

We began compiling our annual reading list in 2000, and it is a continuing work. On the 2014 Highlands Reading List we are featuring twenty-five books, six by first-time authors. Of the twenty-five books, there are nineteen works of non-fiction and six novels. Many of our titles are current and address timely themes; some are timeless classics worth discovering for the first time; others are works of fiction to stretch the imagination. They have been selected for their themes; for their capacity to broaden our understanding of emerging issues; and for their ability to inform the way we think about things.



Each year we are joined by a small group of guest reviewers who share with us one or two books that they read during the year and found compelling. This year's panel of distinguished guest reviewers provided eight of the twenty-five books on our list. The panel includes Wade Davis, an ethnographer and Explorer-in-Residence at the National Geographic Society; John J. DeGioia, President of Georgetown University; Lynn Hirshfield, author and Senior Vice President of Strategic Alliances at Participant Media; Elan Lee, Chief Design Officer at Xbox Entertainment Studios; James L. Olds, neuroscientist and Director of the Krasnow Institute for Advanced Study; Keith Tan, Deputy Secretary of Defence in the Republic of Singapore; and Amy Zalman, Chief Executive Officer of the World Future Society.



[Annual Reading List 2014](#)



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[Island Forum 2004](#)

[The Inaugural Island Forum, 2002](#)

2013 Highlands Reading List

Links, Ideas, Activities, and Events

On the 2013 Highlands Reading List we are featuring twenty-one books, six of them recommended by our distinguished guest reviewers. Our panel of guest editors for 2013 includes Lawrence Wright, a Pulitzer Prize-winning author for his book, *The Looming Tower*; Peter Ho, the former Singaporean Secretary of Defence and Secretary of Foreign Affairs; Melanie Greenberg President and CEO of the global association, the Alliance for Peacebuilding; George Dyson, author and historian of technology; Richard Bookstaber, economist and author; and Ann Pendleton-Jullian, author, architect and designer.



Many of our book titles are current non-fiction addressing timely themes; some are timeless classics worth discovering for the first time; two are works of fiction to stretch the imagination. They have been selected for their themes and for their capacity to broaden our understanding of emerging issues and inform the way we think about things. We began compiling an annual list in 2000, and it is a continuing work— additional titles are added during the year and compiled at the end of each year in a larger list.



[Annual Reading List 2013](#)


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[Networks,
Social
Evolution, and
Power](#)



Networks, Social Evolution, and Power

By David Ronfeldt

Over the past few years, many of our conversations have examined power in transition. One of the most fascinating ideas came from David Ronfeldt, a RAND researcher and author whose life work has been on building a framework to understand the organizing forms of society: Tribes, Institutions, Markets, and Networks, or TIMN. Ronfeldt's twenty years of research began to focus on the rise of the network as affecting society and the social frameworks of organization--his work represents a theory of social evolution of organizational forms. We traveled to California to film an interview with him in which he describes the shifts from one form to another, the events that he sees taking place during those shifts, and how that relates to the events of 2011 and beyond.

While Ronfeldt describes these forms of organization as having existed since human society began, he finds that they have matured at different rates because each form requires a new communications technology to achieve maximum utility. The network form is just now coming to prominence because of the digital revolution. Among the insights you will hear in the interview are: that each form's rise disturbs existing forms and causes the rewriting of social compacts; even when a new form arises, the forms tend to work together to solve problems; networks begin watching everything, as when top-down surveillance encounters bottom-up *sousveillance*; and networks' activities cause a rethinking of the balance of rights and responsibilities.

Please join us for a visit with social scientist David Ronfeldt.

[How it all began](#)
...



[Start Your Idea
Engines](#)

[The Web and the
Long, "Soft" War](#)

[Interview with
Ashraf Ghani,
Clare Lockhart,
and Lin Wells](#)



[Bill Coleman
Presenting at HF](#)





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How it all began ...

By Dick O'Neill

A core element of the Highlands Group activity has been the Highlands Forum. Over the past 18 years almost fifty major meetings and twenty enrichment sessions have been held around the country.

The power of a single question and the meaning of one word are at the core of the Highlands Forum's history. In this video, Dick O'Neill recounts that question and the events that led to an unexpected outcome -- the beginning of a series of conversations over two decades that addressed the original question from the Secretary of Defense and many others that were stimulated by insights gained from each Forum session.

Each succeeding session, small and cross-disciplinary in nature, brought remarkable people--from Nobel laureates and Pulitzer winners to young tech pioneers; from science fiction authors to corporate CEO's; from scientists to military leaders--to link innovators from the "core and the edge", without an outcome in mind, exploring a theme and a set of ideas, looking for novelty and emergence.

The in-depth proceedings of those events are posted to the Secretary of Defense Highlands Forum website, along with interviews, original papers, and book reviews. There is one missing piece, however, and it is the story of Highlands Forum I.

Almost fifty meetings later, we take a look back at "how it all began".

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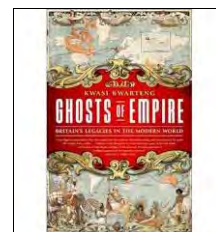
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Ghosts of Empire

By Kwasi Kwarteng



When we saw the new book, *Ghosts of Empire*, by Kwasi Kwarteng—a Conservative Member of Parliament—on British leadership in its colonial history and its meaning for the future, we knew we would be reading it carefully with an eye toward adding it to our annual list. In *Ghosts of Empire* he explores six historical cases: Iraq, Nigeria, Sudan, Hong Kong, Kashmir and Burma. Among his findings were that although colonial policy was regularly constructed in London, the basis for British success in its empire could only be managed and sustained by creating institutions and then delegating power — either to Brits acting in place of the Crown or to indigenous agents who self-identified as part of the British establishment. But therein lies the rub according to Kwarteng, who contends, “the Empire granted far too much authority to the wrong people. Accidents and decisions made on a personal, almost whimsical, level have had a massive impact on international politics... Indeed, much of the instability in the world is a product of its legacy of individualism and haphazard policy making.” Kwarteng continues, “Officials often developed one line of policy only for successors to overturn it and pursue a completely different approach. This was a source of chronic instability in the Empire.” This is the essence of the book’s title: *Ghosts of Empire*, which he says provides the legacy for contemporary policy issues (viz., Iraq)—the ghosts continue to rattle around.





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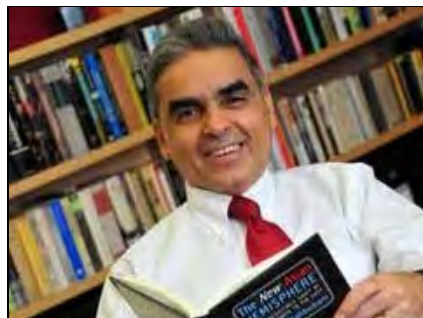
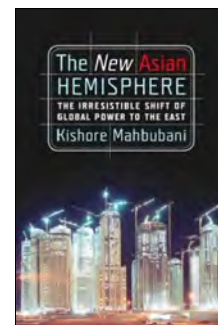
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The New Asian Hemisphere

By Kishore Mahbubani

A student of philosophy and history, Kishore Mahbubani has had the good fortune of enjoying a career in government and, at the same time, in writing on public issues. While in the Singapore Foreign Service for four decades, he had postings in Cambodia, Malaysia, Washington, and New York, where he served two stints as Singapore's Ambassador to the UN and as President of the UN Security Council. His recent book, *The New Asian Hemisphere*, details the forces that underlie the changing balance of power in the world. Simply put, Mahbubani tells us that "although European countries are still significant, their economic and demographic growth does not match those of either the emerging powers (including China and India) or the United States", and that we should be prepared to act in different ways with new and old powers. For almost two millennia, he notes, the locus of economic power was in Asia. From about 1820 until just recently, China and India were dormant. He may surprise readers when he asserts: "Asian societies are not succeeding because of a rediscovery of some hidden or forgotten strength of Asian civilizations. Instead they are rising now because though a very slow and painful process they have finally discovered the pillars of Western wisdom that underpinned Western progress and enabled the West to outperform Asian societies for the past two centuries. The surprise is not that China and India are rising so fast, but that they (together with many other Asian societies) discovered these pillars so late. Mahbubani thoughtfully concludes that most modern societies apply, directly or indirectly, the key Western principles of domestic governance (democracy, rule of law, and social justice). The challenge in the twenty-first century is to apply them globally in a careful and prudent fashion. "The world has changed irrevocably...global government is not the answer. Global governance is needed urgently. We need to develop both institutions and rules to manage the world as a whole, institutions and rules that reflect the wishes and interests of 6.5 billion inhabitants".





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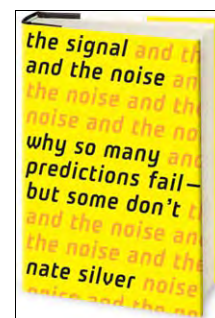
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The Signal and the Noise: Why So Many Predictions Fail--But Some Don't

By Nate Silver

Several years ago when we were preparing for Highlands Forum 41 on "The Frontier of Prediction", a friend of Highlands who was perhaps the most knowledgeable person we know of on all things baseball directed us to the website of an interesting young man who had insights on many new statistical measurements for baseball productivity. The young man was Nate Silver, and at the age of 24 he had developed a statistical measurement that accurately forecast performance of comparable players. It became a valuable tool, not just for "seamheads" (baseball fantasy league denizens who use [Sabermetrics](#) as tools for making determinations—see the 2003 Highlands Forum reading list entry on *Moneyball* by Michael Lewis, which was recommended that year by Johns Hopkins University President William Brody), but for baseball executives as well who make the real world decisions with ownership budgets. In 2008 Silver examined political polling and forecasting and thought it specious at best, so he decided to bring his methodologies to electoral predictions with his blog [FiveThirtyEight](#). He made his name in the broader world (away from baseball) of politics and media with again, stunning accuracy. What is interesting for us in Highlands is Silver's appreciation for the rigor applied to understanding prediction by Phil Tetlock, our featured speaker at Highlands 41. Silver, in his very influential new book, *The Signal and the Noise: Why So Many Predictions Fail—But Some Don't*, says: "Tetlock's conclusion was damning. The experts in his survey (*Expert Political Judgment*)—regardless of their occupation, experience, or subfield—had done barely any better than random chance, and they had done worse than even rudimentary statistical methods at predicting future political events". Silver's story is cautionary: he tells us early on, "We face danger whenever information growth outpaces our understanding of how to process it...Data-driven predictions can succeed—and they can fail. It is when we deny our role in the process that the odds of failure raise. Before we demand more of our data, we need to demand more of ourselves". Perhaps that is why so many were taken in by misleading presidential polling results in 2012, with many pundits citing those that agreed with their choice of candidate (or worse, when pollsters asked questions or structured polls that were bound to give biased results and candidates, party loyalists, and voters believed them). Many were shockingly abysmal, and downright wrong. How did Silver do? Unlike most pundits, he called all fifty states correctly and was right in the margin on the popular vote. But Silver takes success in stride with a final warning in *The Signal and the Noise*: "May we arise from the ashes of these beaten but not bowed (unpredicted disasters of the past twelve years), a little more modest about our forecasting abilities, and a little less likely to repeat our mistakes". Silver's book is likely to be one of the more influential of this or other years as it is flying off the shelves—for those who read it, be sure to remember to think about the certitude of bold predictions, even by, and perhaps, especially by "experts" in any endeavor. Read this book (and thanks to Jim for the tip!).





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Highlands Group Team

Over the years we have been very fortunate to both study and pursue network effects in our Highlands Group activities. We have had original papers written for us by writers like Robert Axelrod, Nassim Nicholas Taleb, and Hal Varian and Carl Shapiro. Many of the wonderful people in our networks have opened their networks to us, allowing us to draw from an ever expanding array of remarkable people. We are grateful to people such as Peter Schwartz of Global Business Network; Paul Saffo of the Institute for the Future; Esther Dyson of EDVenture Holdings; Andrew Marshall of the Department of Defense; George Poste of the BioDesign Institute; Judy Estrin of Packet Design; Arnaud de Borchgrave of the Center for Strategic and International Studies; and so many others.

Analysis and Logistics Staff

Our in-house staff stretches from Washington, DC, to Carmel, California. Chances are that if you are dealing with the Highlands Group you have spoken with, received email from, or met Deborah or Julie. They run the business and the Forums.

Deborah O'Neill, the leader of the band. In addition to overseeing the day-to-day management of the Group, she supervises the activities of all the included fora in our portfolio: she plans all logistics, coordinates the recording of all the Highlands Group and Forum meetings, and is always the hostess for our guests. In addition to spending years in medical research and helping to establish the first HIV community program for Hawaii, she directed the HIV protocol research for the National Naval Medical Center; and directed the health programs for Potomac Electric Power Company and Swarovski Manufacturing.



Julie Caverly is the Highlands Group Chief Financial Officer, videographer for our fora, and assists Deborah in the planning and execution of Forum meetings. A CPA, Julie formerly worked for the Bank of America in California.



Carol Wallyn (along with her husband Bob) served as the host of the very first Highlands Forum meeting at their oceanside home in Carmel Highlands, California (hence the name of the company and the Forum--Highlands) in 1995 and many meetings since. Besides having her PhD in Biochemistry, Carol is an accomplished illustrator and creates the graphics for Highlands Group activities.



The Highlands Forum is fortunate to have two extraordinarily talented people supporting it for ten years. Many of you may have met them at Highlands Forum meetings or received emails from them. They add significantly to the quality and value of the Forum and coordinate their work from Seattle, Washington (Thea) to Oslo, Norway (Michele).

Thea Lehming Brandt is our professional photographer, logo creator for all Highlands Forum meetings, and webmaster for the Highlands Forum. If you have logged onto the Highlands Forum website (access controlled) you have seen her exceptional handiwork. A graduate of Gettysburg College, Thea has advanced certifications in web development.



Michele Ledgerwood is the Senior Highlands Forum Analyst. If you have logged onto our website, you have seen the conference summaries and executive summaries which are the result of the notes Michele takes at Highlands Forum sessions along with the research that she does to provide a seamless narrative of the conversations. Michele is a graduate of Harvard and Stanford.



Research Staff

We are also fortunate to have an amazingly talented group of researchers, writers, and facilitators as part of the Highlands family. Clay Shirky, Luma Khatib, Mitch Waldrop, Ben Gross, Gary Santaniello, and Paul Kretkowski have conducted interviews, facilitated conversations, added their own research, and found many of the excellent discussants for our sessions of the Highlands Forum, the Information Engagement Forum, the St. Michaels Forum, and the Singapore Island Forum. Here they are:

Clay Shirky divides his time between consulting, teaching, and writing on the social and economic effects of Internet technologies. His consulting practice is focused on the rise of decentralized technologies such as peer-to-peer, web services, and wireless networks that provide alternatives to the wired client/server infrastructure that characterizes the Web. He teaches at New York University and has a new book in the works--Here Comes Everybody: The Power Of Organizing Without Organizations.



Mitch Waldrop is a journalist and author in fields of science and technology. Author of the best-selling non-fiction book Complexity, he has also written for Science magazine and Chemical & Engineering News. Most recently Mitch was the Media Officer for the National Science Foundation and has started up MMW Communications.



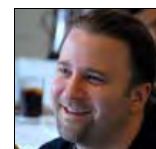
Paul Kretkowski is an analyst, researcher and writer focusing on foreign policy, soft power and other topics. He is the editor of a blog on soft power, the Beacon (<http://softpowerbeacon.blogspot.com>). He has worked for numerous publications, including The New York Times Magazine, Mother Jones Online, Wired News, American Thunder, the San Francisco Chronicle online (SF Gate) and San Francisco magazine. Paul has also written for the publications of several companies and non-profits.



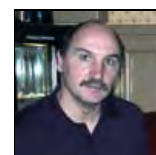
Luma Khatib until recently was an analyst and executive at Ogilvy & Mather Worldwide. Prior to joining Ogilvy, she completed the LSE-USC Global Media and Communication Master's program, earning an M.Sc. from the London School of Economics and an M.A. at the University of Southern California's Annenberg School for Communication. Her research interests include transnational satellite broadcasting in the Middle East emphasizing its role in regional development and U.S. public diplomacy in the region. Luma was a public diplomacy researcher for the Highlands Group in 2005--2006. Prior to her graduate studies, Luma worked at the NewsHour with Jim Lehrer in both its broadcast and online arms.



Ben Gross is a Visiting Scholar, School of Information at the University of California at Berkeley, where he collaborated with the Social Technologies Group and Information Quality Research Group. He was a doctoral student in the Graduate School of Library and Information Science at the University of Illinois Urbana-Champaign, where his dissertation focused on how individuals manage complex social lives with multiple online identifiers using email, instant messaging and on mobile devices. This research fits into his broader interest in the tensions between behavior, policy and technical infrastructure. His training is in human-computer interaction, personal information systems, information retrieval and digital libraries. Ben is also an analyst at Ferris Research where he covers email, instant messaging, mobile messaging, virus, spam, phishing control, team workspaces, web conferencing, VOIP, and consumer messaging. He was an Engineering Intern at Google from 2005 to 2006 and worked on identity management for Google Accounts.



Gary Santaniello is a former sportswriter and magazine editor who now teaches and writes freelance articles. His stories on a variety of topics have appeared in the New York Times, Boston Globe, Boston Globe Sunday Magazine, and the Hartford Courant Sunday Magazine. He is an adjunct professor in the Department of Mass Communications at Iona College in New Rochelle, N.Y.



Nick Bauer is currently a research assistant with the Highlands Group and a full-time graduate student at Georgetown University's Security Studies Program. Prior to returning to school, Nick served five years as a combat engineer in the U.S. Army, stationed in Schweinfurt, Germany. A veteran of two tours in Iraq, he is focusing his studies on military analysis and operations.





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Island Forum 2006

Minister for Defence Teo Chee Hean delivered the opening address at Island Forum 2006 this evening. The theme of the forum this year is "Transforming the Defence Ecosystem". Over the next two days, senior officials from MINDEF and the SAF will interact and exchange ideas with 15 leading thinkers, top business practitioners and defence experts from Australia, France, India, Israel, the United Kingdom and the United States. The event is organised by the Ministry of Defence (MINDEF), and is held from 2 - 4 May 2006 at the Executive Conference Centre, Raffles City Convention Centre.

Patterned after the Highlands Forum organised for the U.S. Department of Defense, the Island Forum is a high-level forum at which senior officials from MINDEF and the SAF engage a diverse group of international experts and thinkers on topics relevant to Singapore's defence. The wide spread of international perspectives at the Island Forum offers useful insights and ideas to draw on for the development of Singapore's defence and military capability.

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Minister Teo and Chief Technical Officer of Microsoft, Mr Ray Ozzie (left), engage in discussion before dinner.



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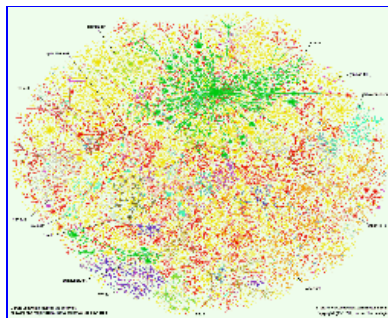
[The New Frankenstein](#)

The Origins of the Internet Map

By Bill Cheswick

The original motivation for the Internet Mapping Project came from a conference in Annapolis, a Navy-sponsored "Highlands Forum" that I attended in 1996. Held in Annapolis, the meeting was designed to help brief a member of the newly formed National Infrastructure Protection Commission. Participants included people like the well-known technology-industry commentator Esther Dyson and Fred Cohen, author of the first PC virus and a pioneer in Internet security. (One spook informed Fred and me that they had a psych profile for people like us: We have "sublimated criminal tendencies.")

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Layout showing the major ISPs



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Highlands Forum: the gatekeeper visits Newport

By Thomas P.M. Barnett

The one I went to six years ago was on Y2K, and it was very good, meaning it pushed my thinking along quite a bit. In fact, some of the biggest images and concepts I came up with for the project were things I first scrolled down on paper during that meeting. Of course, I had just run one of my Y2K GroupSystems wargaming exercises days before, but the point is, the Forum really succeeds in getting the creative juices flowing.

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Revolt of Privilege, Muslim Style

By David Ignatius

There is a ferment in the Islamic world that is pushing for change, not death. I had a glimpse into it last week at a fascinating compilation of recent Iranian films, sponsored by, of all things, a Pentagon strategy group called the Highlands Forum. It was described as an evening of "strategic listening," and we watched a stunning documentary called "Zinat: One Special Day," about an Iranian woman in a poor village who dares to run for her local council. The men of her village have talked and talked about paving the road and never gotten it done. She defies the traditionalists. She wins the election; she paves the road. That's the power that will turn back the jihad of the privileged.

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The New Frankenstein

By David Ignatius

Every once in a while a journalist is lucky enough to witness something truly unusual. That happened to me last Saturday when I heard Bill Joy of Sun Microsystems speak to an audience that included some of the country's leading technologists. His subject was nothing less than the future of human existence--and the threat that the "illimitable power" of technology could destroy our species in the 21st century.

Joy has been warning about this techno-apocalypse for the past month, first in the April issue of *Wired* magazine, then in op-ed pieces in *The Post* and other publications. His basic argument is that our species has created a triad of new technologies--genetic engineering, nanotechnology and robotics--that could lead to our extinction. What will kill us, he argues, is the very essence of our culture, our yearning for knowledge and our democratic spirit.

"More cleverness doesn't solve the problem," he told the group. "The cleverer we are, the bigger the problem we create. And more democracy doesn't solve the problem, because in an information age, giving everyone access to this [knowledge]--given that here are crazy people out there--only makes the problem worse."

Nobody has done more to create the infinite cleverness of the information age than Joy--who is among the country's leading computer scientists. In addition to co-founding Sun, he helped create the computer languages known as Unix, Java and Jini--which are the basic fabric of today's networked world.

Joy is an angular man with a buzz of curly hair atop his head, as if he'd accidentally stuck his finger in a power socket. In a slim suit, dark shirt and tie, he looked like the geeky bass player in a '50s rock band. He spoke somberly, his cadence conveying his conviction that the future of the planet is at risk.

The occasion was a meeting of the Highlands Forum, a group sponsored by the Pentagon to explore issues at the frontiers of science. Arrayed around the room were several dozen of the people who have led America's new technological revolution. One member had explained Friday how he's building a molecular computer in which single molecules will substitute for logic gates. Another described his work building optical switches, which could soon replace electrical routers and transform the Internet. A third told how he is designing tiny machines, known as MEMs, that will soon transform virtually every segment of our economy.

While celebrating these modern miracles, Joy warned that they will eventually create the tools of human self-destruction: Biotechnology will create pathogens that can destroy life; nanotechnology will create tiny weapons that can subvert existence; robotics will create machines that will turn humans into slaves and then crush them.

The process is too risky, Joy argued--this to the leaders of a technology culture that has thrived above all on risk-taking!

"What's the risk if we put illimitable power in everyone's hands, including delusional people?" he asked the group. He likened the risks to flying on a version of a jetliner in which every passenger has a button marked "Crash!" and can doom the plane. It only takes one crazy person.

"We can't tolerate a situation where mafia boy or some kid in the Philippines can destroy the planet," he said.

Joy argued that the only way out is to conclude, like the ancient Greek philosopher Aristotle, that the ultimate goal of life is not truth but happiness. Joy insists that society, starting with its technologists, must begin to contain this process of unbounded discovery.

"People say we'd have a secret elite that controlled every thing," he noted. "Well, we'll just have to get past that. We'll have to find some way of doing this that's democratically acceptable. Because if the alternative is extinction, then I'm willing to take some risk on the other side."

The reaction from some of the other technologists on Saturday was a respectful dissent. Richard Smalley, a Nobel laureate in chemistry, argued that the nightmares Joy was conjuring were harder to create than he imagined. "There's a difference between thinking about something and doing it with real atoms," he said. He movingly evoked the blessings of technology by describing how it may allow his nearly blind 90-year-old mother to see again.

William Haseltine, a biotechnologist who heads Human Genome Sciences Inc., argued that Joy's dystopia "isn't inconceivable, but the time frames are very long and the probabilities are very low."

To which Joy responded: "How long is a very long time?" He meant: How long do we all have left, if we can't find a way to contain the life-giving, life-destroying process we've created? I cannot imagine that anyone went away from this discussion without worrying in new ways about what Joy called "this century of danger"--and wondering what to do about it.

◆ 2000 *The Washington Post Company*

Before there was Second Life...



Bruce Damer created a virtual world for the Highlands Forum in 2000 at Highlands XV.

WIRED's most connected man in the infosphere

Clay Shirky has worked with us since 2002 on the rise and impact of social networking.



What's said in Vegas, stays in Vegas



The discussions on "Risk in a Networked Environment" were held in the capital of risk, Las Vegas. Opening night was held at Jeff Jonas's home. Sharing a good story are Steve Koenig of Bellagio Hotel; University of Michigan professor Bob Axelrod; Esther Dyson; Jeff Jonas; and former Assistant Secretary of Defense Lin Wells II.

Two for the future



Peter Schwartz, founder and Chairman of Global Business Network, and PC Lui, Chief Scientist of the Singaporean Ministry of Defence, have been regular contributors to HF with their views of the future.

The latest in Highlands fashion, circa 2001



Esther Dyson donning the new tee shirt at Highlands XVIII.

And the Oscar goes to...

Zana Briski, winner of the best documentary Oscar film, "Born into Brothels" describes the power of story telling at Highlands XXVII, "Strategic Listening".



Natural capitalism meets the greening of industry



Amory Lovins and Dan Esty discussing future security implications of new energy sources and a green industrial policy at Highlands XXV.

Collaboration across the ocean



Singaporean Armed Forces General Jimmy Khoo talking about whole of government approaches to problem solving in the SARS crisis and the Indonesian tsunami.

Opening night at the Island Forum



Singaporean Secretary of Defence Chiang Chie Foo opening the festivities at the 2006 Island Forum directed by the Highlands Group.

Ready for your close-up, Highlands



Tom Barnett opening Highlands XXV with a tour de force that was carried on C-SPAN.

Bullish on Highlands futures, 1996

Our original hosts for the first Highlands Forum (1996) as well as many later sessions, Drs. Carol and Bob Wallyn (far left and far right). With them are with the late Bob Bartley, editor of the Wall Street Journal, and Mrs. Bartley.



Through an LCD, brightly

Dr. Eric Rasmussen, MD, then of the United States Navy and father of Strong Angel, and now CEO of Google's INSTEDD, checking out the VSEE connection as Strong Angel/Highlands Forum XXIX gets underway.



How was the coffee at PARC, JSB?



Dan Gillmor and John Seely Brown listening to each other at Highlands XXVII, "Strategic Listening".

Can we try a lighter topic maybe?



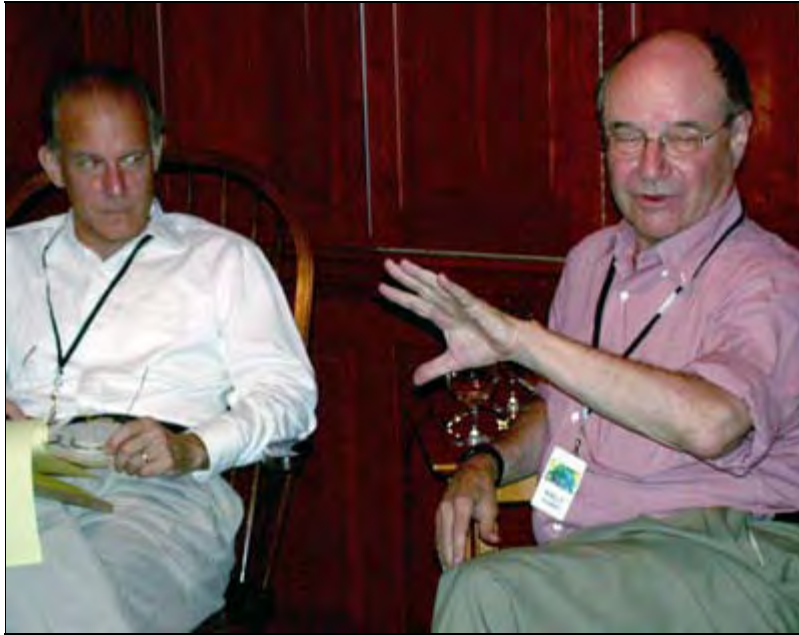
Dick O'Neill moderating a conversation on the convergence of nanotechnology/biology/genomics/robotics and the end of humankind at Highlands XIV, "The World of the Small" in 2000. Equally distraught are Paul Kozemchak of DARPA, the late Nobel laureate Rick Smalley, and IT pioneer Bill Joy.

It's the economy...



Goldman Sachs International's Vice Chairman, Bob Hormats, enumerating key elements of globalization, connectedness, and security, writ large, at Highlands XXV.

It's the life sciences...



The Washington Post's David Ignatius listening to Nobel laureate Wally Gilbert on the future of the life sciences and the implications for security at Highlands XXII.

In the Groove in Singapore

Microsoft Chief Software Architect Ray Ozzie at the Singapore Island Forum in 2006.



Listening to the enemy...



Lawrence Wright, who won the Pulitzer Prize this year for his remarkable book, *The Looming Tower: The Road to Al Qaeda*, seen here at Highlands XXV in 2004.

Around the world with our Highlands journalists



Arnaud de Borchgrave of *The Washington Times*; Lawrence Wright of *The New Yorker*; Salameh Nematt of Al Hayat; Ambassador Barry Desker of Singapore; David Ignatius of *The Washington Post* at Highlands XXV.

Civil Wars from Gettysburg to Fallujah



Pulitzer Prize winner James McPherson (Battle Cry of Freedom) explaining postwar reconstruction to Robert Gehorsam, Sultan Barakat, and Dick O'Neill (l-r) at Highlands XXVI just outside the Gettysburg battlefield.

The ideas just keep on coming...



The braintrust of networks and conflict (l-r) : Admiral Bill Owens, former Vice Chairman of the Joint Chiefs of Staff; the late Vice Admiral Art Cebrowski, Director of Force Transformation for the Office of the Secretary of Defense; John Arquilla, who with his RAND writing partner David Ronfeldt created many of the early thematic arcs for Highlands since 1994.

Can you read me now?



Mimi Ito and Jerry Michalski with dueling laptops at the December, 2007 Information Engagement Forum in Carmel. In the background are Highlands staffers Deborah O'Neill and Paul Kretkowski.

The founder of GeekCorps recruiting a new member



Ethan Zuckerman explaining GeekCorps to Jeff Cooper at the Information Engagement Forum.

In Christmas attire by the tree



Howard Rheingold at the Information Engagement Forum.

Fixing the states...



Ashraf Ghani and Clare Lockhart of the Institute for State Effectiveness helping us to understand how states fail and perhaps...how they might be fixed.



Ready when you are C.B.
Jonathan Mostow, director of U-571 and
Terminator 3, with whom HG has worked on film
scenarios.

Risking it all on the roll of a dice...



The eminent Peter Bernstein, economist and author of the classic, *Against the Gods*, opening speaker at Highlands XXIII on Risk.

The wise man of Highlands...



Andy Marshall, who helped begin The Highlands Forum and inspired it every step of the way.

Smiling in Singapore



Nik Gowing, BBC anchor; Jeff Jonas, Distinguished Scientist and Chief Engineer of IBM Entity Analytics; and John Rendon, President of The Rendon Group, relaxing before the beginning of the 2004 Singapore Island Forum.



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2012 Highlands Reading List



Links, Ideas, Activities, and Events

Each year we present a list of books that we would like to call to your attention as being noteworthy. We hope that you will find a book on this list to enjoy and spend time with while on vacation or when you are on travel. This year we and our guest reviewers have a robust list of twenty-four books (including four works of fiction), covering biography, economics, history, information technology, science fiction, mathematics, gaming, comparative politics and sociology, contemporary conflict studies, and current events.

If you would like to recommend a favorite book to us, please let us know.

Enjoy!



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Rick Bookstaber on Financial Risk

New York Times

In 2011, senior advisor the SEC [Rick Bookstaber](#), joined the Forum in Santa Fe for a conversation on systemic failure and collapse. Here is a recent New York Times article about Rick and his thinking on complexity, modeling, and financial risk.



Clouds Seen in Regulators' Crystal Ball for Banks,

by Floyd Norris (The New York Times)

Five years ago, the financial regulators of the United States — and more broadly the world — didn't see the storm coming.

Would they if a new one were brewing now?

The answer to that is far from clear. The regulators have more information now, and they have applied the tools they have to measure risk with more vigor.

But a [new assessment](#) from a little-known agency created by the Dodd-Frank law argues that the models used by regulators to assess risk need to be fundamentally changed, and that until they are they are likely to be useful during normal times, but not when they matter the most.

"A crisis comes from the unleashing of a dynamic that is not reflected in the day-to-day variations of precrisis time," wrote Richard Bookstaber, a research principal at the agency, the Office of Financial Research, in a working paper. "The effect of a shock on a vulnerability in the financial system — such as excessive leverage, funding fragility or limited liquidity — creates a radical shift in the markets."

Mr. Bookstaber argues that conventional ways to measure risk — known as "value at risk" and stress models — fail to take into account interactions and feedback effects that can magnify a crisis and turn it into something that has effects far beyond the original development.

"What happens now when people do stress tests," he said in an interview, "is they look at each bank and say, 'Tell me what will happen to your capital if interest rates go up by one percentage point.' The bank says that will mean a loss of \$1 billion. That is static. That is it."

But, he added, "What you want to know is what happens next." Perhaps the banks will reduce loans to hedge funds, which might start selling some assets, causing prices to drop and perhaps having additional negative effects on capital. "So the first shock leads to a second shock, and you also get the contagion."

The working paper explains why the Office of Financial Research, which is part of the Treasury Department, has begun research into what is called "agent-based modeling," which tries to analyze what each agent — in this case each bank or hedge fund — will do as a situation develops and worsens. That effort is being run by Mr. Bookstaber, a former hedge fund manager and Wall Street risk manager and the author of an influential 2007 book, ["A Demon of Our Own Design,"](#) that warned of the problems being created on Wall Street.

He said the first work was being done with the help of [Mitre](#), a research organization that came out of the Massachusetts Institute of Technology, on the interactions between banks and leveraged asset managers, with particular attention on how so-called fire sales develop as asset values plunge. Additional work is being done by central banks in Europe, including the Bank of England.

"Agent-based modeling" has been used in a variety of nonfinancial areas, including traffic congestion and crowd dynamics (it turns out that putting a post in front of an emergency exit can actually improve the flow of people fleeing an emergency and thus save lives). But the modeling has received little attention from economists.

Richard Berner, the director of the Office of Financial Research, said in an interview that his agency was trying to gather information in many areas, understanding that "all three of those things — the

origination, the transmission and the amplification of a threat — are important.” The agency is supposed to provide information that regulators can use.

Mr. Bookstaber said that he hoped that information from such models, coupled with the additional detailed data the government is now collecting on markets and trading positions, could help regulators spot potential trouble before it happens, as leverage builds up in a particular part of the markets. Perhaps regulators could then take steps to raise the cost of borrowing in that particular area, rather than use the blunt tool of raising rates throughout the market.

Any benefits from such research are at least a few years away, however, and for now bank regulators are placing renewed emphasis on stress tests, which under the Dodd-Frank law must be conducted annually on the largest banks in the country. This year’s version, due out in March, will release more information than those in previous years.

Stress tests take a negative set of economic assumptions and ask how each bank would fare in those circumstances. As such, their usefulness is constrained by how well the assumptions reflect something that might actually happen. If it has never happened before, there is at least some chance that a stress test would not even consider what could be a severe problem.

The usefulness could also be limited by secondary effects not foreseen by those who designed the test. In 1998, the Long-Term Capital Management hedge fund had little exposure to Russian bonds, and probably would have easily passed a stress test based on a possible Russian default. But when Russia did default, others that owned Russian bonds were forced to sell assets that the L.T.C.M. fund did own, driving down prices of those assets and setting off the events that caused the heavily leveraged fund to come close to collapse.

The Bookstaber paper pointed to a [2008 International Monetary Fund report on Iceland](#), issued shortly before that country’s financial collapse. “The banking system’s reported financial indicators are above minimum regulatory requirements and stress tests suggest that the system is resilient,” the monetary fund concluded.

This week, the 19 largest bank holding companies in the United States submitted to the Federal Reserve Board their assessment of how they would fare [under various cases put together by the Fed](#).

The principal difference between this year’s “severely adverse” case and last year’s is that this year’s version requires the banks to assume “a much more substantial slowdown” in China and India along with a new, severe recession in the United States, characterized by an unemployment rate that approaches 12 percent, by a stock market that loses half of its value and by real estate prices falling 20 percent from current levels. There would also be severe recessions in Britain, the euro zone and Japan.

It may be notable that even in the most negative case the Fed could dream up, China’s economy continues to grow.

What is new this year is that the public will get to see two views — views that could be significantly different — of how each bank would fare under that worst case, as well as under less horrible conditions. Each bank’s own assessment will be released in March, along with the Fed’s view of how that bank would do. Officials say the Fed staff members working on the stress tests will not see, and therefore not be influenced by, the bank’s views.

If there are substantial differences in the results for any bank, that will serve as a reminder that the models the banks use to estimate their exposures can vary significantly from bank to bank and between the banks and the regulators.

The immediate impact of the stress tests will show up in whether the Fed approves each bank’s capital plan — its plan for how much it will pay out to shareholders in dividends and share repurchases. The Fed will approve what a bank proposes only if it thinks that minimum levels of bank capital would be preserved under the severe stress test.

A year ago, Citigroup suffered the embarrassment of having the Fed publicly reject its capital plan. It may not be unrelated that the bank’s board has since [ousted the chief executive](#) responsible for preparing that plan.

For now, the Fed’s view of what is necessary will prevail. But does the Fed have enough information to really know how the banks would fare if a new recession arrived? If Mr. Bookstaber is right, the answer may be that it does not.



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One Night in Tehran

Silver Spring, MD

From our archive, we pulled this one to share with you as it continues to resonate with people and has taken on a life of its own. Over the past three years we have been exploring a thematic arc on the power of narrative and storytelling that led us to consider alternatives to broadcasting as the primary mode of communicating. One of the elements that arose from that arc was an emphasis on listening as a critical first step. We have given presentations on our findings to various groups and over the course of the past year we have found listening to be included in the conversation on new approaches to engagement in foreign policy.

The event that kicked this off for us was "One Night in Tehran", an evening of Iranian feature films and documentaries at the American Film Institute's Silver Theater. We brought together senior military and civilian leaders from agencies of government to view a number of film clips and engage in a discussion of their meaning and context with the Dean of the USC School of Cinema and Television and Iranian and American film professors from USC and Rice University.

The strategic aspects of listening, co-creation of dialogue, and the long tail of local, regional and global communications have found their way into continuing conversations across the private and public sectors. It has been picked up and furthered by, among others, the Annenberg Center for Public Diplomacy (<http://uscpublicdiplomacy.org/>), the National Defense University, blogger/author/scientist David Brin (<http://davidbrin.blogspot.com/2005/12/power-of-strategic-listening.html>), and John Seely Brown and John Hagel III in their business strategy development.





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Island Forum 2009

Singapore



Senior officials from the Ministry of Defence (MINDEF) and the Singapore Armed Forces (SAF) will interact and exchange ideas with leading thinkers, top business executives and defence experts from India, the United Kingdom and the United States at the Island Forum 2009, which will be held at the Mandarin Oriental Hotel from 6 to 8 April. The theme of this year's forum is Complex Networks, Risk and Resilience. Deputy Prime Minister and Minister for Defence Teo Chee Hean officiated at the opening reception at the Asian Civilisations Museum this evening. The diversity of international perspectives at the Island Forum offers useful insights and ideas to draw on for the development of Singapore's defence and military capability. The participants will discuss current and emerging security challenges and the importance of being vigilant to enhance network protection and resilience. The international delegates of Island Forum 2009 include Debora Plunkett, Deputy Director (Information Assurance), National Security Agency, United States; P. Anandan, Managing Director, Microsoft Research India; and Phil Venables, Managing Director and Chief Information Security Officer, Goldman Sachs. This year's Island Forum will also involve senior officials from other ministries such as the Ministry of Foreign Affairs and the Ministry of Information, Communications and the Arts. This is the fourth Island Forum that MINDEF has organised since 2002. In the previous forums, participants discussed Transformation - Experiences in the Military and Industry, Information in Conflict, and Transforming the Ecosystem - topics which are of particular interest to the SAF in an increasingly complex operating environment.



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Island Forum 2006

Singapore

Minister for Defence Teo Chee Hean delivered the opening address at Island Forum 2006 this evening. The theme of the forum this year is "Transforming the Defence Ecosystem". Over the next two days, senior officials from MINDEF and the SAF will interact and exchange ideas with 15 leading thinkers, top business practitioners and defence experts from Australia, France, India, Israel, the United Kingdom and the United States. The event is organised by the Ministry of Defence (MINDEF), and is held from 2 - 4 May 2006 at the Executive Conference Centre, Raffles City Convention Centre.



Patterned after the Highlands Forum organised for the U.S. Department of Defense, the Island Forum is a high-level forum at which senior officials from MINDEF and the SAF engage a diverse group of international experts and thinkers on topics relevant to Singapore's defence. The wide spread of international perspectives at the Island Forum offers useful insights and ideas to draw on for the development of Singapore's defence and military capability.

MINDEF had organised two previous Island Forums, in 2002 and 2004. These addressed the topics of Transformation and Information Operations respectively, which are subjects of particular interest at this stage of the SAF's development in an increasingly complex operating environment.

The Singapore defence establishment has been using the term "Defence Ecosystem" for the past few years to refer to the various entities which work together synergistically to contribute to the defence of Singapore. Besides MINDEF and the SAF, the other entities in the ecosystem include the Defence Science and Technology Agency (DSTA), research agencies such as the Defence Science Organisation National Laboratories (DSO), Temasek Labs of the National University of Singapore and Temasek Labs of the Nanyang Technological University, the defence industry such as Singapore Technologies Engineering (STE), and other security-related agencies.

Island Forum 2006, with its theme "Transforming the Defence Ecosystem", will provide more ideas for how MINDEF and the SAF can continue to leverage on the strengths of the ecosystem, address emerging issues, and adapt in the increasingly uncertain operating environment to sustain the transformation of the 3G SAF. Key issues that will be discussed at the forum include the role of commercial and defence R&D, the impact of global developments on the defence industry, and the importance of human and social capital in sustaining an innovative, creative and advanced defence ecosystem.

The prominent figures at Island Forum 2006 include S Gopalakrishnan (Chief Operating Officer of Infosys), Ray Ozzie (Chief Technical Officer, Microsoft), and James Rasulo (Chairman, Walt Disney Parks & Resorts).



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Island Forum 2004

Singapore



Minister for Defence, RADM(NS) Teo Chee Hean, graced the Reception Dinner for the Island Forum II this evening. Over the next two days from 16 - 17 Jan 04, about 40 delegates from Australia, India, Israel, Singapore, Sweden, United Kingdom and the United States will share perspectives on the theme "Information in Conflict".

The delegates will examine the different roles that information and information technologies play in conflicts. In particular, they will look at the emerging conceptual trends in the use of information technologies to enhance military capabilities. The discussions will draw on the rich and diverse personal experiences of the delegates, some of whom were closely involved in Operation Iraqi Freedom. The role of the media in international conflicts and the importance of information operations are also likely to be discussed.

The Singapore Ministry of Defence (MINDEF) hosted the first Island Forum in September 2002, with the aim of engaging eminent local and international thinkers and experts on emerging ideas and models of transformation in the military and industry. Designed as an informal forum, its small group setting proved conducive for senior officials of MINDEF and the Singapore Armed Forces (SAF), to meet and exchange views with thought-leaders from industry, the media, academia and other militaries. The Ministry has decided to regularly host the Island Forum because of the high quality of ideas and perspectives shared at the inaugural event.

Lending his expertise and experience to the Island Forum as lead consultant is Mr. Richard O'Neill, the President of the Highlands Group. The Island Forum is modelled after the Highlands Forum, which is an informal, cross-disciplinary group comprising leaders from industry, academia, government, the arts and professionals from a variety of fields. Sponsored by the United States Office of the Secretary of Defense, the Highlands Forum takes an active interest in information and information technologies and their political, military, economic and social impact.



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The Inaugural Island Forum, 2002

Singapore



The inaugural Island Forum was opened by the Deputy Prime Minister and Minister for Defence, Dr. Tony Tan, this morning (13 Sep). The theme of this inaugural forum is "Transformation - Experiences in the Military and Industry". It is being held from 12 to 14 Sep 02, with 35 participants from France, Germany, Israel, Singapore, Sweden, the United Kingdom and the United States. The Island Forum is a platform to discuss and evaluate emerging ideas and models of transformation impacting on the military and industry. Senior officials of MINDEF and the Singapore Armed Forces (SAF) and leading local corporate figures will meet and exchange views with international thinkers and experts from diverse backgrounds, including the military, industry, media and academia. The three sessions of the Island Forum will examine the key trends in the defence and business arenas and their implications for Singapore; discuss the processes of early warning, strategy and change (including a panel discussion on the roles of innovation and technology in organisational change); and analyse the strategic and operational transformation of the security arena and the military. Lending his expertise and experience to the Island Forum as lead consultant is Mr. Richard O'Neill, the President of the Highlands Group. The Island Forum is modeled after the Highlands Forum, which is an informal, cross-disciplinary group comprising leaders from industry, academia, government, the arts and professionals from a variety of fields. Sponsored by the United States Office of the Secretary of Defense, the Highlands Forum takes an active interest in information and information technologies and their impact on global and societal activities.

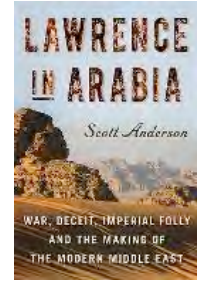
The 2014 Highlands Reading List

We began compiling our annual reading list in 2000, and it is a continuing work. On the 2014 Highlands Reading List we are featuring twenty-five books, six by first-time authors. Of the twenty-five books, there are nineteen works of non-fiction and six novels. Many of our titles are current and address timely themes; some are timeless classics worth discovering for the first time; others are works of fiction to stretch the imagination. They have been selected for their themes; for their capacity to broaden our understanding of emerging issues; and for their ability to inform the way we think about things.

Each year we are joined by a small group of guest reviewers who share with us one or two books that they read during the year and found compelling. This year's panel of distinguished guest reviewers provided eight of the twenty-five books on our list. The panel includes **Wade Davis**, an ethnographer and Explorer-in-Residence at the National Geographic Society; **John J. DeGioia**, President of Georgetown University; **Lynn Hirshfield**, author and Senior Vice President of Strategic Alliances at Participant Media; **Elan Lee**, Chief Design Officer at Xbox Entertainment Studios; **James L. Olds**, neuroscientist and Director of the Krasnow Institute for Advanced Study; **Keith Tan**, Deputy Secretary of Defence in the Republic of Singapore; and **Amy Zalman**, Chief Executive Officer of the World Future Society.

RECOMMENDATIONS FROM OUR GUEST EDITORS

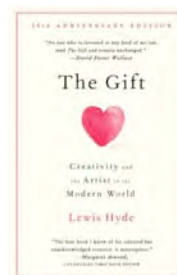
Wade Davis is Explorer-in-Residence at the National Geographic Society (NGS) and was named by the NGS as one of the "Explorers for the Millennium". He has been described as "a rare combination of scientist, scholar, poet and passionate defender of all of life's diversity." An ethnographer, writer, photographer, and filmmaker, Davis holds degrees in anthropology and biology and received his Ph.D. in ethnobotany, all from Harvard University. Mostly through the Harvard Botanical Museum, he spent over three years in the Amazon and Andes as a plant explorer, living among fifteen indigenous groups in eight Latin American nations while making some 6000 botanical collections. His work later took him to Haiti to investigate folk preparations implicated in the creation of zombies, an assignment that led to his writing *Passage of Darkness* (1988) and *The Serpent and the Rainbow* (1986), an international best seller later released by Universal as a motion picture. Davis is the recipient of numerous awards including: The Explorers Medal, the highest award of the Explorers Club (2011), the Gold Medal of the Royal Canadian Geographical Society (2009), the 2002 Lowell Thomas Medal (The Explorer's Club) and the 2002 Lannan Foundation \$125,000 prize for literary non-fiction.



Wade tells us: “The most interesting book that I have read in recent weeks is Scott Anderson’s [*Lawrence in Arabia: War, Deceit, Imperial Folly and the Making of the Modern Middle East*](#). Beautifully written and thoroughly researched, the book reveals that T E Lawrence in spite of himself really was a hero, and a hero betrayed. Anderson brilliantly chronicles how utterly arbitrary was the process that bequeathed the diplomatic and military quagmire euphemistically referred to today as the Middle East. Indeed it is difficult to recall any moment in history where vanity and folly, deception, opportunism, and venality on the part of a host of nations and political leaders more effectively came together to sow the seeds of disaster for future generations”.

*

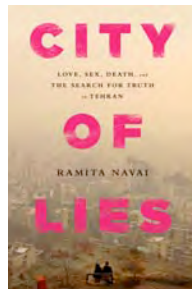
John J. DeGioia is the President of Georgetown University. For over three decades, he has helped to define and strengthen Georgetown University as a premier institution for education and research. Since graduating from the University in 1979, he has served both as a senior administrator and as a faculty member. On July 1, 2001, he became Georgetown's 48th president. Dr. DeGioia is also a Professorial Lecturer in the Department of Philosophy. He earned a bachelor's degree in English from Georgetown University in 1979 and his PhD in Philosophy from the University in 1995. This fall, he taught an Ignatius Seminar called "Fusing Horizons: Knowing Each Other, Knowing Our Selves." Previous courses include "Working on Ourselves: Imagination, Interior Freedom and the Academy," "Ethics and Global Development," and "Human Rights: A Culture in Crisis." Prior to his appointment as president, Dr. DeGioia held a variety of senior administrative positions at Georgetown, including senior vice president and dean of student affairs. He has been presented with a Lifetime Achievement Award for Excellence in Academia by the Sons of Italy, and the Catholic in the Public Square Award by *Commonweal*. He was also named a Brave Thinker by *The Atlantic* magazine and a Washingtonian of the Year by *Washingtonian* magazine.



His recommendation for us is a modern classic: [*The Gift: Creativity and the Artist in the Modern World*](#) by Lewis Hyde. “It is an extraordinary examination of the enduring value of creativity. It gives us an alternative way of seeing the world. Guiding Hyde’s logic is an underlying conviction that art is a gift—the opposite of a commodity. As such, it is the currency of a powerful second economy running in parallel to a world governed by the exchange of money. Through examples drawn from across history, Hyde provides a deep examination of the value of this alternative framework in building relationships and culture. More than thirty years past its first publication date, *The Gift* continues to enrich the lives and work of artists, writers and, as Hyde himself notes, ‘all thinking people’. *The Gift* endures as a remarkably fresh perspective that broadens the options we have before us for interacting as humans”.

*

Lynn Hirshfield is Participant Media’s Senior Vice President of Strategic Alliances. She joined Participant Media in September 2005 and is responsible for leading the development of strategic partnerships and integrating these partners into social action and advocacy campaigns and across all of the company’s platforms, including the film divisions, Takepart.com and Pivot TV. Lynn is also responsible for launching Participant’s publishing division to complement the company’s films and social action campaigns. She is the author of *Girls Gone Green* and two more books for younger readers, the "Sassafras" series. Prior to joining the staff of Participant, she consulted for a number of Internet content and technology start-ups, and various studios and venture capital groups specializing in creating new verticals and generating strategic partnerships with corporate sponsors. Previous to entering the Internet arena, Lynn worked as a development executive for productions garnering a number of awards, including four Emmys, a Peabody Award and two Television Critics Awards -- among them the PBS series “Wishbone.” She was also a story editor for National Geographic Feature Films, Scott Rudin, Norman Lear, Tim Burton and Sony, Fox and Warner Bros. Studios. Lynn is a graduate of U.C. Berkeley and the Radcliffe Publishing Procedures Graduate Program at Harvard University.



Lynn has given us two compelling recommendations for this year’s list: *City of Lies*, and *National Insecurity*.

“Ramita Navai is a British-Iranian journalist. In her new book, [*City of Lies: Love, Sex, Death, and the Search for Truth in Tehran*](#), she tells the stories of Tehranis who live one life publicly, and another privately. ‘Let’s get one thing clear,’ she says in the first sentence of her book. ‘In order to live in Tehran you have to lie.’ This is a crackling, fearless, real life look at the underbelly of modern Tehran, told through the lives of 8 intriguing protagonists, including a porn star, an ageing socialite, a dutiful housewife who files for divorce, and an old-time thug running a gambling den. All of whom Navai got to know when she was living and working as an undercover journalist in Tehran. Navai exposes the startling realities of lives lived behind a veil of necessary falsehoods and announces herself as a dazzling new writer”.

Of her second recommendation, Lynn told us: “Over the past decade, America has struggled to cope with a relentless array of new threats, from wars in Iraq and Afghanistan to the financial crisis, from Washington dysfunction to the rise of China and the dawn of the era of cyber warfare. David Rothkopf, one of America’s foremost experts on foreign policy and national security, shows in his book [*National Insecurity: American Leadership in an Age of Fear*](#) how America was shocked into a series of missteps, what it tried to do to recover, and what it must do to emerge from one of the most difficult periods in its history. It is the story of a superpower in crisis, seeking to adapt to a rapidly changing world, and struggling to maintain resilience in spite of mismanagement, and unwillingness to draw the right lessons from the recent past.

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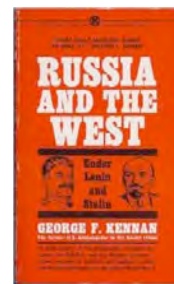
Elan Lee is a professional technologist and storyteller. His pioneering work in entertainment has spanned everything from multiple startups raising millions of dollars to creating the Alternate Reality Game genre. Elan started his career at the Microsoft Games Studio where he was a Lead Designer for the X-Box launch portfolio. Next, he co-founded and served as the Vice President of 42 Entertainment (the company behind *I Love Bees*, *Nine Inch Nails: Year Zero*, and *The Dark Knight*.) Elan was also the Co-Founder of EDOC Laundry, a company that embeds secret narratives in clothing, and the founder and Chief Creative Officer for Fourth Wall Studios in Los Angeles. He is currently the Chief Design Officer for Xbox Entertainment Studios. He has won a Primetime Emmy for the series, “Dirty Work”, and the 2012 Indie Cade Trailblazer Award for a distinguished career in interactive entertainment.



“My nomination is [Daemon](#), a novel by Daniel Suarez. I’ve read a lot of books about the menace of machines. Yes, digital viruses are scary. Yes, computers coming to life are scary. Yes, video games where real people die are scary...but if I have to read another book about why we should all unplug our machines, stomp on our cellphones, and live in constant fear of the great digital boogiemán, I’m going to track down that author and throttle them with my MacBook power cable. Daemon is the first book I’ve ever read about a sentient(ish) machine that is based on realistic models, actual code, and plausible human reactions. Daemon is a story about a video game designer who writes a series of scripts to communicate with the world after his own death. These scripts have the ability to help or harm humans based on the degree to which they can manipulate others to follow their rules. The premise forces the reader to think about our dependence on machines, the appeal of competition, and our reliance on each other. At times, it gets overly fetishized, but it’s solid writing that explores an actual implementation of the gamification of life. This is the best book I’ve read this year. I pass this book on to all my reading friends because it inevitably leads to hours of fascinating conversation about a premise that should not be ignored. It’s clever, thought provoking, and wildly educational on the kind of digital structures we’re surrounded by. (Plus, the fact that not everyone dies is a nice cherry on top.)”

*

James L. Olds is a neuroscientist and Director and Chief Academic Unit Officer of the Krasnow Institute for Advanced Study, and Krasnow University Professor of Molecular Neuroscience. His scientific interests focus on the functional role of the mammalian neocortex, hippocampus and cerebellum, in health and disease, with special emphasis on how these highly ordered neuroanatomical regions interact to store and retrieve complex memories (ranging from face recognition to motor programs). He also has an interest in public policy, especially with regard to federal funding of biomedical research here in the United States and around the world. The international Decade of the Mind project was begun under his leadership at Krasnow, which helped shape President Obama's BRAIN Initiative.



Adhering to Andy Marshall’s advice to us many years ago, “If you want a new idea, read an old book”, Jim sent us his recommendation of a 1961 classic, [Russia and the West Under Lenin and Stalin](#), by a towering figure of international relations, George F. Kennan. Jim tells us, “Sometimes the old stuff is still the best. In this case, Kennan's

book about the first forty years of Communism in Russia provides a terrific context for current foreign policy challenges with Russia under Putin. Kennan masterfully paints a complicated picture of a ruthlessly single-minded Soviet foreign policy intersected with an often naive and shortsighted West (and especially the United States) that avoided coming to grips with the existential nature of the confrontation until it was too late. Most interestingly the book reveals the Russian obsession with control of its near frontier, including Ukraine, Poland, the Baltics and Finland in a way that eerily is mirrored in the present. At the same time, Kennan reaches back into the historical record to bring the early Soviet leadership to life: Lenin, with his absolute dedication to a plan to destroy the Western democracies; Molotov working cynically with Ribbentrop to buy time for both Russian and Germany (each planning to eventually devour the other); Stalin consumed with a personal insecurity that led him to purge the best and the brightest. In each of these portraits, there perhaps is a little of Putin. Read and enjoy--*plus ca change, plus que la meme chose*".

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Keith Tan assumed the appointment of Deputy Secretary (Policy), in the Ministry of Defence of Singapore, on 1 Sep 2014. Prior to his present appointment, he was the Senior Director of Public Service Division's PS 21 Office. He concurrently held the appointment of Institute Director in the Institute of Governance and Policy of Singapore's Civil Service College. In these complementary roles, he thought about how to engage Public Sector leaders, middle managers and rank-and-file officers on public sector transformation efforts, and led a number of such outreach efforts. He also served as the Editorial Advisor for *Challenge* magazine and *Ethos*. Keith spent five years in the Ministry of Trade and Industry, where he served as Director of the Economics and Strategy Division (2008 – 2010) and the Foreign Economic Policy Division (2010 – 2013). As Director of MTI's Economics and Strategy Division, he worked with the Singapore government's Economist Service and supported the work of the Economic Strategies Committee. From 2010 to 2013, he served as Singapore's Chief Negotiator for the EU-Singapore Free Trade Agreement negotiations. He also led negotiations on various "21st Century" trade issues in the Trans-Pacific Partnership negotiations. A career civil servant, he spent the first eight years of his working life in various posts in the Ministry of Defence and the Ministry of Home Affairs. He graduated with highest honors in English and Comparative Literature, and a Certificate (with Distinction) in Russian Studies, from Princeton University in 1997. In 2008, he obtained a Masters degree in Management from the Peter Drucker School of Management, Claremont Graduate University.

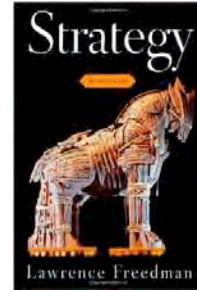


Keith writes: “The book I am recommending is Elizabeth Pisani’s magnificent [*Indonesia, Etc.*](#) Most people outside Indonesia would only associate Indonesia with Bali, Jakarta, and, maybe, the Aceh tsunami of 2004. This book is an encyclopedic introduction to the richness and mystery of the rest of this vast, inscrutable and almost ungovernable country. The writer, an ex-journalist and healthcare advisor, spent several months travelling the length and breadth of the country, on all manner of rickety, overladen and completely unreliable public transport, revealing the layers of a country that seems miraculous upon reflection. Reading this book gave me a newfound respect for the well-meaning men and women who are trying to build roads, protect rainforests, attract foreign investment, and manage communal and religious disagreements in this miraculous and sometimes surreal patchwork of a country.”

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Amy Zalman is the Chief Executive Officer of the World Future Society, a nonprofit educational and scientific organization with 9500 members in 80 countries and an electronic community of 45,000 throughout the world. WFS’s mission is to understand and identify the social, economic, and technological developments that shape the course of human society. Dr. Zalman has significant experience identifying leaders and influencers in markets that range from military and national security to media and communications. Previously, she was the Department of Defense Chair of Information Integration and a professor of Strategic Studies at the National War College in Washington, DC, educating future leaders of the Armed Forces, State Department, and other civilian agencies in national security policy and strategy. Prior to that, Dr. Zalman worked at Science Applications International Corporation (SAIC, now Leidos), a Washington, DC based science and technology firm, where she developed new market strategies and basic research projects in the government strategic communications sector. As the founder of Oryx Communications, an intercultural communication and executive education firm, her outreach was global, providing advisory services and information products to organizations expanding in the Middle East and North Africa. Her Strategic Narrative website has been a key influencer in guiding strategy and communications for governments as well as the private sector. Dr. Zalman serves on the steering committee of the National Defense University Foresight Initiative, the Board of Directors of the Council on Emerging National Security Affairs, the Influence Advisory Panel, and the Senior Information Operations Advisory Council. She is a former research fellow at the EastWest Institute, a former Fulbright scholar, and holds a Ph.D. in Middle

Eastern Studies from New York University, a Masters Degree of Fine Arts from Cornell University, a Bachelors Degree from Columbia University, and an honorary Masters Degree in Security Studies from the National War College. She is proficient in Arabic and Hebrew.



She tells us: “The book I’ve selected is [Strategy: A History](#) by Lawrence Freedman. *Strategy* is the non-fiction counterpart to the novel you hope will never end: a page turning epic about a hero who encounters many adventures and trials, but nevertheless endures. In this case, the hero is an idea and a practice. Yet much like any human hero, Strategy is complex, flawed, and always aspiring for better things. For Freedman, the tendency to seek strategic advantage is so deeply embedded that it can be found among chimpanzees, which is where his tale begins. From chimpanzees, Freedman takes us through canonical military literature such as Sun Tzu and Clausewitz, through insurgent strategies ‘from below,’ through the emergence and development of strategy as an element of business management. Puzzlingly, given strategy’s endurance, is how seldom it works as planned. Rather than charging us with creating better strategies, Freedman faults Enlightenment rationalism for producing the fiction that through reason and knowledge, we can eliminate error and control our own futures. As an antidote to the idea of strategy as the perfect rational document, Freedman finally proposes strategy as a kind of story, told incrementally in an ongoing effort to rescript events in the midst of inevitably complex circumstances. In the last resort, strategy may be ‘a story about power told in future tense from the point of view of a leading character’”.

RECOMMENDATIONS FROM THE HIGHLANDS STAFF

NON-FICTION

[*American Passage: The Communications Frontier in Early New England*](#)

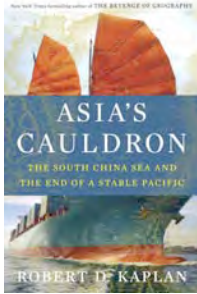
by Katherine Grandjean



Most often, our image of Early American society is an idealized one, mostly stuff of legend and lore picturing a 1600's New England as a series of iconic moments. From the landing at Plymouth Rock to the celebration of the first Thanksgiving, we have been asked to see a rather bucolic view of Early American culture in this region. In ***American Passage: The Communications Frontier in Early New England***, Dr. Katherine Grandjean paints a much darker portrait of this landscape as she depicts, in scholarly detail, a region plagued by constant fear of war and starvation. The isolation of these early inhabitants is a stark reality and it shows vividly in the letters of this literate population, missives that range from common rumor to the more formal disposition of colonial business. Letters are at the heart of Grandjean's research, and she has scoured thousands of them, more than three thousand from the John Winthrop collection alone. It is from these letters that she forms a narrative of a slowly developing region, a patchwork quilt of colonial settlements focused on survival and needing communication with others in order to assure it. Grandjean tells us who writes these letters, who delivers them, and how they lead to a larger communication network. Roads, newspapers, and postal service are the eventual results, but it is the story of how these staples of civilization came to be that is most fascinating, and Grandjean's attention to the details of this eventual development provide us with an understanding of a major building block of the overall American experience.

[*Asia's Cauldron: The South China Sea and the End of a Stable Pacific*](#)

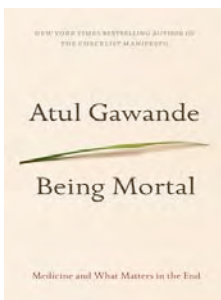
by Robert Kaplan



Robert Kaplan, whose previous book, *Monsoon*, was featured on last year's reading list, continues his "Asian pivot" with a view of how the future of Asia's critical maritime region might be calmed or roiled. In ***Asia's Cauldron: The South China Sea and the End of a Stable Pacific***, Kaplan explores the history, cultures, philosophies, politics, and leaders of the countries whose destinies will be drawn together in the South China Sea. Kaplan lays it out succinctly in his opening chapter: "Europe is a landscape; East Asia is a seascape. Therein lies a crucial difference between the twentieth and twenty-first centuries". He tackles the underlying strategy impelling Chinese presence in the small islands of the Senkaku, Paracel, and Spratley chains which have led to friction with Taiwan, Japan, the Philippines, Vietnam, Brunei, and Malaysia, and puts forth an argument that China may see its influence in this region much as the United States saw the Caribbean in the early twentieth century. With the building of the Panama Canal enabling the extension of U.S. military and economic power in the linking of the Atlantic and Pacific Oceans, the stage was set for American global influence for the future. The massive growth of the PLA Navy along with its contesting of mineral, fishery, and navigation rights in the South China Sea, clearly outline Chinese strategy. Kaplan takes it to a judgment: this does not necessarily mean a warring China, but it does mean a China whose influence we must take seriously in both cooperation and competition in the preservation of stability in the geostrategically vital South China Sea.

[Being Mortal: Medicine and What Matters in the End](#)

by Atul Gawande

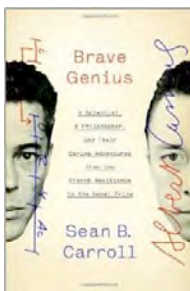


We first spoke with Dr. Atul Gawande before Gov2.0 in 2009 when he was writing about health care reform in *The New Yorker*. His essays that year covered the importance of physicians using checklists prior to medical procedures to eliminate

mistakes; and citing cost differentials for similar medical procedures within and across geographic regions. Now he has turned his attention to something far more personal in an important new book—***Being Mortal: Medicine and What Matters in the End***—for anyone struggling with end of life issues or looking for guidance on how to help a loved one approach the end of their life. Dr. Gawande provides a heartfelt exploration of what it means to support another’s desire for dignity and quality of life. His criticisms of the lack of insight by medical professionals and their inability to listen to patients’ wishes are discouraging, but this theme ultimately forms the crux of his findings and suggestions. His own very personal story of his father’s decline poignantly underscores this and motivated Dr. Gawande to write this book. He cites the need to ask the patient what is of most importance and again, to listen carefully. He stresses important options such as palliative care and hospice, both of which are too infrequently used. And most importantly, he reminds us to have this very personal important talk with family and health care providers, and to then listen.

[Brave Genius: A Scientist, a Philosopher, and Their Daring Adventures from the French Revolution to the Nobel Prize](#)

by Sean B. Carroll



Brave Genius: A Scientist, a Philosopher, and Their Daring Adventures from the French Resistance to the Nobel Prize concerns the genius and courage of two little-known, but aspiring young thinkers during World War II. Albert Camus and Jacques Monod, both to become Nobel Prize Winners (philosopher and molecular biologist, respectively) were friends and fighters in the French Resistance. Carroll weaves the history of the period, with much emphasis on war and Nazi occupation, with the science and Monod’s research, and the remarkable personalities of Monod and Camus to create a biographical thriller about the spirit of man and of creative genius in art and science.

[The Dead Hand: The Untold Story of the Cold War Arms Race and its Dangerous Legacy](#)

by David Hoffman



For those who practiced hiding under their desks at school to protect them from a nuclear blast, David Hoffman’s riveting Pulitzer Prize-winning story of the Cold War will bring that era back with immediacy. This is a recollection of the race between the West and the USSR for primacy and the means that they would use to get there—supported by the threat of weapons of mass destruction. Hoffman’s title, *The Dead Hand*, refers to the automatic retaliatory system developed by Leonid Brezhnev and the Soviet military to launch their strategic rockets after their command and control system no longer functioned or existed (think of the dead body whose hand and fingers are still twitching on the big red button). But there is also an excursion into the attempt by Soviet military scientists to develop super germs capable of devastating entire populations. There are heroes and villains, and black humor abounds, as the race unwinds and the nations work to dismantle these weapons systems before a miscalculation or accident resulted in historic destruction. Wonderfully written by Hoffman, this is a fascinating—and frightening—tale.

[Flash Boys: A Wall Street Revolt](#)

by Michael Lewis

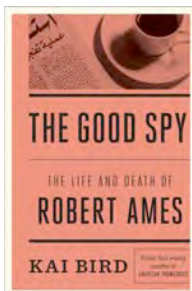


Several years ago, we held a Highlands session at the Santa Fe Institute to explore failure or collapse in complex systems. *Failure* was thought of as a part of a large system failing, which sometimes—but not always—leads to larger effects such as crashes. *Crashes*, in turn could propagate to collapses thanks to feedback effects among actors in the system. One way that this could happen was the destruction of information, such as through “algorithmic shredding” of trades that renders them impossible for competitors to parse, or parse information more quickly than anyone else through faster computing (i.e. [high-frequency trading](#)). These strategies create a complexity that it is analogous to warfare—what [John Boyd](#) called the strategic game of

question mark and question mark: You try to be non-anticipatable to both competitors and regulators. This year, author Michael Lewis, the best-selling author of *Liar's Poker* and *Money Ball*, delivered his latest effort—***Flash Boys: A Wall Street Revolt***. In it he tells us that the stock market is rigged for the benefit of insiders (not so shocking to many), and that since the crash of the financial markets it has become more controlled by the same actors who brought us the crash—the Big Banks. This is a result of high frequency trading, made possible by computer algorithms and a cable running from Chicago to New Jersey that would cut the time it takes data to travel that distance to 13 milliseconds. It doesn't sound like much but when computers are placing the trades, every millisecond provides an enormous financial advantage. This presented a serious advantage for the Big Banks. The main narrative concerns Brad Katsuyama, a trader at Royal Bank of Canada, who figured this out and responded by creating a fully transparent exchange (IEX), to ensure that trading information reaches all investors at the same time. This fast paced and exciting book (and controversial as well, as there are many in the financial world who disagree with his thesis) hints at the negative possibilities that await—and not just the unfair advantages of institutional players—including flash crashes and another market meltdown.

[The Good Spy: The Life and Death of Robert Ames](#)

by Kai Bird



The Good Spy recounts the story of Robert Ames, perhaps one of the most legendary and important agents in the history of the CIA, who died in a 1983 bomb explosion outside the U.S. embassy in Beirut. Ames was a remarkable person, an Arabist who built relationships across the delicate and dangerous lines in the Middle East. Among the contacts that he cultivated were Ali Hassan Salameh, PLO intelligence chief and the successor-in-waiting to its Chairman Yasir Arafat; this relationship forms the crux of the success story that Ames crafted in trying to move toward a peaceful settlement, but it was a risky one: Salameh was known to Israeli intelligence operatives as the Black September planner of the Munich Olympics terrorist attack and murder of Israeli athletes. Ames is seen as different from his peers in understanding the Arab culture and cause, and in fact, may have been too close to it. The story of Ames and Salameh—two seemingly opposite characters—is told in tragic terms of what might have been in the peace process, but also in the bookended deaths of each by car bombing, perhaps with

one leading to the other. Kai Bird, a Pulitzer Prize-winning author, tells Ames's story in great richness after many years of research and interviews with his agency and embassy colleagues. Our Highlands colleague David Ignatius of the Washington Post, spent a great deal of time in Beirut during this period and covered the relationship between these two men in his wonderful and deeply characterized novel *Agents of Innocence*. Both of these books shed light on the shadows in their own ways and are most highly recommended.

[How We Got To Now: Six Innovations That Made the Modern World](#)

by Steven Johnson

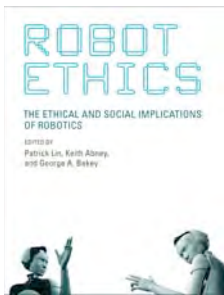


Steven Johnson is one of our most frequently reviewed authors on the Highlands annual reading list. He has written a number of remarkable books, many linked thematically by their attention to the concept of "connectedness". His praised works have included: *Emergence: The Connected Lives of Ants, Brains, Cities, and Software*; *The Ghost Map: The Story of London's Most Terrifying Epidemic-and How it Changed Science, Cities, and the Modern World* (a personal favorite of ours); and *Where Good Ideas Come From: the Natural History of Innovation*, which was a foundational work in our research for a forum on imagination, creativity, and innovation. He is a wonderful storyteller, using fascinating and often little-known episodes to weave a larger narrative and make a major point. That is particularly true in his new book, ***How We Got to Now: Six Innovations That Made the Modern World***, which we liken to one of our all-time favorite and most highly recommended books, *Against the Gods: The Remarkable Story of Risk*, by the late Peter Bernstein. In *How We Got to Now*, Johnson tackles theories of innovation and concludes: "It was not a sudden epiphany or light bulb moment, but something much more leisurely, an idea taking shape piece by piece over time. It was what I like to call a 'slow hunch'—the anti-'light bulb moment,' the idea that comes into focus over decades, not seconds." From that thesis, Johnson follows six important ideas and how they came to affect our world in remarkable and unforeseen ways. His stories, like Bernstein's, are little known or unknown to most readers and captivate while teaching. While most of us think of the printing press (see Elizabeth Eisenstein's classic work, *The Printing Press as an Agent of Change*) as being largely responsible for the political and cultural transformation of Europe, Johnson uses the development of the printing press as a catalyst for a different development: better lenses for reading, which led to many other innovations, such as telescopes and microscopes (and our knowledge

of the skies and cells, at opposite ends of the lenses), all the way to modern day technologies. Johnson himself, as raconteur, shows up on camera in a new PBS series to tell his stories and lead us on a wonderful and immersive journey. Start with this book, and then go to the series—Steven Johnson is a delight.

[Robot Ethics: The Ethical and Social Implications of Robotics](#)

Patrick Lin & Keith Abney, editors



Pulitzer Prize-winning New York Times technology journalist and Highlands alumnus John Markoff recently wrote: “AI and Robotics are going to have the impact on the world in the next decade that computers and the Internet have had in the last three decades.” The emerging future of artificial intelligence (AI) and robotics could have enormous implications for societies, economies, culture, and security. Oxford University economist Carl Benedikt Frey tells us that we may be witness to significant disruptions in labor markets and to the creation of new economic centers leading the way in these technologies. In Japan there is great attention being given to robotic caregivers and companions in homes. There is also significant attention being paid to robotic agents augmenting or supplanting soldiers in a new kind of conflict. Whatever the changes, they will be surprising and potentially transformational. *“As robots become more autonomous, the notion of computer-controlled machines facing ethical decisions is moving out of the realm of science fiction and into the real world” (The Economist).* Patrick Lin and Keith Abney have provided us with a set of first principles design questions in their edited volume, ***Robot Ethics***, questions we ought to be asking ourselves as we head into this new world. Featuring exceptional and thoughtful essays by some of the world’s leading ethicists and roboticists, these essays ask probing questions such as: “Is there any kind of robot that should never be created; What are the boundaries between humans and robots; What is the role of lethality in autonomous systems; Should we allow active autonomous agents tasked with making life-and-death decisions on the battlefield?” This is a timely and important set of essays.

[A Spy Among Friends: Kim Philby and the Great Betrayal](#)

by Ben MacIntyre



Kim Philby is perhaps the best known and least understood spy of the twentieth century. In the exciting and almost fiction-like *A Spy Among Friends: Kim Philby and the Great Betrayal*, author Ben MacIntyre takes us inside the formative experiences of Philby, an aristocratic young man of privilege, graduate of Cambridge, and son of a well-connected Foreign Service officer at the upper levels of Britain's class system. Philby, as did many of his peers, joined the old boys club that populated diplomacy and intelligence. Despite his romance with Communism at Cambridge, which was "sniffed at" by his father as a young man's experimenting with silliness, Philby found his way to selective postings of significance, including the MI6 officer in Washington. Philby used this perch to meet routinely with senior CIA leaders and provide unparalleled intelligence back to Moscow. His career was one of delicate balancing of his beliefs, his friendships, and his efforts to combat Communism all the while supporting it. MacIntyre takes us into the heart of the matter: what was the betrayal and why did Philby do it? In addition to passing information harmful to Britain and the US, the naming of activists and agents who lost their lives to Soviet forces following the end of the Second World War, there is the duplicity to the system that created and nurtured him. But why? Was he a true believer, or was he a narcissist who sought out the one way he could to go beyond the advantages he was given to put himself above the system and his peers? In the end, he escaped to Moscow before being outed. And therein, MacIntyre suggests, we come full circle. His old school chum and staunch protector at MI6, Nicholas Elliott, confronted him and learned the truth; but Elliott likely left the door open for Philby to escape to Moscow, because it seems, Britain would not stand yet another scandal and trial, and after all, he was "one of us".

[Thirteen Days in September: Carter, Begin, and Sadat at Camp David](#)

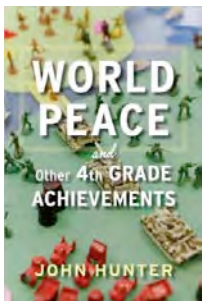
by Lawrence Wright



Earlier this year, Lawrence Wright, a Highlands alumnus and Pulitzer Prize-winner for his non-fiction book, *The Looming Tower*, alerted us his new play, “Camp David”. This wonderful biographical drama of the 1978 Camp David conference examined the principals that together delivered a peace settlement between Israel and Egypt. It was an excellent piece of theater, with opening night attended by the man who brokered the deal--President Jimmy Carter (as well as a quiet force in the Camp David success, Rosalynn Carter). But Wright took it further, producing a richly detailed book, ***Thirteen Days in September: Carter, Begin, and Sadat at Camp David***, that laid out the storyline in much greater context underlying all of the personal interactions. Front and center are President and Rosalynn Carter, Israeli Prime Minister Menachem Begin, and Egyptian President Anwar Sadat, with support from Moshe Dayan, Zbigniew Brzezinski and others. Wright captures the personalities of each and how their character traits played a role in moving forward, or not moving at all. He finds in the simplest details, the essence of trust and mistrust in the air, and the courage of men risking everything in this daring two-week conversation and negotiation; he is a great writer who, in all his work, seems to capture the heroic in people.

[World Peace & Other Fourth Grade Achievements](#)

by John Hunter



Melanie Greenberg, the CEO of the Alliance for Peacebuilding, was a featured reviewer on our reading list last year. In working with Chip Hauss and designer Ann Pendleton-Jullian (also a guest reviewer last year) on a reframing of the concept of peacebuilding, together they discussed “world building”, design, and games as key components helping them to arrive at a new framework. Along came elementary school teacher John Hunter with the story of his own journey, *World Peace and Other 4th Grade Achievements* to describe his teaching *and* learning experience with his fourth grade classes over the course of more than two decades. Hunter found an innovative way to teach the many core subjects that his students had to master while involving them in a great problem solving adventure along the way, encouraging their learning, leadership, and decision making on complex real world problems. He invented a “world”, a plexiglass cube of four layers from the oceans to the stars and everything in between, populated it with nations, groups, organizations, ecologies, conflicts, resources, poverty, and wealth, and appointed his fourth grade students to various roles from prime minister to general to “weather goddess”, and then stood back and watched as they worked together to solve

the world's most intractable problems. What they learned and how they learned it will astound you. This is a most valuable and inspirational book.

FICTION

[The Director](#)

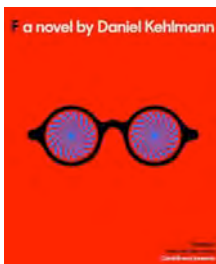
by David Ignatius



David Ignatius is a master of espionage novels whose work has been described as a “*first-rate achievement in the best tradition of Graham Greene*”. Of particular note are 1987’s *Agents of Innocence* (the fictional account of American CIA agent Robert Ames in this year’s non-fiction pick, *The Good Spy*), *Body of Lies*, and *Bloodmoney*. In 2009 Ignatius crossed into the tech realm with a prescient novel, *The Increment*, that dealt with a scheme to place a virus into Iranian nuclear labs on the way to producing a nuclear weapon. This year, with his novel ***The Director***, Ignatius ponders the idea of a hacker who walks into a consulate to inform the resident agent that the CIA had been hacked. A hacker is inside the intelligence community (this was researched and written before the Snowden affair unfolded); this is the digital version of a mole in the intelligence community, who has access to everything on the network. This is the nightmare that the new Director of the CIA faces as he settles into his job. David Ignatius continues to write about the world of intelligence and espionage, whether it is the analog world of car bombs in Beirut or the digital world of computer viruses or hackers, better than any writer on the contemporary scene. His stories, stretching from his first novel, *Agents of Innocence*, to his latest, *The Director*, take us through the shadows and mirrors to see more clearly behind the headlines.

[F: A Novel](#)

by Daniel Kehlmann



Daniel Kehlmann, a young German author who burst onto the literary scene with the award-winning *Measuring the World*, has followed with a brilliant puzzle of a novel, *F*. It is a Rubik's Cube of a story, with each character and each circumstance twisting back onto each other. In the opening pages we meet Arthur Friedland, a failed novelist, who take his three young sons to a hypnotist's performance. Arthur says, "It doesn't work on me", though he allows, "I believe people can persuade each other of anything". From that moment onstage with the hypnotist, nothing is ever again the same for Arthur or his sons. On returning home, Arthur cleans out the joint bank account, takes his passport and disappears, not to be heard from again for decades. In the ensuing chapters we meet the three sons decades later, each in their own voice: a priest (who loses his faith), a financial wizard (who commits fraud), and an artist (who lives by forging the work of a reclusive painter). And like the Rubik's cube (which the priestly son keeps with him at all times), we find each of these different narratives curving around and back onto each other, as they wrestle with what is fate or belief in the future. Like the best works of Michael Chabon (Pulitzer Prize-winner for *The Amazing Adventures of Kavalier and Clay*) or David Mitchell (the Man Booker Literary Prize-winner for *Cloud Atlas*), Kehlmann delivers a fascinating series of characters in a "twisty puzzle".

[The Martian](#)

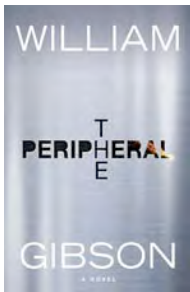
by Andy Weir



The Martian, by Andy Weir, is part Tom Clancy and part NASA tech manual. *The Martian* is a fast-paced, terrifically entertaining novel about an astronaut, presumed dead, who is stranded alone on Mars and must survive without hope of rescue for many months. The fun's in the details - everything from how to tell Earth he's still alive to how to stay that way with insufficient food and oxygen. You'll be dusting off your chemistry text by the third chapter to play along at home.

[The Peripheral](#)

by William Gibson



William Gibson has always been a step or three ahead, identifying “nodes” of the future and weaving them into a compelling narrative of where we might be headed, and in retrospect, being remarkably close (*Neuromancer*, *Idoru*, *Pattern Recognition*, *Zero History*). He is famously quoted: “The future is already here—it’s just not evenly distributed”. With his latest work of fiction, *The Peripheral*, Gibson takes us to a story of two futures, one set thirty years out, and the other farther beyond. These are connected, colliding worlds traversed by hacked-together time travel. Beginning with a murder that appears too real to be a simulation, this event draws us into a world that is mesmerizing and inexplicable. A must for all Gibson fans; if you have not had the pleasure of wading into Gibson’s world, *The Peripheral* is a great entry node (or peripheral, in his lexicon).

[Redeployment](#)

by Phil Klay



Redeployment is a gut wrenching collection of short stories by first-time author Phil Klay, a Marine veteran of Iraq. While these vivid and often heartbreaking stories are categorized as fiction, each told from the perspective of a different voice, Klay pulls the reader into both very real and surreal worlds. He exposes us to both the mundane and frequently terrifying and heartbreaking worlds of these Marines at home and in battle. These are powerful stories—not for the squeamish—told eloquently and in the mostly profane style of young Marines surrounded by death and stress. Klay writes:

“Somebody said combat is 99 percent sheer boredom and 1 percent pure terror. They weren’t an MP in Iraq. On the roads I was scared all the time. Maybe not pure terror. That’s for when the IED actually goes off. But a kind of low-grade terror that mixes with the boredom. So it’s 50 percent boredom and 49 percent normal terror,

which is a general feeling that you might die at any second and that everybody in this country wants to kill you”.

Sure to be a major award-winning book on many year-end lists, *Redeployment* is destined to be a classic of war literature.

The 2013 Highlands Forum Reading List

Just in time for the holiday season, we are proud to present 2013 Highlands Reading List. This year we feature twenty-one books, six of them recommended by our distinguished guest reviewers. Our panel of guest editors for 2013 includes **Lawrence Wright**, a Pulitzer Prize-winning author for his book, *The Looming Tower*; **Peter Ho**, the former Singaporean Secretary of Defence and Secretary of Foreign Affairs; **Melanie Greenberg** President and CEO of the global association, the Alliance for Peacebuilding; **George Dyson**, author and historian of technology; **Richard Bookstaber**, economist and author; and **Ann Pendleton-Jullian**, author, architect and designer.

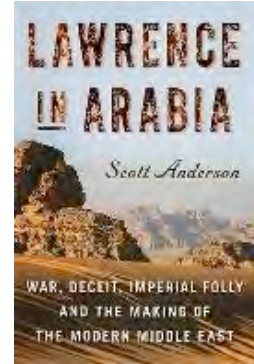
Many of our book titles are current non-fiction addressing timely themes; some are timeless classics worth discovering for the first time; two are works of fiction to stretch the imagination. They have been selected for their themes and for their capacity to broaden our understanding of emerging issues and inform the way we think about things. We began compiling an annual list in 2000, and it is a continuing work—additional titles are added during the year and compiled at the end of each year in a larger list. Please click [here](#) to search our previous annual reading lists.

RECOMMENDATIONS BY OUR GUEST EDITORS

NON-FICTION

Lawrence Wright is a multi-talented author, screenwriter, playwright, musician, and staff writer for the *New Yorker* magazine. Larry received the Pulitzer Prize for his 2006 book, *The Looming Tower: Al-Qaeda and the Road to 9/11*, which was featured on this list. His most recent book (reviewed in our list, below), *Going Clear: Scientology, Hollywood, and the Prison of Belief*, is a finalist for this year's National Book Award; it is based on a profile he wrote of the writer-director Paul Haggis in *The New Yorker*, which won the National Magazine Award in 2012. His one-man play, *My Trip to al-Qaeda*, was performed in New York and Washington and was made into a documentary film for HBO. In addition to his exceptional writing, Larry finds time to play keyboards in a Texas blues band called "Who Do". A number of us in DC were able to catch Who Do perform, and found Larry enjoying a great night with the band and his friend, CBS newsman and host of *Face the Nation*, Bob Schieffer, taking a star turn on lead vocals. What a night.

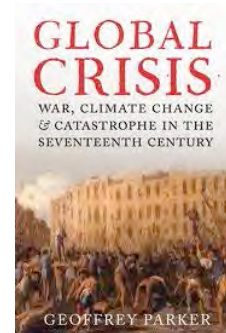
He tells us: "My nomination is ***Lawrence in Arabia: War, Deceit, Imperial Folly and the Making of the Modern Middle East*** by Scott Anderson. It is a masterly retelling of the story of T.E. Lawrence and the making of the modern Middle East. Anderson interweaves other biographies into the story; notably, that of Curt Prufer, a German master spy, and his Zionist counterpart, Aaron Aaronsohn. But it is Lawrence in all his brilliance, complexity, and duplicity who looms over this dangerous underworld. The consequences of their rivalry are seen in the headlines of today".



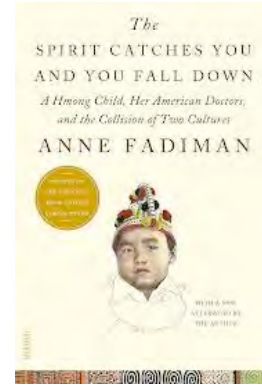
Peter Ho has had a long and distinguished career in government in Singapore. When he retired from the Singapore Administrative Service in 2010 after a career in the Public Service stretching more than 34 years, he was Head, Civil Service, concurrent with his other appointments of Permanent Secretary (Foreign Affairs), Permanent Secretary (National Security and Intelligence Coordination), and Permanent Secretary (Special Duties) in the Prime Minister’s Office. Before that, he was Permanent Secretary (Defence). He is currently the Senior Advisor to the Centre for Strategic Futures. He is also a Senior Fellow in the Civil Service College and is an Adjunct Professor with the S Rajaratnam School of International Studies, and a Visiting Fellow at the Lee Kuan Yew School of Public Policy. His most significant role these days is in helping to chart the future of Singapore as Chairman of the Urban Redevelopment Authority. Peter is widely sought after for his counsel and is also a member of the National University Board of Trustees, an advisor to the Lee Kuan Yew Centre for Innovative Cities, a member of Nanyang Technological University’s Complexity Advisory Board, a council member of the International Institute of Strategic Studies, and a Society Fellow of the Asia and the Pacific Policy Society. He is a Fellow of the Academy of Engineering Singapore.

Peter’s book recommendation for us is ***Global Crisis: War, Climate Change & Catastrophe in the Seventeenth Century***, by Geoffrey Parker. Peter tells us: “In his massive book, *Global Crisis*, the historian Geoffrey Parker studies the link between the Little Ice Age, and the turbulence that defined the 17th century. The first order effects of a drop in temperature of 1.5°C during this period included droughts and floods. These in turn led to second order effects such as crop failure, disease and famine. But third order effects were much more dire. Ignorant government policies, and warfare that depleted already scarce food resource, compounded the social and economic upheavals that accompanied climate-related catastrophes. Revolution, civil unrest and conflict became the overlay to disease and starvation. This was the ‘general crisis’ of the 17th century that touched the whole world, from China, India, Japan, and Indonesia in Asia, and to the west, the Ottoman Empire, Russia, and Europe, even the Americas. The consequences were death and devastation on a global scale. Parker assembles detailed evidence from many fields of study to show, convincingly, how the Little Ice Age led to this general crisis. Today, the world is experiencing a rise in global

temperatures. The fifth report of the UN's Intergovernmental Panel on Climate Change, just issued in September, describes the warming of the global climate system as unequivocal. While this warming may be the opposite of the freeze of Little Ice Age, Parker's book serves as a warning that if we do nothing to arrest the trend, then the world could face another general crisis, but with even more dreadful and longer term consequences".



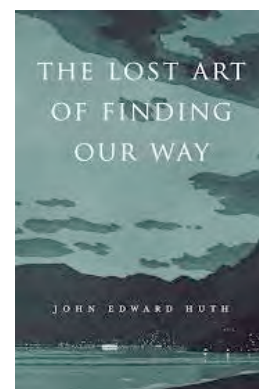
Melanie Cohen Greenberg is President and CEO of the Alliance for Peacebuilding, a global membership association of more than seventy peacebuilding organizations, 1,000 professionals, and a network of more than 15,000 people developing processes for change in the most complex, chaotic conflict environments around the world. Before joining the AfP, she was the President and Founder of the Cypress Fund for Peace and Security, a foundation making grants in the areas of peacebuilding and nuclear nonproliferation. From 2003 to 2004, she was a visiting scholar at the Johns Hopkins School for Advanced International Studies, focusing on issues of justice in post-conflict peacebuilding. From 2000 to 2002, Melanie was director of the Conflict Resolution Program at the William and Flora Hewlett Foundation. She previously served as associate director of the Stanford Center for International Security and Cooperation and deputy director of the Stanford Center on International Conflict and Negotiation. In her work on international conflict resolution, Melanie has helped design and facilitate public peace processes in the Middle East, Northern Ireland, and the Caucasus. She has taught advanced courses in international conflict resolution, multi-party conflict resolution, and negotiation at Stanford Law School and Georgetown University Law Center. She was lead editor and chapter author of the volume *Words over War: Mediation and Arbitration to Prevent Deadly Conflict*. Melanie is a member of the International Advisory Board of the United States Institute of Peace and is on the board of the Institute of World Affairs. Melanie holds an AB from Harvard and a JD from Stanford Law School.



Melanie's book recommendation is ***The Spirit Catches You and You Fall Down: A Hmong Child, Her American Doctors, and the Collision of Two Cultures***, by Anne Fadiman. Melanie tells us: "In the introduction to her book *The Spirit Catches You and You Fall Down*, the journalist Anne Fadiman writes: 'I have always felt that the action most worth watching is not at the center of things but where the edges meet. I like shorelines, weather systems, and international borders. There are interesting frictions and incongruences in these places, and often, if you stand at the point of tangency, you can see both sides better than if you were in the middle of either one'. It is through this lens of storm clouds and borders that Fadiman brings to light an extraordinarily powerful story of love, medical tragedy, and cross-cultural misunderstanding. 'The Spirit Catches You and You Fall Down' is the Hmong phrase for epilepsy. The book focuses on Lia Lee, the fourteenth child of Foua and Nao Kao Lee, who fled Laos and settled with their family in Merced, California, a hub of the Hmong community in the United States. Lia developed epilepsy in infancy, yet her first two seizures were misdiagnosed at Merced Community Medical Center because there were no Hmong translators on staff. The doctors later recalled that they were reduced to practicing 'veterinary medicine' in the absence of communication with Lia's parents. Over the next four years, the Lee family and Lia's doctors played an increasingly desperate tug of war over Lia and her care. Foua and Nao Kao, illiterate in both English and Hmong, were unable to follow the complex instructions for Lia's ever-shifting drug regimen, and they insisted, with some truth, that the Western drugs made her worse (they preferred that Lia be treated by the local shaman -- a powerful healer who could bridge the human and spirit worlds). Lia's doctors, who wanted no part of shamanism, finally put Lia in foster care, when they felt the Lees could not be trusted to comply with Lia's medical plan. The results were heart breaking -- yet predictable -- and the aftermath is a tremendously powerful testament to parental love and a culture that ties body to spirit in unfamiliar ways. Fadiman relates this history with great sensitivity and compassion, alternating chapters focusing on Lia's story, with fascinating background on the Hmong and their migration out of Laos, to inhospitable enclaves within the United States. The magic of this book lies not only in the gripping nature of Lia's story, but in its power as a perfect metaphor for the dangers of cross-cultural ignorance and misunderstanding. Fadiman gently pushes for a spirit of compromise and bridge-building that will serve anyone who has ever reached over a cultural divide".

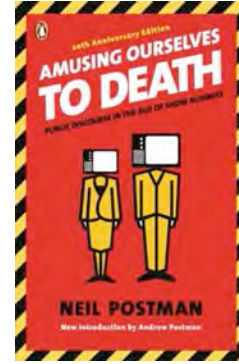
George Dyson is a remarkable historian and author whose books have a way of not only telling us where we are and where we are going, but invariably the more fascinating back-story of how we got there. Three of his books have been featured on our annual list over the past fifteen years. He is also a boat builder, designer, and historian of technology whose interests have included the evolution of digital computing and telecommunications (*Darwin Among the Machines*, 1997) and a path not taken into space (*Project Orion*, 2002). His latest book, featured on last year's annual list, *Turing's Cathedral: The Origins of the Digital Universe* (2012), illuminates the transition from numbers that *mean* things to numbers that *do* things in the aftermath of World War II. His early adventures, contrasted with those of his father, physicist Freeman Dyson, were the subject of Kenneth Brower's classic 1978 dual biography *The Starship and the Canoe*.

George's book selection for us this year is ***The Lost Art Of Finding Our Way*** by John Edward Huth (Belknap Press, Cambridge MA, 2013). He tells us: "Nominally a book about the theory and practice of navigation on land and sea without instruments, this is one of those books, beautifully written and destined to become a classic, that you can open to any page and immediately learn something from--while being drawn to the next page. From Polynesian seafaring to how to get un-lost in the woods, it is all here, with the necessary underlying principles of meteorology, astronomy, topography, wave diffraction, and even human behavior clearly explained. As a young teenager dreaming about running away to sea, I purchased a copy of Nathaniel Bowditch's *American Practical Navigator* and studied every page. John Huth has produced a sort of Bowditch for the rest of us. You cannot read this book without dreaming about finding yourself somewhere else (whether on the other side of town or the other side of an ocean) and being able to find your way back".



Richard Bookstaber worked on Wall Street at Bridgewater Associates, ran the Quantitative Equity Fund at FrontPoint Partners, and was in charge of risk management at Moore Capital. In the investment-banking arena, he was in charge of firm-wide risk at Salomon Brothers. He also spent ten years at Morgan Stanley, first designing derivatives, doing proprietary trading, and then as the firm's first market risk manager. Out of this deep investment and risk experience came his acclaimed and prophetic book, *A Demon of Our Own Design*, which appeared on our 2011 annual reading list. Rick is also the author of three other books and scores of articles on finance, ranging from option theory to risk management. He has won the Graham and Dodd Scroll from the Financial Analysts Federation and the Roger F. Murray Award from the Institute for Quantitative Research in Finance for his research. Rick is currently a Research Principal in the Office of Financial Research, and was Senior Policy Adviser to the Financial Stability Oversight Council and Senior Policy Adviser at the U.S. Securities and Exchange Commission. Rick was a Fulbright Scholar and Visiting Professor at Hebrew University of Jerusalem and received his Ph.D. in economics from MIT.

Rick's selection for us calls to mind the wisdom of Andy Marshall, who long ago told us, "If you want a new idea, read an old book". Taking that thought to heart, Rick recommends Neil Postman's classic 1985 work, ***Amusing Ourselves to Death: Public Discourse in the Age of Show Business***. Rick tells us, "I first read *Amusing Ourselves to Death* shortly after it was published in 1985. I reread it this year because its themes kept coming to mind over the past decade as I have watched the Internet and then smart phones move us toward an increasingly connected, real-time and yet superficial culture. The book is focused on how the content of our discourse and our mode of thinking have changed as they have been expressed first with books, then with the telegraph, and finally with television. The message of the book can be extended frighteningly to the new modes of communication of our current age. The telegraph introduced the transmission of real-time information and with that came the concept of 'the news of the day', news as entertainment and as, literally, a media event. The telegraph turned the country into one neighborhood, but as Postman shows, one populated with strangers who knew only superficial facts about each other. The telegraph is only a precursor to the central theme of the book, 'an inquiry into and a lamentation about the most significant American cultural fact of the second half of the twentieth century: the decline of the Age of Typography and the ascendancy of the Age of Television. This changeover has dramatically and irreversibly shifted the content and meaning of public discourse, since two media so vastly different cannot accommodate the same ideas'. *Amusing Ourselves to Death* is a bridge between two other books, one published fifty years earlier, the other twenty-five years later. The first is Lewis Mumford's *Technics and Civilization*, which gives an historical look at how our technical world shapes our culture – how, for example, the clock turned us first into time keepers, then time savers, and finally time-servers. The second is Jaron Lanier's *You Are Not a Gadget*, essentially a very readable philosophical treatise on the impact of on-line collectivism".



FICTION

The one work of fiction from our guest reviewers this year comes from **Ann Pendleton-Jullian**. Ann is an architect, educator, game designer, and writer of international standing. As a writer, Pendleton-Jullian has most recently finished a manuscript, *Design Unbound*, with co-author John Seely Brown, that presents a new tool set for designing within complex systems and on complex problems endemic to the 21st century. She has been the Director of the Knowlton School of Architecture at the Ohio State University and is currently on sabbatical at Georgetown University where she is Distinguished Visiting Professor of Design while working with the university President and faculty to redesign the university and the education experience. Her design work negotiates the overlap between architecture, landscape, culture, and technology and is motivated towards internationalism as both a concept and a reality. Pendleton-Jullian obtained her B.Arch degree from Cornell University and her M.Arch from Princeton. She began her professional apprenticeship in Chicago and in the mid eighties, opened her first professional office in Los Angeles. Back on the east coast, she also began teaching at Cornell University, Princeton University and then later at MIT for fourteen years. Her most recent work has focused on furthering the use of game design as a way to approach complex and emergent systems within architectural, urban and landscape design, both theoretically and in practice. Seeing education as its own design problem, she is also involved in thinking and writing about education for the 21st century, in practice. In her book, *Four (+1) Studios*, Pendleton-Jullian presents her thoughts on design and design thinking, the social environment of practice of the studio, and how the architectural design studio and its methodologies have evolved over time to respond to evolving social environments and practices. Pendleton-Jullian maintains ongoing working affiliations with the MIT Media Lab, the School of Architecture at the Catholic University of Santiago, Chile, The University of Porto Alegre, Brazil, Tongji University in Shanghai, the New University of Singapore, and the London School of Economics.

Ann's recommendation for us is David Mitchell's award-winning debut novel, ***Ghostwritten***. Ann tells us:

“When I first read *Ghostwritten* by David Mitchell it was the summer of 2001. The unfolding implications of the world we were navigating and negotiating were yet unforeseen. Both expansive and intimate, I was mesmerized by the way it presented the 21st century as a truly global co-existence that is lived and linked fractally. Nine narratives with eight narrators, seven of which are human - a terrorist cult member in Okinawa, a record-shop clerk in Tokyo, a money-laundering British lawyer in Hong Kong, an old Buddhist woman running a tea shack in China, a gallery attendant art thief in Petersburg, a drummer in London, a female physicist hiding from the CIA in Ireland, and a late-night radio deejay in New York. The eighth character is a transmigrating noncorpore entity in search of his origin. Like a book within a book, the ‘ghost’ narrator inhabits different hosts – different stories – with purpose but little control over events in a world that is governed by chance and complex forces. Coincidentally (or not) this story is at the center of the book, it has a resolute ending unlike the others, and it chooses one side of a conflict to land on; and it is the least satisfying of the stories because of this. Like the Iñárritu/Ariago movie *Babel* released in 2006, *Ghostwritten* shows us the churning within our human ecosphere by connecting diverse geo-cultural points through characters that are wrestling with unique but universally replicable personal events. Unlike *Babel* though, themes that transmigrate from story to story end up dominating over ‘characters’ as the novel wrestles with uneasy existential paradoxes set in motion by the dynamics of our modern world. And *Ghostwritten* does ‘wrestle’. It does not resolve. Unlike *Cloud Atlas*, Mitchell’s more mature novel, this, his first novel, does not drive towards resolutions. Instead it grapples with the illusiveness of meaning in the same way we find ourselves grappling on the ground and in the field with the forces of the increasingly global and technologically amplified world around us. Reading *Ghostwritten* is like trying to mentally hold onto the shape of a cloud or put together a jigsaw puzzle where half way through you suspect that the pieces are actually from several different but eerily similar puzzles. It is not *Cloud Atlas*, considered to be Mitchell’s masterpiece, deftly crafted and full of complexly woven themes put to purpose. Instead, less polished, it sits in that liminal space between sleeping and awake when the strange seems familiar, the fantastic seems plausible, and confusion shows connections”.



RECOMMENDATIONS FROM THE HIGHLANDS FORUM STAFF

FICTION

The Circle

by Dave Eggers



The Circle arrives in the midst of a real-world international brouhaha over the compilation of personal, governmental, and corporate data by a three-letter government agency. It can't get any worse, can it? Dave Eggers, in this somewhat dystopian satire of the near future, tells us that maybe it can. The merging of the major social media, search, and 140 character connectors into one company that holds all the personal information one could imagine (or fear), with three personalities forming the founding leadership trinity of "wise men" (who might your instincts tell you that they are, or what amalgam of Jobs, Zuckerberg, Ellison, Page, Brin, Dorsey traits are emodied here?), makes for a compelling, sometimes disturbing, and fun look at the information culture that continues to evolve.

NON-FICTION

Big Data: A Revolution That Will Transform How We Live, Work, and Think

By Victor Mayer-Schonberger and Kenneth Cukier

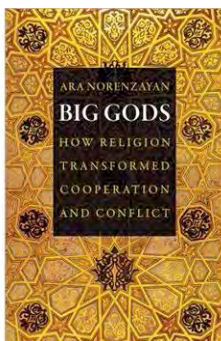


Transitioning from the fiction work relating to data and how it has/will transform us (*The Circle*), data seems to be a major theme this year. In their overview of the world of

data providers and users, Victor Mayer-Schonberger and Kenneth Cukier take us on a journey of great timeliness through the world of data surveillance. In earlier HF reading lists we reviewed two books which, compared with *Big Data*, almost seem to come from a simpler, more innocent time: *The Signal and the Noise*, by Nate Silver, and *Moneyball*, by Michael Lewis. *Moneyball* describes how Billy Beane, the GM of the Oakland Athletics, sets out to build a championship competitive team, year after year, even though Oakland has one of the lowest payroll teams in MLB, using statistical data to construct a baseball team using rational decision making principles. Silver's story is somewhat cautionary and transitions us to *Big Data*: he tells us early on, "*We face danger whenever information growth outpaces our understanding of how to process it...Data-driven predictions can succeed-and they can fail. It is when we deny our role in the process that the odds of failure raise. Before we demand more of our data, we need to demand more of ourselves*". Mayer-Schonberger and Cukier dial up the level of concern and give the newspaper articles we are reading about the perils of trusting governments and corporations with too much personal data greater depth. They point out the advantages to sharing data, some of which we thought we understood, in making our lives richer while extending our personal reach across the globe to people like us, or to people we want to "like". But they go more heavily into the dark side with insights into data predictive of personal behavior, and the shaping of behavior, which they argue we are sliding into blithely unaware, or at best hoping for the best intentions of others when it comes to the use of that data. And they caution us to understand what we are giving up, intentionally or not, lest we succumb to the worst intentions and uses of those with the tools to rend "meaning", "beliefs", and "intentions" from the data—before we even form them.

Big Gods: How Religion Transformed Cooperation and Conflict

By Ara Norenzayan

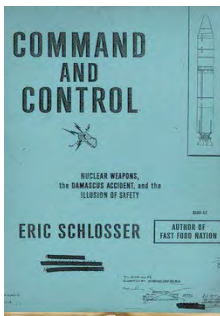


For the past decade, the Highlands Forum has entertained a series of conversations leading to an understanding of an alternative spectrum of conflict which has been labeled "The Three C's" (cooperation, competition, and conflict). The idea was to examine the evolution of institutions and compacts as they changed in relation to the recent information revolution. But, as we learn in Professor Norenzayan's recent book, *Big Gods: How Religion Transformed Cooperation and Conflict*, the evolution of

cooperation, competition, and conflict scale of actions can be found in other interesting sectors of human activity. We even see the evolution in ways that echo the two decade long work of David Ronfeldt in his [T+I+M+N framework](#). And in the historical and theological context provided by Norezayan, we get a very different and fascinating way of approaching this understanding of religion and its impact on human behavior. Big Gods, not surprisingly, are the Gods of major religions that have spread around the world over the millennia. Like Ronfeldt, Norezayan concerns himself with how we evolved our institutions beginning with small, tight-knit groups or tribes, and became more complex and sophisticated. The Big Gods were the focus of this complexification as religion and morality began to be seen as one. In that case gods took on a role to that point in history unseen—Norezayan asks “Did cooperation among strangers intensify and expand partly because of the cultural spread of sincere faith in these Big Gods that monitor and punish wrongdoers and free riders even when no one is watching?” This is a Big Idea book, one worth reading, as it challenges what we believe and how we arrived at those beliefs, and suggests how we act in a world held together and apart by those beliefs.

Command and Control: Nuclear Weapons, the Damascus Incident, and the Illusion of Safety

By Eric Schlosser

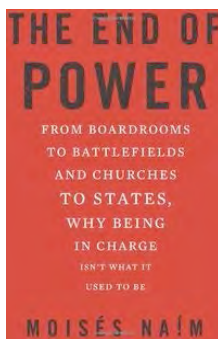


If you are intrigued enough to pick up and read this ripping story, you might wonder if we mistakenly placed it in the non-fiction section of the annual reading list. No, this is non-fiction at its most exciting and vexing, cloaked in the style of a thriller. We were tipped off to this terrific book by Bob Scott and immediately went to check it out. The title is deceptively mundane: sounds more like a government report than a retelling of an incident (and other harrowing accidents as well) that would make your hair stand up. The *New Yorker* magazine referred to it as the “*Nukes of Hazard*”. Among them were cases of bombs falling from airplanes (unintentionally), incinerating in airplane crashes, or just lost on the ground or at sea. The “Damascus Incident” referred to in the book’s title involves a nuclear warhead that was ejected when a maintenance person fumble-fingered a wrench and it tore through the fuel tank. What is the worst that could happen from dropping a tool? What Charles Perrow nominally calls “normal accidents” in highly complex systems with additional safeguards built in, come to mind here. This is

a compelling, and nerve-wracking story, which at its heart makes one wonder about the wisdom of the systems we built to protect these weapons of mass destruction—that on any given day the likelihood was greater of one detonating as the result of an accident than by being launched by one side or the other. The sense of unanticipated outcomes rivals the miscalculations of nuclear rivals’ capabilities for the most unsettling aspect of this book. Absolutely a must read, a holiday gift for someone on your list, or for yourself.

The End of Power: From Boardrooms to Battlefields and Churches, to States, Why Being in Charge Isn’t What It Used to Be

By Moises Naim

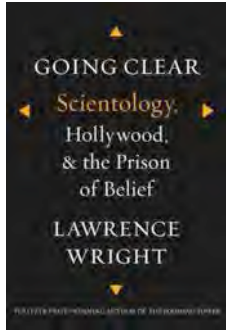


Moises Naim, former Finance Minister of Venezuela and author of the international best-selling book *Illicit: How Smugglers, Traffickers, and Copycats are Hijacking the Global Economy* (reviewed on our annual reading list in 2005 by guest reviewer David Rothkopf), has delivered another timely and valuable book, ominously titled: *The End of Power*. As Naim would tell you, power is not ending, but rather it is changing, and it is decaying and diffusing away from large institutions that have wielded it for centuries to smaller groups and in many cases, to individuals—“*Power is spreading, and long-established, big players are increasingly being challenged by newer and smaller ones. And those who have power are more constrained in the ways they can use it*”. We all can sense this—we read about it, we watch it before our eyes on a daily basis. But why is it changing and changing so rapidly as well? Naim cites three revolutions underway simultaneously that interact with and influence each other in novel ways and are resulting in this unsettling juxtaposition: the More revolution, the Mobility revolution, and the Mentality revolution. More deals simply with quantity increases in everything—more people, more countries, more institutions, more connections....and more. Mobility clearly means that our means of connecting are mobile, as we are mobile and global, and our ideas and exchanges are rapid and loosed upon the world instantaneously—what happens to “place” and anchoring in the world when everything is mobile? The Mentality revolution, the hardest to pin down, and yet perhaps the most important, reflects the change in “*mindsets, expectations, and aspirations that have accompanied these shifts*”. Naim asks the big question and then provides an answer that propels this important book: “*What happens when power is radically scattered,*

diffuse, and decayed? The philosophers already knew the answer: chaos and anarchy”.

Going Clear: Scientology, Hollywood & the Prison of Belief

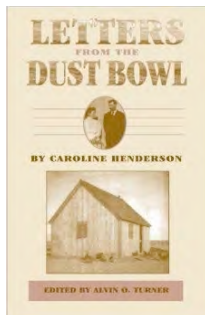
By Lawrence Wright



Lawrence Wright, a Highlands Forum alumnus and Pulitzer Prize-winner for his great book *The Looming Tower* (a recommended book on our 2006 reading list), has produced another masterful book this year with *Going Clear: Scientology, Hollywood, & the Prison of Belief*, a 2013 National Book Award finalist. This is not an attack on the Church of Scientology, though it is a measured indictment the church and its founder, science fiction author and motivational speaker L. Ron Hubbard. What the church has become known for more recently is its seeming sway over a number of Hollywood celebrities, among them Tom Cruise, John Travolta, and Sonny Bono. Wright checks into this part of the story in a particularly detailed fashion, with church members, most particularly with multiple Oscar-winning screenwriter Paul Haggis, best known for the 2004 Best Picture, *Crash* and *Million Dollar Baby* (2004). Haggis joined Scientology in 1975, when he was a young man, and left many years later after bouts of conscience with church positions and with what he witnessed inside the deeply cloaked and mysterious entity that he considered abhorrent. As a witness for Wright, Haggis is compelling. Wright is one of our finest writers in America today and he conveys the strange world inside Scientology in credible and often jarring fashion. This book is on just about every list this year—it should be on yours as well.

Letters from the Dust Bowl

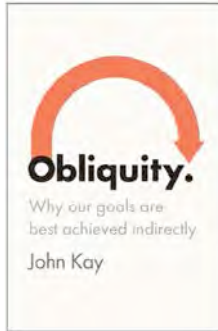
By Caroline Henderson



Cautionary tales often come in the most unexpected ways and from the least likely sources. Caroline Henderson was the wife of an Oklahoma farmer in the decades of the devastating Dust Bowl that changed the American economy; changed the map as it moved mass migrations of unsettled populations who became derisively termed (and derisively treated) “Okies”; and changed the social compact with the federal government. For three decades Caroline and her husband farmed, while in her spare time she wrote eloquent, and often haunting letters to friends; she wrote articles published by Atlantic Monthly beginning in 1931, and their harrowing tale of the death of farming and communities in the Plains states eventually caught the attention of the U.S. Secretary of Agriculture. That seems unthinkable in an age of instantaneous digital communication, but information traveled slowly and letters were the medium. Caroline, in addition to being a farmer, was a graduate of the esteemed Mount Holyoke College with a degree in literature, and it is through her painful, descriptive letters, that we “see, smell, and taste” the damage done by overfarming plots of land, drought, high temperatures, and massive winds rolling across the plains, damage that continued for years. Caroline writes: *“Dear Evelyn: Since I wrote to you, we have had several bad days of wind and dust. On the worst one recently, old sheets stretched over door and window openings, and sprayed with kerosene, quickly became black and helped a little to keep down the irritating dust in our living rooms. Nothing that you see or hear or read will be likely to exaggerate the physical discomfort or material losses due to these storms. Less emphasis is usually given to the mental effect, the confusion of mind resulting from the overthrow of all plans for improvement or normal farm work, and the difficulty of making other plans, even in a tentative way...of an incident of the past week, the attempt of former neighbors to sell the pipe from the well on their now deserted homestead. This may not seem significant to you. But to old-timers in this deep-water country, so nearly destitute of flowing streams, the virtual destruction of a well of our excellent, life-nourishing water comes close to being the unpardonable sin against future generations”*. This is a beautiful, dire, and thought-provoking book, written with a literacy seldom found in contemporary letters; it is also a warning of the swift and unrelenting, unsympathetic change to be wrought in the blink of an eye by nature. Most highly recommended.

Obliquity: Why Our Goals Are Best Achieved Indirectly

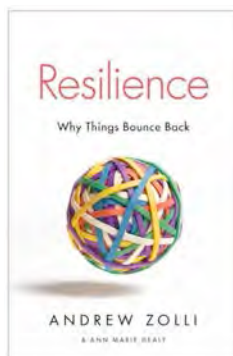
By John Kay



Dave Snowden, well known at the Highlands Forum for presentations on complex problems and his Cynefin Framework to address them, has been telling us for some time about a book called *Obliquity: Why Our Goals are Best Achieved Indirectly*. This is a small book with a big return—a book with a premise so self-evident that one could ask why write it at all, yet most people don't think the way its author, John Kay, lays out in this excellent volume. First, what is obliquity? Kay unabashedly gives credit to Nobel Prize-winning pharmacologist Sir James Black; Black told him of his team's discoveries by a circuitous, unplanned, and indirect route. Kay relays to us: *"Goals are often best achieved without intending them...In obliquity there are no predictable connections between intentions and outcomes...Problem solving is iterative and adaptive rather than direct.* Incorporating philosophy, management science, case studies, and common sense, Kay finishes this slim and very approachable volume with a useful summary for those encountering more difficult (and frequently occurring in the wild) classes of problems: *"Obliquity is the best approach whenever complex systems evolve in an uncertain environment and whenever the effect of our actions depends on the ways in which others respond to them".*

Resilience: Why Things Bounce Back

By Andrew Zolli & Ann Marie Healy

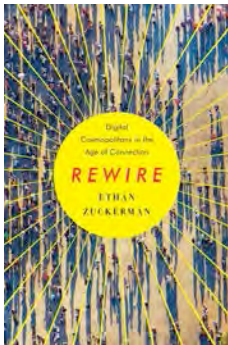


Hurricane Katrina and Superstorm Sandy taught us many things, and perhaps the most frequently heard term emanating from the lessons learned discussions in the months and years since each event was "resilience". The Rockefeller Foundation's major effort now underway is the Resilient Cities Challenge; cities are beginning to appoint Chief

Resilience Officers. Andrew Zollie and Ann Marie Healy, in their wonderful book *Resilience: Why Things Bounce Back*, tell us: “If we cannot control the volatile tides of change, we can learn to build better boats. We can design—and redesign—organizations, institutions, and systems to better absorb disruption, operate under a wider variety of conditions, and shift more fluidly from one circumstance to the next. To do that, we need to understand the emerging field of resilience”. Ann Pendleton-Jullian has encouraged us to think of resilience in terms of ecology; both she and Zollie & Healy would frame resilience as the capacity of a system, enterprise, or a person to maintain its core purpose and integrity in the face of dramatically changed conditions; they would also likely maintain that resilience does mean that after a disruption, a resilient system returns to its original state just prior to the disruption, but rather to *some* state of successful function or operation. They use contemporary examples and stories to demonstrate the differences (and there are differences) among redundancy, robustness, recovery, and resilience; and they make it clear that resilience must be a continuous process if it is to succeed. As a bonus for Highlands readers, Zollie and Healy cite examples and sources (John Arquilla, David Ronfeldt, Bob Axelrod, Valdis Krebs, Eric Rasmussen, and Robert Kirkpatrick) that many forum participants will recognize from their work with us over the years.

Rewire: Digital Cosmopolitanism in the Age of Connection

By Ethan Zuckerman

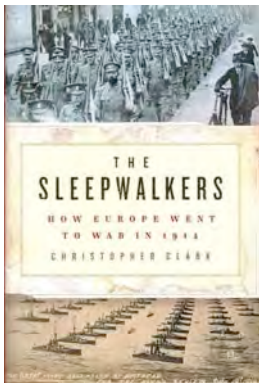


Ethan Zuckerman comes at you in so many interesting and unique ways: he is your imagination on its best day, discovering something new and exciting; he is your vision of what you could hope to do in helping humanity, spreading hope and possibilities in digital villages around the world; he is your conscience, unafraid to tell you (albeit nicely) when you are off-base. Ethan is your ideal dinner guest, a plus at any forum. *Rewired* is a celebration of Ethan Zuckerman’s hope for us, the world, and a more cosmopolitan outlook. What does he mean by digital cosmopolitanism? Ethan, who has spent considerable time in his young life in Ghana, cites a Ghanaian American philosopher, Kwame Anthony Appiah, who sees cosmopolitanism as much more than tolerance (by ignoring or turning away from practices that offend us) of those with beliefs and values different from our own. On the contrary, Appiah celebrates the differences by taking an interest in the beliefs of others and through this

cosmopolitanism he is “taking seriously the notion that (we) have obligations to people who are not their kin” and are different. Here is Ethan’s worldview on display in all its openness and richness. But alas, it may not be for too many of us. While the Internet provides us an opportunity to practice digital cosmopolitanism, for most it is rather an opportunity to anchor to firmly held beliefs and worldview. For most, there is no desire to become an explorer in the (digital) Explorer’s Club. Ethan challenges us to open ourselves to the possibilities and make connections; if only we were lucky enough to have him at dinner, or on our shoulders whispering in our ear. At least we have him whenever we need encouragement, in the pages of *Rewire*.

The Sleepwalkers: How Europe Went to War in 1914

By Christopher Clark

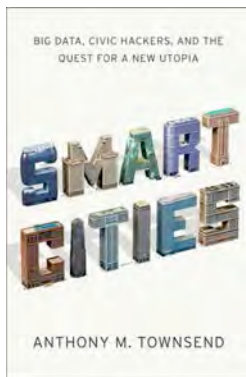


Highlands Forum alumnus, Bob Belden, the highly creative Grammy Award-winning jazz composer and arranger of the jazz symphony *The Black Dahlia*, has a broad range of reading interests. Bob frequently sends us suggestions for a book he has just finished, and each is provocative and challenging. In our last discussion he was most enthusiastic in suggesting we might be interested in a new history: *The Sleepwalkers: How Europe Went to War in 1914*. He said: “It is an amazing book, with great detail about the eventuality of war among European powers at the turn of the century. Worth every penny, especially for long flights to distant lands”. Well, thank you Bob! Author Christopher Clark, a professor of modern European history and fellow at the University of Cambridge, uses new sources and his extraordinary analytical eye to reconsider the history that we have supported over the past century, beginning with the claim that the flash point of the Great War, which resulted in the lost of 15 million lives was not the assassination of Archduke Franz Ferdinand in 1914, as has long been held, but rather the invasion of Libya by Italy in 1911. That led to two Balkan wars in 1911 and 1912. In the 1912 war, the Bulgarians, supported by Russia, came within miles of seizing Constantinople. Clark uses the term sleepwalkers to describe the leaders of Europe, each of whom was distracted by crises from family illness to financial crisis, to small wars; they missed the signals of disaster as they “*somnambulated*”, which in some schools of historical thought lets them off far too easily. But with great detail and novelistic pacing, Clark marshals pertinent facts and timelines and calls to our attention

other deeper seeded underlying factors, including the predatory and circular economic system between the creditor nations of France, Germany and Britain with the debtor nations of the Ottoman Empire, Russia and the Hapsburg Dynasty: loans used to create a dependency, loans created to filter into the hands of editors who would use publications and newspapers to elucidate the ideas of one side or another (major media propaganda operations were used), and loans created to open up larger export markets for the creditor nations. It is a highly readable and monumental historical work (and at almost 750 pages it is the size of a serious door stop) of the first order.

Smart Cities: Big Data, Civic Hackers, and the Quest for a New Utopia

By Anthony M. Townsend



In 1913, 10% of the world's population lived in cities.

In 2013, 50% of the world's population lived in cities.

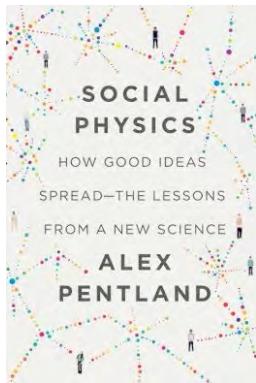
In 2050, projections are that 75% of the world's population will live in cities.

As we move from an industrial era to a digital era, how will that transition affect how we will live in these urban islands? There are many possible answers and in Anthony Townsend's excellent new book, *Smart Cities: Big Data, Civic Hackers, and the Quest for a New Utopia*, we get a look at the range of options that await us. If we dispense with the much-hyped, commercially driven "smart city" petri dish experiments (Masdar City in the UAE and SongDo in Korea)—they are, after all, not real cities but an attempt to build technology systems and then overlay people on top—then we can move into the realm that Townsend is most interested in. Cities after all, are about people. "*Smart cities*", he says, "*are places where information technology is wielded to address problems old and new*". These smart cities are really about people and their connectedness with each other and their infrastructure. The technology is the connective tissue. Townsend describes an emerging world as much about the waterworks and transport system as it is about citizen empowerment and the "Gov2.0" linkage that makes both better. In this passionate look at our near future, Townsend doesn't shy away from the problems we will have in the "*buggy, brittle, and bugged*"

digital infrastructure. He cites Highlands Forum alumnus Charles Perrow, author of the classic work *Normal Accidents*, in telling us that safety systems introduced to protect us from the complexity of this sensing infrastructure will actually result in normal accidents. With more functions performed over cellular networks (the “*fainting ladies of the networked world*”), we will be dependent on less-than-reliable connectivity. And bugged? Yes, mass surveillance is a concern. But even with the potential of a buggy, brittle, and bugged ecosystem, there is a trump card: individual citizens wired together. “*You are no longer just a cog in a vast machine. You are part of the mind of the smart city itself. And that gives you the power to shape the future*”.

Social Physics: How Good Ideas Spread—the Lessons from a New Science

Alex Pentland

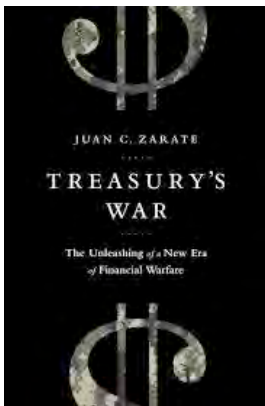


Sandy Pentland is perhaps the best known, and likely the most thoughtful researcher, chronicler, and implementer of the “Big Data” movement. As one of the “world’s top 7 data scientists” (Forbes), Pentland directs the MIT Media Lab Human Dynamics Laboratory and co-leads the World Economic Forum Big Data and Personal Data initiatives. His first book, *Honest Signals* (a featured book on our 2008 annual reading list), demonstrated that our problems are getting more complicated and complex, and applying the work and intelligence of groups to them is likely to be critical; Pentland told us that sensing technology will change business and the sciences, and what that would mean for our growing social networking and collaborating within groups. With this follow-up, *Social Physics: How Good Ideas Spread—the Lessons from a New Science*, Pentland pursues the “*reliable, social connections between information and idea flow on the one hand and people’s behavior on the other...it allows us to predict the productivity of small groups, of departments within companies, and even of entire cities*” (linking Pentland’s research to the ideas of Anthony Townsend in *Smart Cities*). What drives this is big data. Pentland, like Townsend, acknowledges that not all is utopian in an information exchange of digitally connected netizens: “*One disturbing implication of these findings is that our hyperconnected world may be moving toward a state in which there is too much idea flow*”. Another problem might just be the flip side of the coin of behavior prediction emanating from the processing of big data—depending on how that data is used and by whom, the positive can become a negative. But the heart of this

groundbreaking treatment of data and our future addresses the way in which we will succeed against abuse of the data and of our lives—a “*New Deal on Data—workable guarantees that the data needed for public goods are readily available while at the same time protecting the citizenry*” (you have the right to possess data about you; you have the right to full control over the use of your data; you have the right to dispose of or distribute your data). Pentland is that rare combination of extraordinary scientist and articulate author whose work exposes and suggests pathways forward on critical social issues of our time. This is a valuable work, staking out ground for the resolution of challenges and giving each of us a sense of the choices that will determine who we will be. (Forthcoming, January 2014)

Treasury’s War: The Unleashing of a New Era of Financial Warfare

By Juan C. Zarate

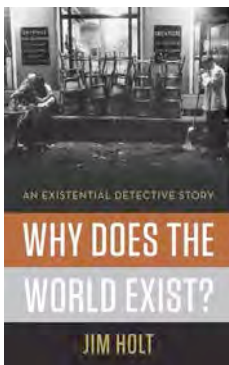


Juan Zarate was at the center of one of the least known and understood aspects of national security of the last two decades. As Assistant Secretary of the Treasury, with a portfolio that included terrorist financing and financial crime, and then as Deputy Assistant to the President and Deputy National Security Advisor for Combating Terrorism during the Bush administration, Zarate and his colleagues created a new way of exercising power in largely unseen and highly effective ways that spread from Al Qaeda to North Korea to Iran, whose outcomes have clearly borne fruit. Financial strictures leveraging US and other financial markets while excluding bad actors from the financial system, which the Iranians called “the hidden war”, which the North Koreans acknowledged hurt them more than anything else done to them, and which Osama bin Laden lamented dried up his funds and freedom of action, have been highly successful. In his new book *Treasury’s War: the Unleashing of a New Era of Financial Warfare*, Zarate describes how the Department of Treasury became a more influential contributor in the array of national security organizations of the United States, and the tools and processes they created and implemented in going after rogue actors. Zarate’s story is a fascinating story in an operational sense; it is equally interesting in from the perspective of organizational and political finesse. The Department of Treasury had lost much of its enforcement tools in the transfer of agencies and authorities to the newly

created Department of Homeland Security. Treasury had to reinvent itself in the national security space. Zarate, a senior advisor at the Center for Strategic and International Studies, has delivered a fascinating and timely inside story about another way of exercising power, one that has clearly had impact that we can now understand in the context of the ongoing negotiations with Iran. Zarate understands clearly that while these *counterparties*, those tied to us in the global financial system, have been deterred and forced to act in self-defeating ways, they will likely adapt in the future. And so will we.

Why Does the World Exist: An Existential Detective Story

By Jim Holt



From a limited sample size gained over the course of decades of listening to a countless number of interesting people from all walks of life, many of us, it would seem, have a friend, college classmate, or family member who like to throw “intellectual hand grenades” or challenge us with questions on the meaning of life and our place in it. These are the people who frustrate and delight us, forcing us think beyond the moment and dig deep. Jim Holt’s *Why Does the World Exist: An Existential Detective Story* is a long visit with that friend, classmate, or family member, and at the end of the day, we are the better for it. Holt starts big: *“Suppose there were nothing. Then there would be no laws; for laws, after all, are something. If there were no laws, then everything would be permitted. If everything were permitted, then nothing would be forbidden. So if there were nothing, nothing would be forbidden. Thus, nothing self-forbidding. Therefore, there must be something. QED.”* Pause, rest a bit. Holt then takes his readers on a world tour of great thinkers, posing to them his questions, like the aforementioned friend, classmate, or family member, and they do provide him with thoughtful answers. Holt is an excellent writer, who frames his philosophical exchanges in clear and often witty fashion. What we learn is that the journey begun when considering our answer tells us more about ourselves than the answer itself—if indeed we arrive at one.



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Start Your Idea Engines

By Brian Friel (GOVEXEC.com)

An inside look at one of the most exclusive intellectual clubs in the world - and how you can set up your own brain trust.

Here's an idea: Gather up the smartest people in the world, put them in a room with executives from your agency, close the door and let the conversations begin. Unlike innovative ideas that develop on the back of dirty cocktail napkins, this one developed in a gorgeous, glass-walled house on a rocky spine overlooking the Big Sur coast in Carmel Highlands, Calif. There, in 1994, a dozen military and information technology experts gathered to consider the impacts of IT and globalization on the United States and on warfare. How would the Internet and other emerging technologies change the world?



Over wine, fruit and cheese, the techies and the warriors talked, argued and laughed. With Pacific waves breaking against the rocks below, the otters swimming and the sun setting into the West, the group had a wide-ranging and provocative discussion that helped plant the seeds of network-centric warfare - one of the guiding principles of 21st century American defense strategy - in the minds of the nation's top military thinkers.

Richard O'Neill, a Navy captain who had been tapped by then-Defense Secretary William Perry to organize the session, realized the value of such gatherings of great minds from both within and outside the Pentagon. O'Neill decided to replicate the meeting (which was at his brother-in-law's house) with additional sessions on a variety of topics. One of the attendees, a RAND analyst named John Arquilla, now well-known for his scholarly work on networks, suggested the name The Highlands Group.

When O'Neill dutifully ran the plan by Pentagon officials, most said OK - with a caveat. A Pentagon lawyer explained that the term "group" would subject any meetings to the Federal Advisory Committee Act, a law that requires meeting announcements listed in the Federal Register, registration with an office at the General Services Administration and a host of bureaucratic restrictions that O'Neill and others believed would quell the free flow of ideas and no-holds-barred discussions they sought. Besides, the idea was not to issue recommendations or offer advice to government officials the way groups covered by the act do. So O'Neill renamed it the Highlands Forum and moved into the private sector to manage it as a consultant to the Pentagon. For the past 12 years, he has organized several confabs each year. They have included Nobel Prize winners, science fiction writers, futurists, journalists and chief executive officers who have come to share ideas with Pentagon executives.

O'Neill calls it an "intellectual capital venture firm." Linton Wells, the Pentagon's deputy chief information officer and the career senior executive who oversees the forum, describes it this way: "The Highlands Forum is an idea engine. It basically looks to get a small number of people, typically around 25 to 30, together to look at issues at the intersection of technology and policy."

Government executives in 2006 find themselves in a world of increasing complexity and rapid change. The 19th century bureaucratic structures in which they operate are unable to cope with 21st century challenges. Need proof? Think Iraq. Hurricane Katrina. Health care. The effects of globalization on the economy and education. Immigration. The aging of America. The ideas for dealing with such incredible challenges are out there, but not necessarily in federal agencies. Leaders need forums where they can explore ideas that could transform their operations - and their thinking - to more effectively deal with the new world. They need to rev their own idea engines.

The Highlands Forum is one model.

Rules of the Road

The forum's operating rules are simple. First, there are no members, only participants. A thousand thinkers have participated over the past 12 years, attending the sessions to which they have the most to contribute. Sponsor Wells attends most sessions, but other Pentagon executives are invited only if they can contribute to and benefit from the topic. Officials from the intelligence shop might attend one meeting, policy leaders another, personnel chiefs another. Similarly, outside experts come when O'Neill believes they are the top minds on a subject or their perspectives will spark debate. Journalists often are invited to play the skeptics.

Second, the meetings are small, usually 25 to 30 people. "To me, anything larger than that is pretty much in broadcast mode, and you don't get the give-and-take and the thoughtful dialogue that would

result in new ideas, which is what we're trying to do," O'Neill said at a seminar at Harvard University's Center for Information Policy Research in December 2001. They are selective, invitation-only conclaves, not all-inclusive, anybody-can-attend conferences. Unlike typical government conferences, the gatherings usually are peppered with presentations meant to prompt discussion, not lengthy PowerPoint lectures followed by a few minutes of questions and answers.

Third, the Highlands Forum is off the record; participants can take ideas with them, but they can't attribute comments to other participants if they write reports or articles about the events later. This discourages grandstanding. It also encourages honest debate. Pentagon leaders and big thinkers need not worry that their comments will be quoted out of context.

Fourth, they are focused, usually by a central question with which Pentagon leaders are grappling. Meetings have homed in on managing risk, what nano-technology would mean for the future and how to communicate with and listen to people at home and abroad affected by military operations. "What I've found is it's typically given me two to three years' lead time on [what] many interesting people are thinking," Wells says. "For example, one of the ones we've done is on the world of the small - nanotechnology. And one on ubiquitous microsensors, which now ties in with a lot of the systems surveillance we're doing. . . . You'll get Nobel Prize winners and Pulitzer Prize winners and historians and physicists and microbiologists and security specialists and intelligence specialists and there's this serendipitous interaction."

V-8s and Hybrids

Similar informal idea-generating groups are popping up in surprising places, often paid for by the organizers and held during nonwork hours. By day, Kitty Wooley is a midlevel management analyst at the Education Department. At night, she hosts periodic dinner groups that bring together "guvvies," as she calls federal managers and employees interested in improving operations, with experts on various topics.

For participants, Wooley tapped into the senior fellows' network of the Council for Excellence in Government, a Washington-based nonprofit that works to improve government operations. The soirees bring together 20 or so attendees from among several dozen of Wooley's contacts. The senior fellows program identifies rising stars across government and exposes them to new thinking in public administration, so it was a natural group for Wooley to tap. A recent dinner featured Christopher Mihm, the director of strategic issues at the Government Accountability Office, for a discussion of the government's increasing reliance on third-party contractors, nonprofits and state and local governments. Wooley receives no support at Education in putting on the dinners, which are held at a Washington hotel. Participants pay for their meals and she covers the speaker's repast.

In another effort, K. Scott Derrick, an analyst in Mihm's shop at GAO, and Don Jacobson, a Foreign Service officer, recently launched 13L, a group that will explore new ideas in public leadership. Like the Highlands Forum and Wooley's group, Derrick and Jacobson are keeping it small and focused - the 13 denotes the number of members and the L stands for leadership. They're also keeping it informal to avoid incorporating it as an official group. "We decided to create something small, yet hopefully effective," Derrick says. He got the idea for the group's name when he saw that there's a group of playwrights in New York called 13P. "I liked the idea," he says. "I figured that 13 people would be large enough to gain diverse input and synergy, yet the group would still be small enough to be cohesive and effective without the administrative requirements." 13L will focus on projects, possibly setting up a governmentwide mentoring program or exploring how to revamp an agency's leadership development program.

A benefit of all such groups is their low cost, especially compared with more formal idea exchanges at multimillion-dollar conferences. The Highlands Forum costs a mere \$330,000 a year to operate, covering the costs of two sessions of two or three days each year and several shorter "mini" sessions. O'Neill pays no honoraria or speaking fees to outside participants, instead drawing them to the sessions by offering the opportunity to discuss ideas with some of the smartest people at the Pentagon.

The Fuel for Ideas

Sample a few Highlands Forum sessions and it's easy to see the appeal. Civil War historian James M. McPherson recently took Pentagon leaders and other participants on a tour of the Gettysburg battlefield, and then discussed the difficulties of Reconstruction following the war, including why the South resisted. Lessons from that era are instructive for leaders now coping with the reconstruction of post-Saddam Iraq and post-Taliban Afghanistan.

For a session on risk management, O'Neill organized a trip to the Bellagio Hotel and Casino in Las Vegas, where Pentagon leaders talked about managing risk with casino managers, card counters (allowed into the casino just for this occasion) and stock market investors. For the session on nanotechnology, O'Neill enlisted Sun Micro-systems co-founder Bill Joy, who wrote a Wired magazine cover story titled "Why the Future Doesn't Need Us;" Richard Smalley, who won a Nobel prize for the discovery of carbon nanotubes; and William Haseltine, former CEO of Human Genome Sciences, a pioneering genetics firm in Rockville, Md.

"In the first few years, we had topics," Wells says. "Over the last couple years, we've had themes. A lot of them had to do with networking. As we move to a network-centric environment, what are the

implications for security, what are the implications for organization, what are the implications for operations? We've done a series on strategic listening. When you talk about strategic communication, the American way of doing business is to transmit, and what Dick came up with is, maybe we should sit down and listen to what our target audience is trying to tell us."

The Highlands Forum model has kept Wells and other Pentagon executives on the leading edge of thinking in such areas for 12 years. It's a model that works well for the Pentagon, perhaps paradoxically because the Defense Department operates on a hierarchical, 19th century structure. "The idea engine generates ideas in the minds of government people who have the ability to act through other processes," Wells says.

In the Pentagon, he says, "the way you make something happen is to go back and deal with the existing processes in the building. You deal with the capabilities generation process, you deal with the acquisition process, you deal with the resourcing process and you get ideas into play, and you hopefully cause the system to adopt them as their own.

"What happens out of Highlands is you get people who come back with an idea and say, 'Now how can I cause this to happen?' You don't come out with a 442-page report written by the Highlands Forum that gathers dust on a shelf, or generates all sorts of bureaucratic antibodies because it's come from outside," Wells continues. "It enables the people who have the day-to-day responsibilities to do these kinds of things to think differently about them. Maybe some of the ideas get translated into action. Do all of them? No. Are all of the ideas good? No. Are some of the ideas wonderful? Absolutely."



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The Web and the Long, "Soft" War

By Irving Wladawsky-Berger

Irving Wladawsky-Berger recently retired from IBM as Vice President of Technical Strategy and Innovation. Now Emeritus at IBM, he splits his time between Imperial College, University of Chicago, and MIT where he is Professor of Engineering Systems at MIT's interdisciplinary Engineering Systems Division. Irving spends a lot of time blogging, on a range of topics from innovation to technology to society and culture (baseball to DVD's). He is always worth listening to as we learned at Highlands Forum 31 on the emerging web. Here is his post-Highlands blog post (<http://blog.irvingwb.com/blog>).



The Web and the Long, "Soft" War

A few weeks ago I attended a very stimulating meeting, the Highlands Forum. The Forum is sponsored by the Office of the US Secretary of Defense to explore new ideas and emerging trends that will help support high-level Department of Defense (DoD) policy and strategy, especially as they relate to information and information technologies.

The Highlands Forum was organized in 1994 by retired US Navy captain Dick O'Neill. It is chaired by the Principal Deputy Assistant Secretary of Defense for Networks and Information Integration, a position currently held by Dr. Linton Wells. Each meeting is centered on a specific topic. Around 25 experts from government, industry, academia, the arts and the professions are invited to discuss their ideas on the subject - to be part a kind of strategic conversation. Past topics have ranged from "Protection of Critical Infrastructures" to "Innovation and Complex Organizations" to "The Mind, the Brain and Computing."

The theme of our March Forum was "The Emerging Web." Over three days or so, we heard a number of presentations and held extensive discussions in a variety of sessions with names like "Harnessing the Group Mind"; "Beyond Keyword Search"; "Visualizing Networks"; "Spectrum, Scarcity and Innovation's Promise"; and "How Safe is it Going to Be?" The overall objective was to see if we could reach consensus on a Big Bet: "What are the big changes that might become reality in 5 - 10 years, - especially those related to the Web - that might affect DoD?♦"

While our discussions were generally technology-based, you cannot ponder how IT, the Web and related technologies could impact DoD without also thinking hard about the global environment that DoD, and society in general will face over the next decade and beyond. DoD's primary task is ♦to deter conflict - but should deterrence fail, to fight and win the nation's wars.♦ There is an underlying assumption behind that core task that by war we mean military hostilities between specific combatants, usually countries. Think of World Wars I and II, the Korean and Vietnam wars, as well as the Cold War. In asymmetric conflicts like Vietnam, where combatant have unequal power and pursue markedly different strategies, the weaker combatant tends to fight by becoming more "diffused," and integrating with the local civilian population. With Afghanistan and Iraq, there is a realization that while our armed forces quickly won the classic part of the war, the conflicts we now find ourselves in are much more complex and sophisticated.

Then there is the War on Terror, which DoD has started to refer to as the Long War, a term that I first heard at the Forum. It seems very appropriate to describe the overall conflict in which we now find ourselves. This is a truly global conflict with a variety of enemies spread around the world, enemies who are organized into small groups, distributed and very local - that is, living among civilian populations - but who coordinate, recruit and fund their actions around the world in a whole set of new ways. As we sadly know, soldiers and civilians continue to die every day, but the conflicts we are now in have much more of the feel of a battle of civilizations or cultures trying to destroy our very way of life and impose their own. Thus, the Long War is perhaps as much about winning the hearts and minds of people and nations, as it is about defeating, or at least containing an enemy that is often hard to find. While one absolutely needs the weapons and military training to win the classic, hot conflicts, the soft or cultural aspects of the conflict are at least as important.

The Long War feels to me totally global, fast changing and unpredictable; with a need to focus on people, cultures and civilizations not just on weapons; information-based in nature - requiring the ability to bring together and analyze accurate, real time intelligence about opponents, operational information about friendly forces, as well as lots of additional information about everything else going on around us provided by a diverse set of partners; and, needless to say - very, very long. So, how do you prepare for and fight the Long War. There will always be rogue leaders like Kim Jong-Il and Mahmoud Ahmadinejad, as well as caudillos like Hugo Chavez and my very own Fidel Castro who thrive on

creating conflict. We will always continue to need a strong military that hopefully serves mostly as a deterrent, but that can quickly be deployed and win whatever hot wars and skirmishes arise around the world.

This is absolutely necessary - but no longer sufficient. As a nation, we need to go up the stack and pay attention to the so-called soft aspects of the Long War, because these are the ones that over time could undermine the democratic principles, free markets and standard of living that we cherish. I strongly believe that our secret weapons in this 21st Century Long War are precisely these same democratic principles, free markets and standard of living - with all that they imply and all the organization, institutions and shared national beliefs that we have built in the last two hundred years that have made them possible. We need to make sure that these secret weapons of ours are more global in scope than ever and that absolutely everyone around the world can actually partner and collaborate with us as appropriate.

How do we do it? What should our weapon system be to help us fight such a global, complex, information-intensive and unpredictable long war? In a word, or perhaps two - the Internet and the Web.

Let's remember that DoD's Defense Advanced Research Project Agency (DARPA) started the ARPANET project, which later became the Internet. They began it in the 1960s in order to develop a highly robust and survivable information network. We are all pretty familiar with the history of the Internet and what that initial project led to. As we well know, in the early 1990s (Sir) Tim Berners-Lee, an English computer scientist developed the World Wide Web while at CERN in Geneva; American-born Marc Andreessen developed the Mosaic web browser at NCSA at the University of Illinois; and Linus Torvalds, a Finnish computer scientist developed Linux while a student at the University of Helsinki.



The fact that the Internet, started by DoD for very legitimate defense purposes, has become the world's platform for communication, information and innovation, with contributions from people and institutions from around the world, is precisely the point. Many of us believe that a key part of our strategy for the Long War should be to make it easier and easier for people around the world to communicate, share information, and self-organize into communities of innovation. Therefore, we should strive to make the Internet and the Web even better global platforms on which we can all work together and learn from each other.

As we discussed in the Highlands Forum, the opportunities are huge, but so are the complexities of the task ahead. There are all kinds of new technologies for interacting with people and information in much more intelligent and visual ways. The issues around security and privacy are daunting. So are the challenges for integrating the billions of new devices, along with a variety of networking schemes that are becoming part of the Internet.

While industry will greatly benefit from these advances, as it has from the investments in the original Internet, the costs involved and the long-term commitments required are beyond the scope of the private sector, especially in today's highly competitive and short-term-oriented financial environment. Universities need to play a major role in any such efforts, but universities and key research funding agencies like the National Science Foundation are much better at managing and conducting large numbers of relatively small projects, rather than very large, mission-oriented ones.

Who can do it? DoD assumed the leadership mantle in the development of the original Internet, justifying its investments as a part of the nation's defense as well as for its own internal use. Perhaps DoD should once again take on a lead role, this time in supporting research and pilot programs that will accelerate the development of some of the most complex and critical applications and emerging technologies that are driving the evolution of the Web for the very different requirements of the 21st Century. Let me give a few examples. As perhaps the institution with some of the most complex people-oriented, market facing applications in the world - e.g., healthcare and logistics systems - DoD should support research in CAD/CAM-like, collaborative tools, processes and standards for the design development and management of these kinds of applications, including the extensive use of engineering methods like visualization and simulation. Another important area is the use of information semantic capabilities in real-time, sophisticated decision-based applications. Finally, given the huge importance of learning and training for our armed forces, DoD should pioneer the use of innovative applications based on the highly visual, interactive capabilities in wide use in advanced game consoles and massively multiplayer online games.

I would justify the investments as a part of our efforts to prepare for and fight the Long War, as well as to help our armed forces become even more highly skilled, collaborative, information-based organizations. We should all view as a very big plus the fact that such an effort will also be of huge value to the private sector, universities, research communities, health care institutions and many government agencies, not just in the US but around the world. Fostering economic progress, increased productivity, scientific and medical innovation and rising standards of living around the world play an important part in the Long War. I think that a major part of the Long War is to get as many people and countries around the world to be part of and benefit from our increasingly interconnected economies. We need to help them see a potentially promising future for them and their families, and give them hope that their children can have a higher standard of living by getting a good education and a good job. Helping people around the world achieve their own version of life, liberty and the pursuit of happiness may very well be our biggest bet of all in the Long War ahead.


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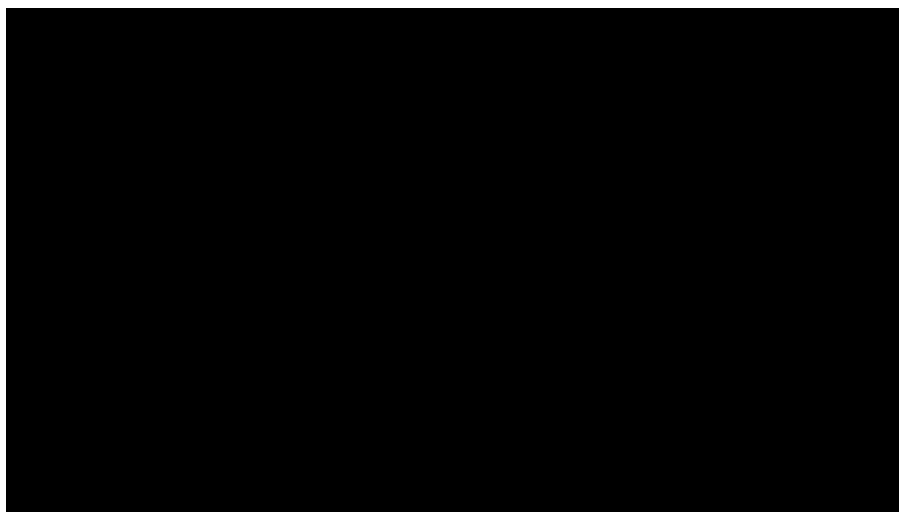
Interview with Ashraf Ghani, Clare Lockhart, and Lin Wells

In 2006, following a series of conversations on transition from conflict, reconstruction, and conflict prevention, a Highlands Forum was held in conjunction with a Strong Angel demonstration in San Diego. At the conclusion of the Forum, we sat down for a conversation with Ashraf Ghani, Clare Lockhart, and Lin Wells to hear what they had to say about state failure and new approaches to state effectiveness. Ghani and Lockhart continue their work today in Afghanistan, Kosovo, and several African nations; Wells has created a program called STAR-TIDES to bring new, cheap and sustainable technologies to developing parts of the world as well as for use in humanitarian emergencies around the world. We present you with a short clip of that conversation.

Dr. Ashraf Ghani was recognized as the best finance minister of Asia in 2003 by Emerging Markets. During his tenure as finance minister of Afghanistan between July 2002 and December 2004, he carried out a series of extensive reforms, including the issue of a new currency in record time, computerization of the operations of treasury, institutionalization of the single treasury account, adoption of a policy of no-deficit financing, introduction of the budget as the central instrument of policy, centralization of revenue, reform of tariff system and overhaul of the customs, and instituting of regular reporting to the cabinet, the people of Afghanistan, and the international stakeholders as a tool of transparency and accountability.

Clare Lockhart is currently Director of the State Effectiveness Program, a program set up to develop toolkits and promote approaches to create effective states that are responsive to their citizens. She served as Adviser to the Government of Afghanistan from 2002-5, with responsibility for design of design of policy processes and national programs. She worked as Adviser to the United Nations for the preparation of the Bonn Agreement and establishment of Government of Afghanistan structures from 2001-2. She has practiced as a barrister in public and commercial law in the United Kingdom and is a Member of the Bar of England and Wales. She holds degrees from Harvard University, where she was a Kennedy Memorial Trust Scholar, Oxford University, and the Inns of Court School of Law.

Dr. Linton Wells II is the Chair of Force Transformation and Distinguished Research Professor in the Center for Technology and National Security Policy at the National Defense University. Until June of 2007, he served as Principal Deputy Assistant Secretary of Defense (Networks and Information Integration).






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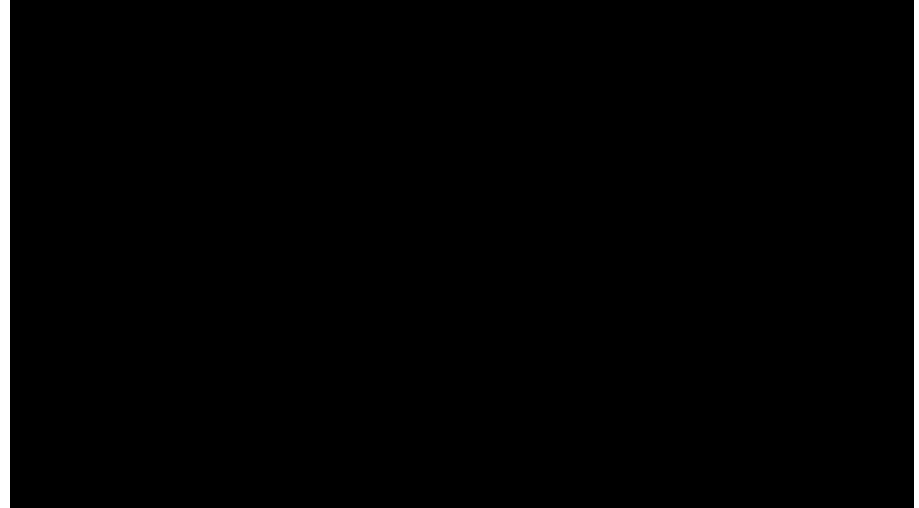
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Bill Coleman Presenting at HF

Bill Coleman, Chairman and CEO of Cassatt, Inc., and former CEO of BEA, made a presentation to the Highlands Forum on October 15, 2007, of his vision of the future of IT. He titled his talk "Into the Cloud: Dawn of the Information Age". This is a vision out to 2025 where "the ends are in control". As the CEO of a software company, Bill looks at this topic through a commercial, economic lens, not a technologist's viewpoint. Coleman paints on a large canvas how he believes technology will evolve over the next two to three decades, to form a cloud that will have relevance both for computing and communications as well as for usage and applications.





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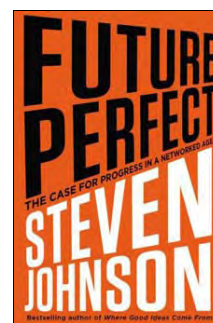
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Future Perfect: The Case For Progress In A Networked Age

By Steven Johnson

Steven Johnson is one of our most frequently reviewed authors on our annual reading list. Johnson has written a number of remarkable books, many linked thematically by their attention to the concept of "connectedness". His previously listed works here have included: *Emergence: The Connected Lives of Ants, Brains, Cities, and Software*, a fundamental work worth revisiting periodically; *The Ghost Map: The Story of London's Most Terrifying Epidemic—and How it Changed Science, Cities, and the Modern World* (a personal favorite of ours); and most recently *Where Good Ideas Come From: the Natural History of Innovation*, which was a foundational work in our research for last year's Highlands Forum on "Imagination, Creativity, and Innovation".

As in each of his earlier New York Times best-selling books, Johnson is a wonderful storyteller, using fascinating and often little-known episodes to weave a larger narrative and make a major point. Johnson begins here by exploring different organizational models, with particular attention paid to networks, noting that the distributed network is the most resilient of all. Johnson is less interested in technology, but follows a line laid out in related fashion by political scientist David Ronfeldt (see his video presentation on TIMN) and Australian political philosopher John Keane on "monitory democracy". Johnson lays out the difference between state-centralized solutions to problems and the more resilient, and perhaps capable, model of peer networks—"webs of human collaboration and exchange". Johnson believes, and is supported by David Rothkopf (see the review of his new book here, *Power, Inc.*), that "twenty-first century marketplaces are dominated by immense, hierarchically organized global corporations—the very antithesis of peer networks. The global marketplace that they have helped create is indeed a wonderful thing, but the power that has consolidated in the corner offices of those behemoths is not". Johnson, who calls himself a "peer progressive", tells us that being a peer progressive "is to believe that the key to continued progress lies in building peer networks in as many regions of modern life as possible: in education, health care, city neighborhoods, private corporations, and government agencies". Instead of relying on government for the solution to everything, "our first impulse should be to build a peer network to solve that problem". Johnson seems to regularly write about something that has or will transform the way that we see or live in the world. This is Johnson's first really "political" book, in which he describes how we change the world. He concludes that "This is a future worth looking forward to. Now is the time to invent it".





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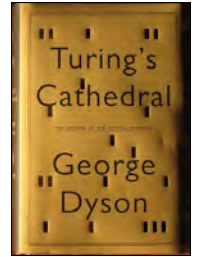
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Turing's Cathedral

By George Dyson

George Dyson, historian of technology and the author of *Darwin Among the Machines*, and *Project Orion*, has spent much of his life on this book, whether he realized it or not. His childhood was spent in the company of some of the greatest scientists of the twentieth century (including his father Freeman Dyson, Edward Teller, and Robert Oppenheimer); the first decade of this century was spent researching the files of other eminent pioneers, particularly John von Neumann. They and others, such as Hans Bethe, Benoit Mandelbrot (his memoir is reviewed on this year's list as well), and Alan Turing, are key players in the fascinating story that Dyson tells in *Turning's Cathedral: The Origins of the Digital Universe*. Dyson tells their personal and professional stories, bringing these little known people—many of whom were immigrants to America—to life in a larger-than-life history that changed the world. These are the people who built some of the earliest computers and the code that would become their DNA; these are the people who would tackle problems ranging from weather prediction to the building of nuclear weapons. Dyson continues to amaze us, and we recommend *Turing's Cathedral* to you as history, as "creation story" (not myth), and as appreciation of imagination, creativity, and innovation.







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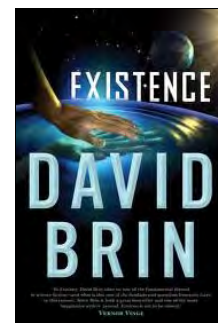
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Existence

By David Brin

In 1995, the late Barry Horton (then Principal Deputy Assistant Secretary of Defense) called a book to our attention as we prepared for our second Highlands Forum. It was a surprise to say the least—Arthur C. Clarke's *Childhood's End*. We had never read much science fiction, and the thought of both a novel and a science fiction novel at that, as a foundation for our Forum conversations was a bit jarring. As usual, Dr. Horton was correct. Over the years we have been fortunate to have Neal Stephenson, Greg Bear, Orson Scott Card, Bruce Sterling, William Gibson, Charlie Stross, David Brin and others join us in Forum sessions and interviews to add great insight and perspective to our conversations. Dr. Horton also called Brin's novel *The Postman* to our attention—a great story (and unfortunately a not very good movie, one in which Brin himself had no role), and that was the beginning of several appearances by David Brin at the Forum. Brin has given us another gift to enjoy this year, a new novel aptly titled *Existence*, a story that is sweeping on a grand scale. *The Los Angeles Times* suggests that this may be Brin's masterwork. The story is set in the not too distant future, and features (as one might guess from the title) a discovery of other life existence. There is a reverent thread, perhaps an homage to Clarke, with the discovery by a "space garbage collector" of an object waiting for "contact". *Existence* contains multiple story lines that will fascinate, infuriate, and resonate (particularly with reference to politics and the wealthiest few). Along the way Brin's wonderful imagination kicks in with curious technologies, adventures, and cautionary moments. In sum, this is classic Brin. Thanks to Barry Horton for setting us on this path eighteen years ago. It has enriched us all.





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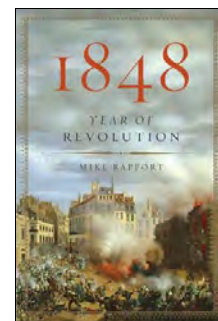
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1848: Year of Revolution

By Mike Rapport

Dramatic as they are, the impact of the Arab Spring revolutions is dwarfed by those of 1848 Europe, where governments fell in France, Austria, several Italian states, and across much of latter-day Poland, Hungary, Germany, Ukraine, Romania, Slovakia and the Czech Republic. Mike Rapport's excellent and timely book, *1848: Year of Revolution*, takes a panoramic view of the sprawling set of rebellions, suppressions and invasions that helped to create today's Europe, and offers insights into contemporary uprisings as well. Rapport implies that revolutionaries' level of success depended on whether they ultimately sought simple *political* change or combined political and *social* change. As psychologists have shown, people will take risks in the hope of gain but are several times less willing to risk losing what they already have. *1848* is a sweeping and complex narrative and as in any epic and heroic tale it requires attention to myriad actors, numerous monarchs, ministers, advisors, generals, reformers and revolutionaries. Moving from broad view to intricate detail is a feat in itself; but through it all, Rapport's conclusions are sharply drawn. He reminds us that: *"The events of 1848 gave millions of Europeans their first taste of politics: workers and peasants voted in elections and even stood for and entered parliament. The civil liberties that flourished all too briefly that year also provided Europeans with the free space in which they—including women—were politicised, through participation in political clubs and workers' organisations."*





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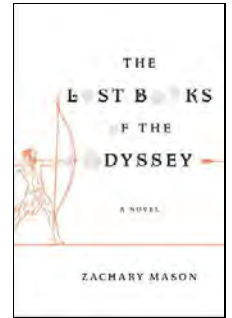
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Lost Books of the Odyssey

By Zachary Mason

Among the small and select group of novels that we have recommended over the years, most are award-winners which take an unusual look into the future; books such as *The Road*, *Cloud Atlas*, *Pattern Recognition*, *Halting State*, *Ender's Game*, and *Wasp* have delighted our readers. This year we feature four novels, but one of them, *The Lost Books of the Odyssey*, takes a decidedly unique look at the past. First time author Zachary Mason, a computer scientist and artificial intelligence expert by day, has gone back in time to reimagine the story of Odysseus and his journey home from Troy. The conceit of this engaging and thoughtful page-turner is that Homer's *Odyssey* was a collection of many stories previously told that became the canon—so here is a new group of the stories—the “lost books” of the *Odyssey*—that are being retold, sometimes with a twist. These stories, or chapters (or single pages) bring the exploits of Odysseus and the gods to life for the modern reader in most lively language. One of our favorite “lost books” is the chapter of “Agamemnon and the Word”, a surreal experience in which “Agamemnon wanted a fortress on the wide plain before the walls of Troy but there was nothing to build with but a few trees and an unlimited quantity of sand. Therefore (at Odysseus's suggestion) the Greeks dug the negative image of a palace in the white plain, a convoluted warren where cascades of fine grains trickled endlessly down the walls and into the tenuous corridors irregularly shored up with masonry”.





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Antifragile: Things That Gain from Disorder

By Nassim Taleb



Nassim Nicholas Taleb, investor, philosopher, and the widely cited author of the highly influential book, *The Black Swan* (a term that has since become part of the global lexicon), has a new book out just in time for review here. Taleb, who has presented his insights twice previously at the Highlands Forum ("Risk", and "Deterrence in a Networked World") delights in thinking about randomness, uncertainty, and risk. Here he takes these ideas and looks at systems, organizations, and lives, remarking on how complex or simple they are—all the better to understand his main idea, resilience or "antifragility". Taleb describes how systems, organizations, and lives can be seen in terms of their interactions with the forces of change and stress: they are fragile, robust, or antifragile. Fragile systems are most impacted under stress—they break. Robust systems (some argument is offered by critics on robustness or redundancy as to whether or not they actually do succeed or thrive in the face of challenge—whether robustness is actually possible or desirable), Taleb maintains, can successfully navigate this space. The key for Taleb is antifragility—resilience—or in popular parlance, "that which doesn't kill me makes me stronger". As interesting antecedents to *Antifragility*, he told us in 2008 about robustness and volatility, citing Saudi Arabia as a place where one event makes a big difference; and why he considered New York City to be robust because it always comes back after a crisis (NYC is battle tested and resilient). Nobel laureate Danny Kahneman, whose book *Thinking Fast and Slow* was reviewed here last year, said of Taleb and his ideas: "Nassim is gradually convincing me that the real world of his describing is very different from the world for which I have been prepared all of my life...I have come to the conclusion that he is right". We'll take that as a strong recommendation.





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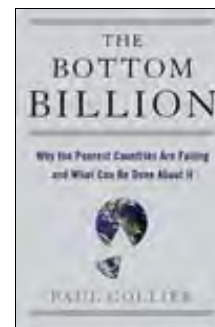
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The Bottom Billion

By Paul Collier

Economist Paul Collier, former director of research for the World Bank and now Director of the Center for the Study of African Economies at Oxford University, describes the conditions causing 50 developing states to fail—home to some one billion people—and what needs to be done to lift them out of this perpetual cycle of failure. In *The Bottom Billion* Collier starts with a not so surprising finding: "halve the starting income of the country and you double the risk of civil war". But he adds deep research on these fifty states unable to break out of extraordinary poverty and adds the factors of slow growth and dependence on primary commodities. Collier, like J. F. Rischard in his book *High Noon: 20 Global Problems, 20 Years to Solve Them*, points to solutions that go beyond single governments and single point approaches—these are challenges that go well past any single nation's capacity to resolve them and require huge commitments from governments/militaries and public and private institutions. Collier examines aid policies in detail and begs to differ with Jeffrey Sachs, whose passion he applauds in his book *The End of Poverty*, by asserting that aid alone is not going to solve the problem, again asserting that a range of policies and instruments are necessary. In this worthy addition to the work of C. K. Prahalad (*The Fortune at the Bottom of the Pyramid*), Collier calls for a whole of government approach supported by international groups such as the G-8 at both postconflict and "deep prevention" points, that includes preferential trade policies, laws against corruption, new international charters, and carefully calibrated military interventions. In Highlands sessions of the past five years we have featured the ideas of Ashraf Ghani, Clare Lockhart, Sultan Barakat, C.K. Prahalad, Chip Hauss, Eric Rasmussen, Amory Lovins and Dan Esty as we addressed transition from conflict to reconstruction. Collier adds significantly to this body of thinking. We should be listening.





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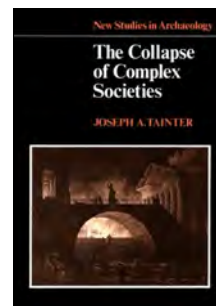
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The Collapse of Complex Societies

By Joseph Tainter

Clay Shirky wrote, in his recent essay *The Collapse of Complex Business Models*: "In 1988, Joseph Tainter wrote a chilling book called *The Collapse of Complex Societies*. Tainter looked at several societies that gradually arrived at a level of remarkable sophistication then suddenly collapsed: the Romans, the Lowlands Maya, the inhabitants of Chaco canyon. Every one of those groups had rich traditions, complex social structures, advanced technology, but despite their sophistication, they collapsed, impoverishing and scattering their citizens and leaving little but future archeological sites as evidence of previous greatness. Tainter asked himself whether there was some explanation common to these sudden dissolutions. The answer he arrived at was that they hadn't collapsed despite their cultural sophistication, they **did** collapsed because of it.





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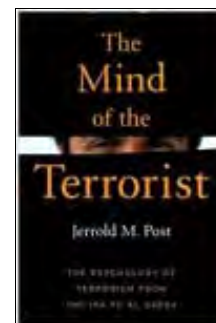
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The Mind of the Terrorist

By Jerrold Post, MD

Dr. Jerry Post, a psychiatrist with twenty years at the CIA creating leadership profiles and now Professor of Political Psychology and International Affairs at George Washington University, has been a regular presenter at the Highlands Forum since its beginning in 1995. Over the years he has supported the Forum with research on the "insider problem" in organizations, a look at the disgruntled information technology insider who holds the keys to the organization in his hands; on the culture of risk in a distributed networked environment; and on the motivations of terrorists. Now comes his latest book, *The Mind of the Terrorist: The Psychology of Terrorism from the IRA to al-Qaeda*. Post has told us in past discussions: "it is not going too far to assert that terrorists are psychologically "normal" in the sense of not being clinically psychotic. They are neither depressed nor severely emotionally disturbed, nor are they crazed fanatics. In fact, terrorist groups and organizations screen out emotionally unstable individuals who represent, after all, a security risk. There is a multiplicity of individual motivations. For some, it is to give a sense of power to the powerless; for others, revenge is a primary motivation; for still others, to gain a sense of significance. Rather than individual psychology, then, what emerges as the most powerful lens through which to understand terrorist behavior is that of group, organizational, and social psychology, with a particular emphasis on collective identity". In *The Mind of the Terrorist* Post traces individual groups and movements to explore the individual and the collective and he ends with a view of the changing face of terrorism. His conclusion is disturbing in that he finds them to be "normal", and Post tracks these cases to help identify how and why these people go on to become purveyors of terror. Better yet, Post lays out a number of recommendations on ways to cut the supply of those willing to kill and/or die, and soft power plays a large role. This is a valuable companion to Mark Jurgensmeyer's *Terror in the Mind of God* for those who wish to know more about "who and why".





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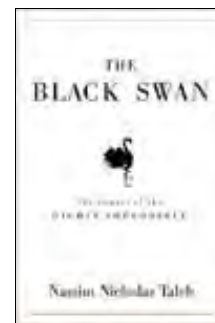
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The Black Swan

By Nassim Nicholas Taleb

In 2003 Nassim Nicholas Taleb made a fascinating presentation to the Highlands Forum in our meeting on Risk in a Networked Environment. His best selling book at the time, *Foiled by Randomness*, was the stepping off point for his talk at the Bellagio Hotel, a talk he cheekily titled "Gambling With the Wrong Dice". Taleb told us: "When we don't know how much we don't know, no mathematics will ever yield a meaningful answer. Power laws and the law of large numbers don't work when we have fat tails. Alternatively, but no less viciously, the tail may settle, but too slowly to run the law of large numbers. We refer to this as the 'fourth moment' i.e., the variance of the variance which is how much we don't know what we don't know. I have been studying this since 1987, and I don't believe that anyone knows anything about the incidence of rare events. Nothing works". He referred to Black Swan events, highly improbable occurrences that are unpredictable, carry a massive impact, and in hindsight we rationalize an explanation that makes it appear less random than it was. In that same Highlands session he presciently spoke of the danger of networked and tightly couple financial systems: "The idea of using networks is dangerous in finance. Networks have the ability to explode they are scale-free, meaning that there is no upper limit on how much can be centered on one node, and the probabilities of hitting that node go up dramatically. This causes clustering. So the whole system can go down at once, together. Several years ago, once piece could have gone down and the others would have been unaffected. LTCM went down in 1998 and brought down several other hedge funds with it. But that was easy to address. The Federal Government intervened to make sure it didn't happen again, that there weren't more funds out there like LTCM. The problem in the financial world is that you are dealing with aggregates. In finance, things are much more interrelated than they would be elsewhere. If Citibank is bankrupt, other banks don't collect money. If Google goes down, on the other hand, we can go around it. The contagion effects of networks are a critical issue everyone ends up doing the same thing because of information cascades. This is a real problem". Now follows Taleb's best work, his new book titled *The Black Swan: The Impact of the Highly Improbable*, which aggregates with examples his thinking on this topic to date. Taleb writes clearly that the bell curve does not explain the events we have to deal with, but rather the power law (further explicated by Highlands presenters Clay Shirky's forthcoming book is *Here Comes Everybody: The Power Of Organizing Without Organizations* and Chris Anderson, author of *The Long Tail*) is where we need to search. His message for investors and for DoD alike is to "Look for ways to foster serendipitous developments while preparing broadly for disaster". Highly recommended.



AFFIDAVIT OF [REDACTED]

4. **RE: INTERACTIONS WITH:**

- a. **Andrew W. Marshall**, director, Office of Net Assessment, The Highlands Group, sponsor of The Highlands Forums
 - b. **James P. Chandler, III**, executive principal, Office of Net Assessment, The Highlands Group
 - c. **Richard P. O'Neill**, president, The Highlands Group, sponsor of The Highlands Forums
 - d. **Anthony J. Tether**, director, Defense Advanced Research Projects Agency (DARPA), The Highlands Group executive principal
5. From 1981-2005, I was a participant in numerous meetings of a group that called itself “The Highlands Group” that sponsored “The Highlands Forums” which was sponsored by the U.S. Department of Defense Office of Net Assessment and The Defense Advanced Research Projects Agency (DARPA).¹
6. These meetings in which I was in attendance were overseen by one or more of the following people: James P. Chandler, III (“**Chandler**”), Andrew W. Marshall (“**Marshall**”) Richard P. O’Neill (“**O'Neill**”) and Anthony J. Tether (“**Tether**”).
7. The Senior Executive Service (SES) and the Senior Executives Association directed and funded Marshall (1978-d. Mar. 26, 2019) and continue to direct Tether (2001-current) according to the Plum Book.²

¹ About. (Accessed Apr. 16, 2019). Highlands Group Overview. The Highlands Group. The WayBack Machine.

<https://web.archive.org/web/20180226185459/http://www.highlandsgroup.net:80/about.php?ID=1>

² About the Plum Book. (Accessed Apr. 16, 2019). United States Government Policy and Supporting Positions (Plum Book). Government Printing Office.

<https://www.govinfo.gov/collection/plum-book>

AFFIDAVIT OF [REDACTED]

8. The purpose of The Highlands Group (“**Highlands**”) was very evidently intended by the Office of Net Assessment to gather government agencies and selected nongovernment contractors and financiers to make recommendations on promising innovations over which the government could apply its financial and contracting muscle to weaponize. In short, Highlands made the recommendations on war fighting systems winners and losers.³
9. In this noncompetitive environment, patents, copyrights and other forms of intellectual property were mere speed bumps to Highlands’ public-private members. Their confiscations of private property are, in my opinion, in flagrant violation of the Fifth Amendment Takings Clause, among others. In fact, the very existence of Highlands was/is noncompetitive and worked more like a fascist system where government insiders picked winners and losers based on political alignment, rather than capability.
10. It is my belief that many of the Highlands’ private corporate participants were eagerly carrying forward the tradition of intellectual property confiscation by the U.S. government that was instituted by President Franklin D. Roosevelt, and which fueled America’s post-World War II economy—much to the benefit of the beneficiary robber barons and to the impoverishment of inventors worldwide. While American industry gave lip service to respecting the property rights of *American* inventors, my observation is that they treated American inventors with equal disdain.
11. It is my belief that Highlands participants starting in 1942 have been the beneficiaries of “over 50,000 [seized] patents” that “cover inventions in every field of applied science and representing millions of man-hours of

³ Op. cit.

AFFIDAVIT OF [REDACTED]

research and the expenditure of many millions of dollars. These inventions represent some of the finest research achievements of modern science, particularly in the production of dyestuffs, plastics, pharmaceuticals, and electrical goods.” These patents were “owned and controlled by enemy nationals, or in certain cases, by non-enemy foreign nationals.” They were seized by the President under the First War Powers Act of December 1941 that resulted in Executive Orders No. 9095 (March 11, 1942), as amended by No. 9193 (July, 6, 1942). These executive orders created the Office of Alien Property Custodian as a part of the Office of Emergency Management of the Executive Office of the President. “Such property includes business enterprises of all kinds and sizes, real property, trusts, estates, ships, patents, copyrights, trademarks, and certain miscellaneous property” (but curiously, not “cash, bank deposits, and securities”). The U.S. Patent Office assisted the Office of Alien Property Custodian in the reclassification of these seized patents before they were *given* to American business applicants.⁴

12. In December 1982, I was introduced to Richard P. O’Neill (he prefers as Dick O’Neill) at an Office of Net Assessment / Highlands Group after-meeting in the lounge area of the hotel where most of us were staying during the initial congressional testimonies where [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

⁴ Leo T. Crowley, Alien Property Custodian. (Dec. 7, 1942). Patents At Work, A Statement of Policy by the Alien Property Custodian of the United States, No. 3999066566405, No. JX5313.U6A5 1943. Office of Alien Property Custodian.

AFFIDAVIT OF [REDACTED]

13. O'Neill's interest in [REDACTED] was primarily what the three survivors [REDACTED] did to survive the incident. [REDACTED]
[REDACTED]
[REDACTED] I thought his question was crass at the time. I left the gathering shortly after this distasteful exchange.
14. Chandler was also at this [REDACTED] gathering. I do not recall whether or not Chandler had attended [REDACTED] but presumably he did. I was not introduced to Chandler, although one cannot help but remember his dark complexion, crooked teeth and stoic, emotionless face. Marshall attended [REDACTED] but he did not attend the gathering afterwards.
15. In 1984, while working on the Shuttle program at Vandenberg AFB, the team [REDACTED] at Rockwell International Space and Missile Division / [REDACTED] identified an issue with the Sensor monitoring screens in which during the monitoring cycle (every 2 minutes the screen would transition to the next screen)(there were 16 screens in all). The issue was that it would take a total of 32 minutes for the initial cycle to complete and start over leaving the status of a particular screen unknown for up to 32 minutes.
16. [REDACTED] developed a short-term fix [REDACTED] to the software so that a ribbon menu was placed at the bottom of the screen that would flash if something was identified on a screen that had already cycled past the status viewer, and allowed human intervention to select the flashing menu ribbon identifier which would bring that monitoring screen up immediately.
17. [REDACTED] identified a long term fix that would automatically bring up the status screen if an issue was identified without the need for human

AFFIDAVIT OF [REDACTED]

intervention. As was the requirement at the time, all safety hazard analysis reports had to be provided to the Cape Canaveral Safety Department for approval to implement. It was rejected by this organization stating that they did not feel it was critical to the operation.

18. When the Space Shuttle Challenger blew up on January 28, 1986, [REDACTED] called back to Washington, D.C. to testify about [REDACTED] findings at Vandenberg, and present the details of [REDACTED] suggested fix to the issue, as well as the response by the Review Board from Cape Canaveral. During this testimony, all three of the Office of Net Assessment/Highlands Group principals attended [REDACTED] namely Marshall, O'Neill and Chandler. Chandler took copious notes.

19. In October 1991, the Office of Net Assessment / Highlands Group held a meeting [REDACTED] in a nondescript building in the Washington, D.C. suburbs also attended by Chandler, Marshall and O'Neill. The meeting participants included approximately 45 people representing an array of public and private sector entities and individuals.

20. [REDACTED] in a "black" project by Rockwell [REDACTED] [REDACTED] at the time as their [REDACTED] Engineer ([REDACTED]).⁵ I continue to be constrained by a nondisclosure agreement from discussing the details of this project outside of appropriate clearances.

21. The stated purpose for the meeting was to discuss Rockwell's contributions to the project ("Black"). [REDACTED] represent Black at this meeting and had to obtain a special clearance. We presumed that all the attendees would be similarly cleared to discuss this project.

⁵ A black project is a term used for a highly classified military or defense project publicly unacknowledged by government, military personnel, and contractors.

AFFIDAVIT OF [REDACTED]

22. O'Neill welcomed the 45 participants then totally switched the agenda away from discussing Black—the bait that motivated this large group to travel to Washington, D.C. for the meeting. O'Neill changed the agenda to surveying the participants on their views of the security impacts of using third-party software packages (commercial off-the-shelf software—COTS) on classified programs.
23. O'Neill introduced Chandler who then facilitated the meeting the rest of the day. Marshall was silent the whole day. O'Neill was also silent after introducing Chandler.
24. The participants were equally shocked, miffed and bewildered by this bait and switch agenda.
25. All day long, Chandler elicited comments and opinions from the participants who mostly responded with questions and requests for more context. Some even outright said there was no reason to use third-party software since the software and security needs of the U.S. government were already well in hand.
26. Chandler exploded into a tirade following the participant questions and push back. He lambasted the entire gathering with profanity laced epithets about their ignorance and lack of understanding about what was going on at his strategic level. Remarkably, Chandler pulled rank on the participants, some high ranking military officers, without briefing them.
27. Remarkably, following the short lunch break, only 23 of the 45 contractors (51%) returned for Chandler's afternoon session. Half of the invited participants left without notice. The afternoon session with the other half who stayed was filled mostly with arguments about the pros and cons of COTS software. Frankly, COTS was a well-publicized wider conversation in

AFFIDAVIT OF [REDACTED]

the industry across the board. It was not an issue unique to classified projects. For those with whom I spoke during the day, we agreed that if Chandler's purpose was evidently to cause rifts and political disruptions among some of the U.S. government's largest defense contractors., he achieved his goal. The meeting did not arrive at any solutions, and there was *no* discussion of Black.

28. I have never before or since attended such an odd government meeting as Black. It was memorable. Hindsight shows that the Department of Defense Office of Net Assessment (Andrew W. Marshall), the Highlands Group (Richard P. O'Neill), James P. Chandler, III (evidently directing both organizations) were intent on moving classified government systems away from internal to selected Highlands private sector participants. This Black meeting was evidently designed to give them enough to make their arguments plausible. There was no other reason to have this meeting, in my opinion.

29. In March 2003, my company, [REDACTED]
[REDACTED]
[REDACTED] was appointed the sole prime contractor for DARPA's
[REDACTED]
[REDACTED] was intended to develop a new [REDACTED] system that would provide the U.S. military with the ability to launch [REDACTED]
[REDACTED] within hours of detection of [REDACTED]

30. In [REDACTED] 2004, I participated with Marshall in a requirements meeting with the DARPA program manager (Tether's predecessor in this project). Marshall never said a word the entire day, and left without as much as a thank you. On the other hand, the DARPA Program Manager gave us a ration of verbal

AFFIDAVIT OF [REDACTED]

abuse about [REDACTED]
[REDACTED]

31. In [REDACTED] 2004, [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

32. Nonetheless, three months later, in [REDACTED], we [REDACTED] completed the second phase [REDACTED]. This phase successfully bench tested the [REDACTED] relied upon *previously patented* [REDACTED] *technology* to create a module for [REDACTED] [REDACTED] which was goal of Phase 2. See U.S. Patent No. [REDACTED]⁶

33. In [REDACTED] as we were beginning our PDR, we were informed that the DARPA Program Manager on our project had been removed and that Tether, the director of DARPA himself, would be acting as the Program Manager for our PDR.

34. After a full day presenting our designs and test results for the head-end module (that incorporated our previously patented innovations), Tether, with his head full of our fresh information, summarily canceled the program effective immediately. We were given one (1) month to provide all work product paid for by DARPA. Note that this work product *did not include* the [REDACTED] [REDACTED] since [REDACTED] owned the patents and the design.

⁶ [REDACTED]
[REDACTED]
[REDACTED] U.S. Patent Office.

AFFIDAVIT OF [REDACTED]

35. As a result of this DARPA project cancellation, [REDACTED] laid off its employees and ceased operations by [REDACTED]. I took a new position at SAIC in [REDACTED].

36. For the record, certain misinformation about this project injects fabrications

[REDACTED]

[REDACTED]

[REDACTED] That information is materially incorrect.

37. However, six months after [REDACTED] stopped operations, Northrup-Grumman announced that they had been awarded a new program. Tellingly, the DARPA Program Manager who had been fired [REDACTED] was now *employed* by Northrup-Grumman on this new award. Tether had included all the [REDACTED] proprietary [REDACTED] inventions in the Northrup-Grumman specification. In short, in my opinion these actions by DARPA misappropriated [REDACTED] proprietary patent properties.

38. In [REDACTED] 2004 and [REDACTED] 2005, I again participated in meetings with Chandler and O'Neill at Office of Net Assessment / Highlands Group meetings associated with the transitioning from Internet Protocol version 4 ((IPv4)-Digital) to IPv6 (Hexadecimal) in conjunction with the Future Combat System program. Again they were interested in what security concerns there were between the two protocols, as well as the length of time to implement the migration efforts.

39. I became aware of substantial conflicts of interest between DARPA and Army personnel with regard to IPv6 implementation. Once DARPA realized that I had inadvertently become aware of these conflicts, I was summarily escorted out of the Boeing facility where I had learned about the conflicts and was transferred immediately to another SAIC program (Space and [REDACTED]).

AFFIDAVIT OF [REDACTED]

[REDACTED]. My new assignment had no visibility into the [REDACTED] program. It was evident that the Army and DARPA strategies were not aligned, and that DARPA (Chandler, O'Neill, Marshall, Tether) was in control of [REDACTED], and not the Army. I found this odd since the *raison d'être* of the entire DARPA program was Future [REDACTED] Systems for the Army. The Army's supposed need appears to me in hindsight to have been a ruse for another agenda.

FURTHER AFFIANT SAYETH NAUGHT

[REDACTED]

SWORN AND SUBSCRIBED before me, a Notary Public, this
____ day of _____, 2019.

Exhibit A [REDACTED] Curriculum Vitae.

AFFIDAVIT OF 

Exhibit A

[REDACTED]

[REDACTED]

[REDACTED]

Curriculum Vitae

SUMMARY

Extensive experience that includes large scale integration for net-centric operational systems, DODAF system architecture development including information assurance, SIGINT, architectures for ground and mobile assets. sub/supersonic missiles, space, Global Positioning Satellite (GPS) systems, aeronautical, aircraft, helicopters, RF/ECM/ECCM systems, power (aircraft/helicopter) and camera security systems, launch operations, analysis, and hardware to software integration. Leadership utilizing effective integrated project-teaming concepts, cross-functional matrixed program management, kaizen manufacturing, six sigma and engineering best practices; Experience includes hands-on, program management, supervisory, project leadership and group management with contract/sub-contract management with funding of \$167M combined.

EDUCATION

[REDACTED] [REDACTED]
[REDACTED] [REDACTED] University, [REDACTED]

EXPERIENCE

09/2016 – [REDACTED] [REDACTED]
Principle Systems Engineer – Systems engineering support to the [REDACTED] Directorate at the Space [REDACTED] AFB.

07/2015 – [REDACTED] [REDACTED]
[REDACTED]
Chief Systems Engineer – Systems engineering support for private aircraft and helicopter battery, camera and security system programs.

04/2015 – [REDACTED] [REDACTED]
[REDACTED]
[REDACTED] support for private aircraft and helicopter battery and security system programs

05/20 [REDACTED] – [REDACTED] **LEIDOS (FORMERLY SAIC), [REDACTED]**
Chief Systems Engineer – Systems engineering support to the national [REDACTED]

- 01/2011 – [REDACTED] **Chief Systems Engineer** – [REDACTED]
- Demonstration Systems Engineering and Integration (SE&I) - [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
- 11/2004 – [REDACTED] [REDACTED]
[REDACTED]
- 05/2008 – [REDACTED] **Chief Systems Engineer** – [REDACTED]
[REDACTED]
- Conventional [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
- Accomplishments include:*
Primary technical interface to the customer as Chief Engineering for [REDACTED]
[REDACTED] Performs all system technical readiness assessments (TRA) and development of program documentation and planning; Provides direction for systems integration and safety risk assessments [REDACTED]
[REDACTED] Supports program office as contractor intermediary for system design, integration activities, and program status reporting for all aspects of the demonstration phase activities; Program office start-up activities and operations; Supports Customer with information and data inputs for manning levels and performance to budget/contract.
- 12/2005 – [REDACTED] **Principal Software Systems Engineer / [REDACTED] Program**
Assigned to [REDACTED]
[REDACTED] of System Engineering Technical Advisory (SETA) support as primary software ([REDACTED]), network integration ([REDACTED]), and test engineering ([REDACTED]) supporting increment 1 programmatic and technical expertise. Supporting [REDACTED] increment 2 initial engineering planning meetings, provided insight into the [REDACTED] application in support of [REDACTED] operational scenarios.
- Accomplishments include:*
Orchestrated integration for [REDACTED] operational systems, [REDACTED] transition planning/implementation assessments and training, network architecture development, [REDACTED] system architecture development including requirements flow-down for system security assurance requirements for the [REDACTED]

program offices; Provided direction for [REDACTED] and [REDACTED] compliancy and supporting IG inspection criteria inputs; Performed as program office contractor intermediary for System Design Documentation and Design development activities and program status reporting for software development/test activities; Coordinated and chaired the [REDACTED] Network Support Working Group to establish network architecture configuration requirements and discuss information assurance configuration requirements and issues with the transition to the mandatory Active Directory and Standard Desktop Configurations.

04/2005 – [REDACTED] **Senior Project Manager /**
[REDACTED]

Assigned to Future [REDACTED] Systems [REDACTED] program as [REDACTED] Co-Lead of the [REDACTED] Architecture Working Group, identifying and quantifying video architecture for the [REDACTED] Command and [REDACTED] environments which include the following areas: Per Platform requirements and documentation impacts; [REDACTED] Analysis and [REDACTED] Studies; Software implementation impacts; Compression/Decompression impacts and trade analysis and [REDACTED]

11/2004 – [REDACTED] **Senior Project Manager /** [REDACTED]

Assigned to Future [REDACTED] Systems [REDACTED] program as [REDACTED] Internet [REDACTED] focal point in support of [REDACTED] effort; Identifying and quantifying impact of [REDACTED] [REDACTED] for the following areas to include Systems Requirements and documentation impacts, [REDACTED] and [REDACTED] impacts, and Software implementation impacts

03/2004 – [REDACTED] [REDACTED]

06/2004 – [REDACTED] **System Engineering, Integration and Test [REDACTED]**
[REDACTED] **Advanced Design [REDACTED] Lead** - System Engineering, Integration and Test Department Manager responsible for Advance Program Design phase of the Defense Advanced Research Projects Agency (DARPA) [REDACTED] program.

Accomplishments include:

Directed Systems Engineering Integration and Test [REDACTED] department and advance design [REDACTED] lead for [REDACTED] guidance and payload deployment system. Developed and implemented engineering Six Sigma and [REDACTED] processes and procedures throughout the [REDACTED] for capturing requirements and specifications. Developed and validated system interface and management,

system design analysis, technical risk management, and system trade studies. Worked with executive management as well as engineering staff, contractors, and customer representatives to ensure that requirements were flowed down and documented. Systematically evolved the [REDACTED] Preliminary Design Review (PDR) level. Established the Systems Safety/Reliability engineering processes and analysis procedures to establish baseline assessments. Performed project and risk management assessments, identifying and establishing metrics tracking toolset; development of design implementation schedules, and performed project monitoring through tracking and reporting to earned value measurement system [REDACTED] criteria; monitored configuration management statistics; Specification development, review and publication throughout Advanced Design phase. Performed Systems integration and [REDACTED] integration assessment for preliminary failure mode and evaluation analysis [REDACTED] and programmatic risk identification. Implementing Six Sigma and Integrated Product Development Systems Management Process and Procedures throughout the Advanced Design Phase to ensure customer satisfaction; Successfully implemented Integrated Product Team leadership resulting in an 85% increase in productivity; Established baseline assessments in Systems Safety/Reliability engineering and provided analysis coordination with design engineering teams; Implemented Project and risk management processes, schedule development and adherence criteria, project monitoring through tracking and reporting to Earned Value criteria, configuration management, documentation development, review and production, Specification development and release in first week of assignment.

11/99 - [REDACTED]

RAYTHEON [REDACTED]**Senior Principle Engineer /**
[REDACTED]

Responsible for [REDACTED] leadership and mentoring of multi-discipline engineers and program support personnel in support of multiple contract sub component awards spanning over four major contracts in excess of \$15M each. Also, project and risk management, schedule development and adherence, project monitoring through tracking and reporting to Earned Value criteria, configuration management, procurement, documentation review and production, prime item identification and descriptions, global and detailed acceptance test plans, flight test plans and technical procedures. Missile Lead for guidance test vehicle, At [REDACTED] builds and test activities. Provide mentor leadership for junior engineers. Launch crewmember for [REDACTED] team at [REDACTED] Field Operations and Integration IPT Lead for [REDACTED] program; [REDACTED] Audit IPT Co-Lead for technical project coordination with customer, responsible for the technical demonstrative population of the

Functional Configuration Audit Matrix for the [REDACTED] Test program.

06/99 – [REDACTED]

Software Engineer / Lead Software Quality Assurance

Software Engineer - Responsibilities included but not limited to development of GUI software user interfaces, query based user interfaces using SQL queries, installation development using Install Shield products, report generation using Crystal Reports 6/7 and ActiveX controls for manufacturing management software products

01/92 – [REDACTED]

CONSULTING

Founder / Chief Technology Consultant (CTC) (Concurrent)

NOTE: Operated consulting company on a non-interference basis concurrently with other jobs listed here.

- Performed evaluations, technical analysis, maintenance, troubleshooting computerized systems builds, and software installations for small businesses and medical offices.
- Developed recovery plans and maintenance schedules, analysis, and anomaly tracking databases, software applications for secured medical digital records database with reporting systems, time accounting, inventory control and expense reporting.
- Provided direct and computerized training of software applications, Health Insurance Portability and Accountability Act of 1996 (HIPAA) compliance requirements for medical offices, and help desk support to clients.
- Provide Management Information System (MIS) services in support of physicians, medical staff, Individuals, Small Business Owners and their employees.
- Performed network architecture analysis with layout planning, implemented software utilization on personal and mini-mainframe computer systems and peripherals at various customer locations.
- Provided Cyber-security support and post-event forensic assessments and reporting.

01/92 – [REDACTED]

EATON [REDACTED]

Division Financial Manager / Senior [REDACTED] Analyst / Systems Engineer

Integrated Management Interface Software (IMIS) network Interface team member performing pre-planning and hierarchy structuring layout, and Technical advisor in the purchasing of computer equipment, telephonic support

and data transmission links, development tools and OTC software; Responsible for the design, development and implementation of various Data Reduction and Management tools using DOS and Windows based spreadsheets and relational database programs. Prepare and present Executive Management Financial Reviews. Prepared technical inputs and assessed pricing for proposals in association with the B-1B Bomber Flight Test and Follow-on Support contracts.

09/91 – [REDACTED]

ROCKWELL [REDACTED]**Lead Software / Systems Integration Engineer** [REDACTED]

Black Program

10/85 – [REDACTED]

EATON [REDACTED]**Financial Manager / Senior Systems & Flight** [REDACTED]

Prepared [REDACTED] documentation, Test Plans and Procedures, ground test schedules, [REDACTED] schedules, and briefings. Performed systems [REDACTED] tests involving simulation testing in a laboratory, ground pre-[REDACTED] validation testing and post-flight data reduction processing. Performed Data Analysis to evaluate and validate system function during various flight test scenarios. Project Engineer on Technical Information Meetings [REDACTED] Preliminary and Critical Design Reviews [REDACTED] chaired and coordinated Management Review Boards [REDACTED] in support of the B-1B Bomber Production and Flight Test Programs.

04/84 – [REDACTED]

MARTIN MARIETTA [REDACTED]**Instrumentation Flight Systems** [REDACTED] **Engineer**

Developed implemented and maintained Automated Test procedures, Test Plans, and support documentation during the Development, Test and Evaluation (DT&E), and Operational, Test and Evaluation (OT&E) phases of the Peacekeeper (MX) missile Program; Developed and maintained [REDACTED] [REDACTED] procedures throughout the [REDACTED] [REDACTED] cycles. Performed Flight Test Data Analysis on flight telemetry data for evaluation and reporting on systems proficiency and performance. Implemented systems integration and communications test validations through data reduction and analysis processes at various remote site locations. As [REDACTED] Engineer, planned, developed, and performed validation and integration testing utilizing manual and automated test procedures for missile component testing and build activities. Responsible for customer and associate contractor interfaces and chairing of team-member review meetings. Supported launch operations for the [REDACTED] satellite deployment.

11/83 – [REDACTED]

GENERAL DYNAMICS [REDACTED]**Vehicle Integrator / Test Conductor / [REDACTED] Engineer**

Assisted in preparation of [REDACTED] for test; developed test procedures for [REDACTED] checkout and [REDACTED] activity on [REDACTED]. As Lead [REDACTED] Conductor, successfully implemented and completed the [REDACTED] validation during on-site integration activities at [REDACTED]
[REDACTED]

04/83 – [REDACTED]

ROCKWELL [REDACTED]**Division Manager, Software Safety [REDACTED] Department**

Manager [REDACTED] Engineering Department - Developed and performed Systems Interface and Integration hazard analysis evaluations of software driven and hardware systems. [REDACTED] in the execution of systems probability research and analysis for all systems interfaces to identify hazardous conditions as a result of test, simulation, and operational activities throughout the different facilities and on-board Shuttle environments. Developed and executed departmental definition requirements, process structuring, staffing requirements, training, and management protocols. Implemented the utilization of [REDACTED] analysis, developed all supporting documentation and reports with [REDACTED] recommendations. Developed all Departmental Standard [REDACTED] Procedures for the [REDACTED] Software [REDACTED] Engineering. Also supported Cape Canaveral shuttle operations for [REDACTED] deployment and [REDACTED] operations

10/81 – [REDACTED]

MARTIN MARIETTA [REDACTED]**Systems Integration / [REDACTED] Engineer**

[REDACTED] Engineer- Developed, implemented, performed validation and integration testing of [REDACTED] procedures at various field site locations during the [REDACTED] phase of the [REDACTED] Program. Coordinated engineering interface activities with customer and associate contractor representatives

02/77 – [REDACTED]

UNITED STATES AIR FORCE**Aerospace Ground Equipment [REDACTED] / [REDACTED] Crew Chief [REDACTED]**

Computer Proficiencies

<i>Operating Systems:</i>	<i>Applications:</i>	<i>Languages:</i>	<i>Architectures/Protocols:</i>
Windows 2000, XP, NT, Vista, and 7-10	Microsoft's Office, Project, Access, and Visio	Visual Studio Suite, with C++ and Java	[REDACTED] planning/implementation
MAC OS 10.X	Lotus Notes	SQL	[REDACTED]
DOS	Crystal Reports	.NET Visual Studio	Network planning [REDACTED]

ADDENDUM

Professional Society Affiliations

- [REDACTED] to 2013 - Member, Institute of Electrical and Electronics Engineers (IEEE), Tri Counties, CA; Memberships within IEEE, includes [REDACTED]
- [REDACTED] to 2010 - Affiliate Member, Society of [REDACTED] CA; Membership through SAIC
- [REDACTED] to Current - Member, National Association of [REDACTED]

Additional Training

- ILEAD: Performance Management, Science applications International Corporation (SAIC), [REDACTED] - [REDACTED]
- ILEAD: SAIC Culture Module, Science applications International Corporation (SAIC), [REDACTED] - [REDACTED]
- Leading Technical Professionals, [REDACTED] - [REDACTED] (Company sponsored Management training)

Training Certificates

- SEI Introduction to the CMMI, Software Engineering Institute (SEI), [REDACTED] - Certification in [REDACTED]
- CompTIA Security+ Certification, CompTIA, [REDACTED] A - Certification in [REDACTED]
- CompTIA INet+ Certification, CompTIA, [REDACTED] - Certification in [REDACTED]
- Certified Six Sigma Specialist (Green Belt), Raytheon Company, [REDACTED] - Certification in [REDACTED]
- Phase 1 Certification for the Certified Program Management Program (CPMP) - Certification in [REDACTED]

Honors

- [REDACTED] Recipient SAIC Team Achievement Recognition Award, Science Applications International Corporation (SAIC), El Segundo, CA; Team Achievement Recognition Award as part of the CSM Demonstration SE&I Team
- [REDACTED] Nominee SAIC Individual Achievement Recognition Award, Science Applications International Corporation (SAIC), El Segundo, CA; Individual Achievement Recognition Award as Chief Systems Engineer on CSM Demo SE&I Team
- [REDACTED] Nominee US Air Force SMC/XRF Individual Achievement Recognition, as Chief Systems Engineer on CSM Demo SE&I Team
- [REDACTED] Nominee SAIC Individual Achievement Recognition Award, Science Applications International Corporation (SAIC), Torrance, CA; Individual Achievement Recognition Award as Chief Systems Engineer on CSM Demo SE&I Team
- [REDACTED] Nominee SAIC Individual Achievement Recognition Award, Science Applications International Corporation (SAIC), Torrance, CA; Individual Achievement Recognition Award for contributions to the CSM SE&I program start up
- [REDACTED] Nominee SAIC Team Award, Science Applications International Corporation (SAIC), Torrance, CA; Team Award as part of RAIDRS Engineering Support Team
- [REDACTED] Nominee Raytheon Engineering Honors, Raytheon Company - Missile Systems, [REDACTED] Based on a company-wide Systems Engineering labor force.
- [REDACTED] Recipient of Raytheon Engineering Honors, Raytheon Company - Missile Systems, [REDACTED] Based on a company-wide Systems Engineering labor force.
- Listed in the [REDACTED] edition ([REDACTED]) of [REDACTED]
[REDACTED]
- Listed in [REDACTED] Edition ([REDACTED]) of [REDACTED]
[REDACTED]
- Listed in the [REDACTED] edition ([REDACTED]) of [REDACTED]
[REDACTED]