



WINTER 2009

Bulletin

VOL. LXII, NO. 2



Page 35

Challenges to Public Universities

Robert J. Birgeneau, Mark G. Yudof, and Christopher F. Edley, Jr.



Page 44

Judicial Independence

Sandra Day O'Connor, Linda Greenhouse, Judith Resnik, Bert Brandenburg, and Viet D. Dinh



Page 59

The Invisible Constitution and the Rule of Law

Diane P. Wood, Laurence H. Tribe, Frank H. Easterbrook, and Geoffrey R. Stone



Page 77

A World Free of Nuclear Weapons

Sidney D. Drell, William J. Perry, Sam Nunn, and George P. Shultz

INSIDE:

Academy Inducts 228th Class of Members, Page 1

Humanities Indicators Prototype Launched, Page 3

The Nuclear Future by Richard A. Meserve, Robert Rosner,
Scott D. Sagan, and Steven E. Miller, Page 71

Reflections: Three Moles by Paul A. Samuelson, Page 83



Calendar of Events

Contents

News

<i>Academy Inducts 228th Class of Members</i>	1
<i>Humanities Indicators Prototype Launched</i>	3
<i>Scholar-Patriot Award</i>	5
<i>Rumford Prize</i>	6
<i>Induction Ceremony: Challenges Facing a Global Society</i>	12
<i>Projects and Studies</i>	19
<i>Fellowship Programs</i>	32

Academy Meetings

<i>Challenges to Public Universities</i> Robert J. Birgeneau, Mark G. Yudof, and Christopher F. Edley, Jr.	35
<i>Judicial Independence</i> Sandra Day O'Connor, Linda Greenhouse, Judith Resnik, Bert Brandenburg, and Viet D. Dinh	44
<i>The Invisible Constitution and the Rule of Law</i> Diane P. Wood, Laurence H. Tribe, Frank H. Easterbrook, and Geoffrey R. Stone	59
<i>The Nuclear Future</i> Richard A. Meserve, Robert Rosner, Scott D. Sagan, and Steven E. Miller	71
<i>A World Free of Nuclear Weapons</i> Sidney D. Drell, William J. Perry, Sam Nunn, and George P. Shultz	77
<i>Reflections: Three Moles</i> Paul A. Samuelson	83
Noteworthy	85
From the Archives	88



AMERICAN ACADEMY
OF ARTS & SCIENCES

Monday, March 9, 2009

Stated Meeting – Washington, DC

The Public Good: The Humanities in a Civil Society

Speakers: David Souter, United States Supreme Court; Don Michael Randel, The Andrew W. Mellon Foundation; Patty Stonesifer, The Bill and Melinda Gates Foundation/Smithsonian Institution; Edward L. Ayers, University of Richmond

Location: The George Washington University

Time: 5:00 p.m.

Wednesday, March 11, 2009

Stated Meeting – Cambridge

Nanotechnology: Novel Applications

Speakers: Robert Langer, Massachusetts Institute of Technology; Angela Belcher, Massachusetts Institute of Technology; Evelyn Hu, Harvard University

Location: House of the Academy

Time: 6:00 p.m.

Thursday, April 16, 2009

Stated Meeting – Cambridge

An Evening of Chamber Music

Performance: The Arron Chamber Ensemble

Location: House of the Academy

Time: 6:00 p.m.

Wednesday, May 13, 2009

Stated Meeting – Cambridge

What Is Missing in Medical Thinking?

Speaker: Jerome Groopman, Harvard Medical School/Beth Israel Deaconess Medical Center

Location: House of the Academy

Time: 6:00 p.m.

For information and reservations, contact the Events Office (phone: 617-576-5032; email: mevents@amacad.org).

Academy Inducts 228th Class of Members

On October 11, 2008, more than 500 guests attended the Academy's 228th Induction Ceremony. The event celebrated the accomplishments of the Academy's 212 new members, who come from 20 states and 15 countries. Drawn from science, the arts and humanities, business, public affairs, and the nonprofit sector, the class represents 50 universities and more than a dozen corporations.

The Ceremony was preceded by a morning briefing, where new members learned about the Academy's research projects and their influence on public policy. Chief Executive Officer Leslie Berlowitz described the Academy's long history of promoting useful knowledge and anticipating emerging issues before their importance is widely recognized.

Several leaders of Academy projects described their work on a wide range of issues, including the federal funding of science; the global nuclear future; America's competing research, commercial, and military interests in space; the effects of corruption on an international scale; and U.S. policy toward Russia. The program also included presentations of studies on the impact of mass incarceration; the independence of the judiciary; communicating the role of the humanities and culture; educating the world's children; and security on the Internet. Throughout the morning, speakers expressed gratitude and pride in the Academy's capacity to bring fresh perspectives to seemingly intractable problems. Speaking about the Humanities Indicators Project, which is securing data on the humanities, Francis Oakley, President Emeritus of Williams College, declared, "All praise to the Academy not simply for taking the initiative on this project but also for demonstrating the tenacity needed to bring it to this preliminary conclusion."

President of the Academy **Emilio Bizzi** opened the formal Induction Ceremony by recalling the Academy's founding in the midst of the American Revolution and its role in bringing together scholars, civil leaders, merchants, and farmers to help shape the new nation. At the Induction Ceremony, Chair of the Academy Trust and Vice President **Louis W. Cabot** announced Senator Edward M. Kennedy of Massachusetts as the recipient of the Academy's Scholar-Patriot Award in recognition of his tireless advocacy on behalf of health care, education, science, and learning (see page 5 for the award citation).

New Fellows representing the five classes of Academy membership touched on the opportunities and challenges of their work and its broader implications for society. **James Simons**, President and Founder of Renaissance Technologies, described his love of mathematics with its complex vocabulary. **Peter S. Kim**, President of Merck Research Laboratories, discussed his role in the search for an HIV vaccine, using it to illustrate the frustration and hope inherent in biomedical research.



Harvard economics professor **Susan Athey** discussed the role of search advertising platforms in the future of the economy. Representing the humanities, Emory University Provost, Executive Vice President for Academic Affairs, and professor of history and African American Studies **Earl Lewis** described how storytelling shapes our knowledge of the human experience. "The stories we tell, the stories we listen to, mark the humanities and the humanist interest in a lived experience. We are reminded that in stories we find answers to what makes us who we are."

The definition of a "good company" was explored by **Indra Nooyi**, Chairman and Chief Executive Officer of PepsiCo. "What is the enduring achievement of business?" she asked. Her answer was that "companies must redeem a moral promise as well as yield a return on capital." They must recognize the inevitable link between business and society and combine what is good ethically with what is good commercially.

Together the speakers captured the promise of the Academy to combine thoughtful analysis with determined action.

At a symposium on Sunday following the Induction Ceremony, nine distinguished scientists and policy experts discussed the consequences of the growing reliance on nuclear power. The program featured panel presentations by **Richard A. Meserve** (Carnegie Institution for Science), **Robert Rosner** (Argonne National Laboratory), **Richard Lester** (Massachusetts Institute of Technology), **Scott Sagan** (Stanford University), and **Steven Miller** (Harvard University). Sagan and Miller codirect the Academy's *Global Nuclear Future* project, which is generating a set of policy recommendations

New Fellows Reflect on Membership in the Academy

New members arrived at the House of the Academy in a state of anticipation, awaiting the morning orientation. Many vividly described the moment that news of their election arrived: the flurry of congratulatory phone calls and emails from colleagues followed by the deepening realization they would be joining a membership that included George Washington, Thomas Jefferson, Albert Einstein, Marian Anderson, and T. S. Eliot, among so many others.

Richard Foster, a managing partner at Millbrook Management Group in New York, reflected on how the Academy's values resonate with his own. "The Academy provides us with a place to compare and contrast our mental models. I am really looking forward to being a member."

Many Fellows paused to study the framed letters of acceptance set along a wall in the atrium. Anne Walters Robertson, a music professor from the University of Chicago, was thrilled by the range of people represented by the historic letters. She was particularly moved when she found a beautifully handwritten letter by an earlier Fellow she considered one of the greatest teachers of music composition in the twentieth century, Nadia Boulanger.

"Election to the Academy is a great honor," said Pablo G. Debenedetti, a professor in engineering and applied science at Princeton University and an immigrant from Argentina. "It is a reminder of how great this country is."

While many Fellows were eloquent about the role of the Academy in preserving free inquiry and encouraging interdisciplinary scholarship, they said they were waiting for the day's presentations to ground them in the institution's specific programs and reports. "I am looking forward to finding out more about how I might contribute," said Alan M. Leslie, professor of psychology and cognitive science at Rutgers University.

The responsibility of the scholar to inform public discourse and play a larger role in society was a recurring theme among Fellows. "It is very interesting to see that the American Academy deals with such diverse topics," said Nikos K. Logothetis, a neuroscientist from Max-Planck-Institut für Biologische Kybernetik in Germany. He was particularly interested in an Academy project about educating the world's children.

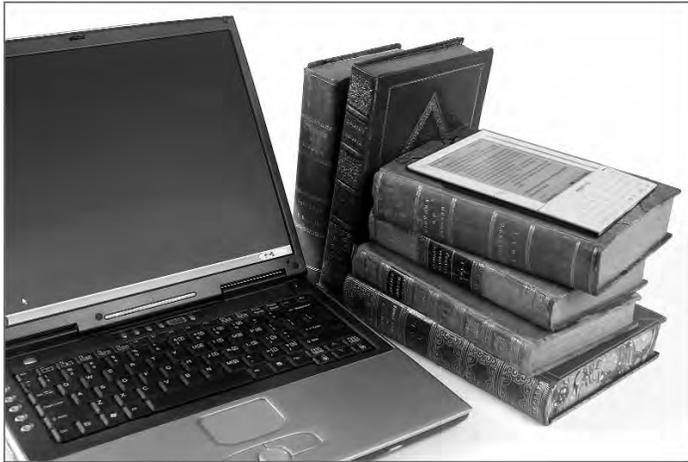
Another source of excitement throughout the day was the simple pleasure of meeting exceptional people from such an array of backgrounds. "Although I was really interested in the presentations, particularly the ones on nuclear weapons and security on the Internet," said Jorge Durand, a professor of anthropology at the Universidad de Guadalajara, Mexico, "today is also an opportunity to meet people from diverse fields. The Academy is a unique place that brings us all together."

to ensure that the demand for civilian nuclear power does not result in a corresponding increase in nuclear proliferation (see pages 71 – 76 for the speakers' remarks).

As part of the symposium, the Academy awarded the Rumford Prize, one of the nation's oldest scientific awards, to **Sidney D. Drell** (Stanford Linear Accelerator Center), **William J. Perry** (Stanford University), **Sam Nunn** (Nuclear Threat Initiative), **George P. Shultz** (Stanford University), and **Henry A. Kissinger**, in absentia (Kissinger Associates, Inc.). **Stephen D. Bechtel, Jr.** (Bechtel Group), **Walter B. Hewlett** (William and Flora Hewlett Foundation), Academy President **Emilio Bizzi**, and Chief Executive Officer **Leslie Berlowitz** presented the awards in recognition of the recipients' ongoing efforts to reduce the global threat of nuclear weapons (see pages 6 – 7 for the award citations). In response, Drell, Perry, Nunn, and Shultz spoke about their decades of experience confronting the nation's most difficult national security issues and their work to prevent the spread of nuclear weapons (see pages 77 – 82 for their remarks).

Looking back on the weekend's events, **Jeffrey Victor Ravetch**, a new Fellow and the Teresa and Eugene Lang Professor at The Rockefeller University, noted, "I am delighted by the continuity the Academy presents. It provides an unbroken chain back to the founders of the country – and it encourages the integration of the arts and sciences, which is one of the underlying strengths of this country's democracy." ■

Humanities Indicators Prototype Launched



In 2002, the Academy's Initiative on Humanities and Culture issued its first Occasional Paper, *Making the Humanities Count* – a study of the need for a systematic and sustained effort to collect data on the state of the humanities in the United States. The Academy took up the challenge, and on January 7, 2009, it launched a prototype set of statistics, the Humanities Indicators, available at www.HumanitiesIndicators.org. The website has already attracted over 325,000 visits from 38 countries.

In announcing the new online resource, Leslie Berlowitz, Chief Executive Officer of the Academy, said, “this nation needs more reliable empirical data about what is being taught in the humanities, how they are funded, the size of the workforce, and public attitudes about the field. The Humanities Indicators is an important step in closing that fundamental knowledge gap. It will help researchers and policy-makers as well as universities, foundations, museums, libraries, humanities councils, and others to answer basic questions about the humanities, track trends, diagnose problems, and formulate appropriate interventions.” She also expressed her appreciation to Norman Bradburn (National Opinion Research Council) and Steven Marcus (Columbia University), cochairs of the Humanities Indicators Advisory Committee, and to John Brademas (New York University), Jonathan Cole (Columbia University), Gerald Holton (Harvard University), Robert Solow (MIT), and Judith Tanur (State University of New York at Stony Brook), who suggested and encouraged this collection of data.

Modeled after the National Science Board's *Science and Engineering Indicators*, the data set contains 74 indicators and more than 200 tables and charts, providing broad-based quantitative information about areas of concern to the humanities community. The current prototype is based on existing data; in the coming years, the Indicators will expand to incorporate new data from an Academy-sponsored survey of 1,500 colleges and university humanities departments.

In addition to the data, the Humanities Indicators includes essays that reflect on its five parts: primary and secondary humanities education, undergraduate and graduate education in the humanities, the humanities workforce, humanities funding and research, and the humanities in American life. These commentaries by William J. Reese (University of Wisconsin-Madison), Roger L. Geiger (Pennsylvania State University), David Laurence (Modern Language Association), Alan Brinkley (Columbia University), and Julie Ellison (University of Michigan) suggest the significance of the data collected and point to areas where additional information is needed.

The Humanities Indicators Prototype was developed in collaboration with the American Council of Learned Societies, the American Academy of Religion, the American Historical Association, the American Political Science Association, Association of American Universities, the College Art Association, the Federation of State Humanities Councils, the Linguistic Society of America, the Modern Language Association, and the National Humanities Alliance.

The Indicators is one result of a decade-long Academy Initiative on Humanities and Culture, which was developed to understand and advance the humanities. Other activities include a scholarly publication on the post-World War II social forces that transformed

The Humanities Indicators Reveal...

- Adult literacy in the United States is polarized. Among Western industrialized nations, the United States ranks near the top in the percentage of highly literate adults but it is also near the top in the proportion who have very low literacy.
- K-12 humanities fields are suffering a dearth of well-prepared teachers, even more so than math and science. In 2000, the number of middle and high school students taught by a highly qualified history teacher was lower than any other major subject area.
- Postsecondary humanities faculty are more poorly paid than those in any other field. They are also among the fields with the highest proportion of part-time faculty. In 2004, only 53 percent of humanities faculty were employed full-time, and half of all part-time teachers are available for full-time positions.

the humanities as well as two issues of *Dædalus*, the first on the evolution of the humanities disciplines (Spring 2006) and the second on challenges facing the humanities within and beyond academia (Winter 2009).

The Academy is indebted to the William and Flora Hewlett Foundation for supporting the Initiative on Humanities and Culture and to the Andrew W. Mellon Foundation for enabling us to create the Indicators.

The Academy gratefully acknowledges the individuals who helped to launch the Initiative for Humanities and Culture:

Denis Donoghue, <i>cochair</i>	Hans Gumbrecht
Steven Marcus, <i>cochair</i>	James Herbert
Francis C. Oakley, <i>cochair</i>	Walter B. Hewlett
Patricia Meyer Spacks, <i>cochair</i>	Thomas Hines
Leslie Berlowitz, <i>cochair</i>	David A. Hollinger
Rolena Adorno	Gerald Holton
Lee C. Bollinger	Arnita Jones
Norman Bradburn	Linda K. Kerber
John Brademas	Alexander Nehamas
John Bryan	Mary Jo Nye
Jonathan R. Cole	Robert C. Post
W. Robert Connor	Elihu Rose
John D'Arms †	Neil Rudenstine
Gerald Early	Frederick Schauer
Dagfinn Føllesdal	Richard Sennett
Richard Franke	Salvatore Settis
Henry Louis Gates, Jr.	Robert Silvers
Donald Gibson	Robert M. Solow
Philip Gossett	Anne-Marie Soullière
Anthony Grafton	Peter Stansky
Hanna Gray	John Walsh, Jr.
Stephen Greenblatt	Rosanna Warren
	Pauline Yu

† Deceased

Selected Statements of Support for the Humanities Indicators Prototype

The humanities are an invaluable source of enrichment in all our lives. The study of history, philosophy, languages, and literature deepens our understanding of the world as it was, as it is in our own day, and what it may become for future generations. I commend the Academy for its important contribution to the nation in documenting the extent and quality of research and instruction in the humanities available in today's society. It will encourage schools and colleges in communities across the nation to improve their curricula and enhance the education of all our students, and the nation will reap the benefit in the years to come.

Edward M. Kennedy
United States Senate

College and university presidents, provosts, and deans, who have long hoped for concise and accessible data on the humanities, will welcome the American Academy of Arts and Sciences's Humanities Indicators Prototype. Not only does the prototype offer tremendous insight into the undergraduate and graduate experience of students and faculty, it also offers key datasets on the entire span of the educational experience, as well as the work our students will one day undertake. Among other things, these data will greatly enhance our ability both to understand and anticipate the needs of incoming students and to prepare our students for work in the humanities.

Lee C. Bollinger
President, Columbia University

Now for the first time we have a full, reliable set of data relating to some of the most important indices of behavior in the humanities fields. The website is clearly organized and easily accessible to users, and it should help us to understand the academic field of the humanities in ways that have previously been impossible to accomplish. It will help administrators across the humanities, and in the schools and higher education generally. It will also be of service to individual teachers, scholars and students. And best, from my point of view, it will facilitate the work of those of us who try to understand and influence humanities policy.

Stanley N. Katz
Director, Center for Arts and Cultural
Policy Studies, Princeton University

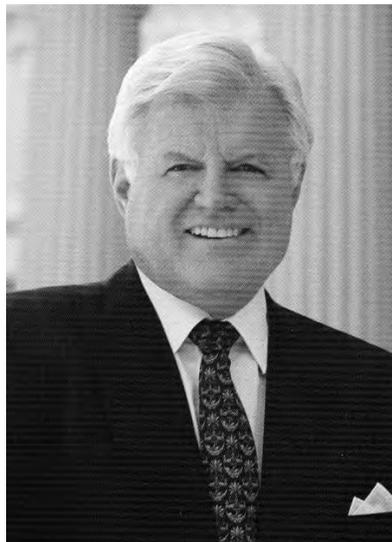
The Humanities Indicators Prototype is an important investment in the future. Until we have a clear picture of the state of the humanities and the extent of humanities activity in this country, we will be seriously handicapped in our efforts to make a case for the impact of that activity. This report is a vital first step in helping us to overcome that challenge.

Esther Mackintosh
President, Federation of State
Humanities Councils

Scholar-Patriot Award

The American Academy of Arts and Sciences was founded by a group of patriots who devoted their lives to promoting the practical arts and sciences “to cultivate every art and science which may tend to advance the interest, honor, dignity, and happiness of a free, independent and virtuous people.”

On October 11, 2008, the American Academy bestowed its Scholar-Patriot Award on Edward M. Kennedy for his extraordinary service to the Academy, the community, and the nation.



Edward M. Kennedy

For four decades you have been a fierce defender of the ideals of opportunity, equity, and justice. Master of quiet collaboration and inspired oratory, you have achieved an unparalleled legislative record. Your efforts to insure quality education and health care for all Americans, including your leadership on the Americans with Disabilities Act, the State Children’s Health Insurance Program, and the Elementary and Secondary Education Act, have earned you the respect of men and women across the political spectrum. From your first major bill on immigration reform to your recent call for a renewed commitment to community service, you have championed an open and inclusive society. To your family and the nation, you are a profile of courageous leadership, the guardian of a dream that lives on.

The founding members of the American Academy were pragmatic visionaries, anticipating the needs of a young republic for both wise governance and fresh ideas. You follow in their footsteps as a Scholar-Patriot for our time. Asserting that “our future does not belong to those who are content with today,” you have fulfilled the Academy’s historic mission, translating knowledge into action and celebrating the life of the mind in service to the community, the nation, and the world. ■

The Rumford Prize

Established in 1839, the American Academy's Rumford Prize recognizes contributions in the fields of heat and light. The endowment was created by a bequest from Benjamin Thompson, Count Rumford, who stipulated that the award be given for work that "in the opinion of the Academy, tends most to promote the good of mankind."

On October 12, 2008, the American Academy of Arts & Sciences bestowed the Rumford Prize on George P. Shultz, William J. Perry, Sam Nunn, Sidney D. Drell, and Henry A. Kissinger (in absentia) for their efforts to secure a world free of nuclear weapons.



George P. Shultz

Sage statesman and esteemed economist, you have held four Cabinet positions, providing steadfast leadership and trusted counsel to ten presidents. Always faithful to the ideals of freedom, you confronted the forces of intolerance and oppression beginning as a young Marine captain during World War II and later as the nation's chief diplomat during the Cold War. As Secretary of Labor, Director of the Office of Management and Budget, Secretary of the Treasury, and Secretary of State, you made negotiation and quiet diplomacy the hallmark of your work. Whether you were restructuring the international monetary system or fostering cooperation between hostile superpowers, your skill at the bargaining table ensured the welfare of the nation and the security of future generations. Educated at Princeton University and Massachusetts Institute of Technology, today you are a Distinguished Fellow at the Hoover Institution of Stanford University, inspiring bipartisan action to advance peace and international cooperation.

For five decades, you have kept your faith in a secure and prosperous America. As a leader in government, industry, and academia you foresaw the challenges of the nuclear future. Your call for an "Age of Diplomacy" and a redirection of nuclear policy echoes your lifelong insistence upon a reasoned exchange between adversaries and friends.



William J. Perry

A scholar and defender of American ideals, you have faced threats to the nation with courage and resolve. Educated at Stanford and Pennsylvania State Universities, you combined technical and political expertise to become a leader in the defense industry. As an engineer, laboratory director, and Under Secretary of Defense for Research and Engineering, you fostered and applied technologies essential to national security. As Secretary of Defense during a period of profound transition at home and abroad, you brokered peaceful, equitable resolutions to crises around the world. In Haiti and the Balkans, you aided the powerless and preserved the nation's reputation as a principled leader in world affairs. Today, with joint appointments at the School of Engineering and the Institute for International Studies at Stanford University, you advise established and rising world leaders with wisdom drawn from a life of distinguished service.

In government, industry, and academia, you have taught us countless "lessons in leadership." With dedication, determination, and insight you streamlined the military, averted international crises, and reduced our nation's nuclear arsenal. As we face the renewed threat of nuclear proliferation, you are securing a safer international community by adhering to the principle that "openness and trust are the essential tools of the art of peace."



Sam Nunn

Educated at the Georgia Institute of Technology and Emory University, you launched your career in the Coast Guard as a defender of the nation. And from your earliest days on Capitol Hill, you worked to reduce nuclear dangers. Serving in the United States Senate for four terms, you became an influential voice in matters of national and international security. During your chairmanship of the Armed Services Committee, you dealt with Cold War struggles and emerging threats. Determined to advance the cause of nonproliferation, you cosponsored the Nunn-Lugar Cooperative Threat Reduction Program, which has resulted in the deactivation of over 7,000 nuclear warheads to date. Now, as Cochairman and Chief Executive Officer of the Nuclear Threat Initiative, and as Distinguished Professor at the Sam Nunn School of International Affairs at Georgia Tech, you provide a bold vision for a world free of nuclear weapons.

Dedicated to the defense of our shores since your earliest years of service, you have expanded the range of your vigilance as technology has extended the reach of those with hostile intentions. You pursue a global response to a threat that respects no boundaries. Determined to win the “race between cooperation and catastrophe,” you have gathered together world leaders to steer a safer course to the future.



Sidney D. Drell

In the tradition of Einstein, Fermi, and Szilard, you are a physicist who has reached beyond your profession to become an impassioned advocate for arms control. With a bachelor’s degree from Princeton University and a doctorate from the University of Illinois, you conducted pathbreaking research in elementary particle physics and quantum theory. You helped to found the Stanford Linear Accelerator Center and continue to direct the long-term planning of national accelerator laboratories. Recipient of our nation’s most prestigious scientific awards, you have used your technical expertise to provide sound guidance for our government. Einstein said, “politics is much harder than physics,” but you never wavered in your determination to add scientific knowledge to public discourse. You are the consummate adviser with a mission: to promote nonproliferation while strengthening the nation’s nuclear defense.

You have shown by example that scientists have a responsibility to acknowledge and to act on the implications of their work: to accept the “obligation to try to help the government function.” By upholding these principles, you have earned the respect of policy-makers, government leaders, scientific colleagues, and the public who look to you for wise counsel and informed judgment “in the shadow of the bomb.” ■

2008 Induction



Cynthia Dwork '08 (Microsoft Research) and Alessandro Duranti '08 (University of California, Los Angeles)



Arthur Levinson '08 (Genentech) and Daniel Vasella '08 (Novartis AG)



Xiaoliang Sunney Xie '08 (Harvard University) and Marlan Scully '08 (Texas A&M University)



Lauren Dachs '08 (S. D. Bechtel, Jr. Foundation), Elizabeth Bechtel, and Stephen D. Bechtel, Jr. '90 (Bechtel Group, Inc.)



John Guckenheimer '08 (Cornell University) and Christopher Cummins '08 (MIT)



Nikos Logothetis '08 (Max-Planck-Institut für Biologische Kybernetik) and Allison Doupe '08 (University of California, San Francisco)



Tom Leighton '03 (Akamai Technologies/MIT) and Paul Sagan '08 (Akamai Technologies)



Sam Nunn '97 (Nuclear Threat Initiative), Scott D. Sagan '08 (Stanford University), and Walter B. Hewlett '99 (William and Flora Hewlett Foundation)



Margaret Whitman '08 (formerly eBay) and George P. Shultz '70 (Stanford University)



Bruce Stillman '08 (Cold Spring Harbor Laboratory) and Arthur Levinson '08 (Genentech) with a group of new members before the morning briefing



Henry Arnhold '04 (Arnhold and S. Bleichroeder Holdings, Inc.) and Nelson Kiang '81 (Massachusetts Eye & Ear Infirmary)



Robert Rosner '01 (University of Chicago) and Richard Wilson '58 (Harvard University)



Rodney Brooks '07 (MIT) and Ruzena Bajcsy '08 (University of California, Berkeley)



Larry Hedges '08 (Northwestern University) and Jeffrey Ravetch '08 (Rockefeller University)



David D. Sabatini '80 (NYU Langone Medical Center), John Katzenellenbogen '92 (University of Illinois at Urbana-Champaign), and Lino Tagliapietra '07 (Murano, Italy)

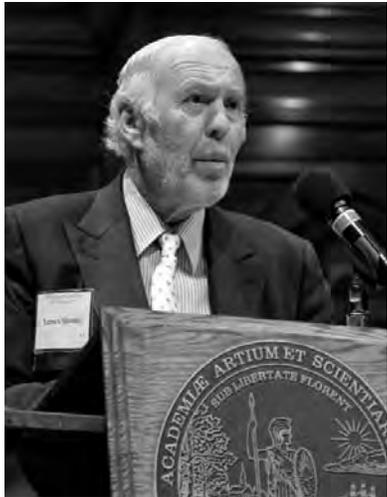


Charles Geschke '08 (Adobe Systems, Inc.) and John Warnock '08 (Adobe Systems, Inc.)

Induction Ceremony

Challenges Facing a Global Society

On October 11, 2008, the American Academy of Arts and Sciences inducted its 228th class of Fellows and Foreign Honorary Members at a ceremony held in Cambridge, Massachusetts. Mathematician and hedge fund leader **James Simons**, biochemist and research laboratory president **Peter S. Kim**, economist **Susan Athey**, historian and university provost **Earl Lewis**, and corporate leader **Indra Nooyi** addressed the audience. Their remarks appear below.



James Simons

President and Founder, Renaissance Technologies

Many of you may never have heard of the notion of “doing mathematics.” Yet everyone knows that mathematics is almost ubiquitous, applied to everything from balancing a checkbook to designing a bridge or engineering a financial derivative. The mathematics underlying each of these actions – arithmetic, calculus, and probability, respectively – was invented centuries ago. And, believe it or not, it is still being invented, at a rapid pace.

Doing math consists of two equally important parts – defining concepts and proving theorems. These play off against each other. Two concepts we are all familiar with are integers and triangles. These concepts, of course, have led to many theorems, such as, “the sum of two even integers is even,” or, “triangles are congruent if two sides and the included angle of one are equal to two sides

and the included angle of the other.” Please note that the statement of these theorems required more concepts, such as even, angle, and congruent.

As time went on, more and more concepts were created, each requiring a careful definition and always dependent on previous concepts. Sometimes these are generalizations, as polygon is of triangle; other times they are specializations, as prime number is of integer. Over millennia the subject has acquired a vocabulary more vast and more incomprehensible than that of any other. Overhearing a group of mathematicians at a cocktail party is (briefly) interesting: each word may seem familiar – group, ring, field, operator – but each has a meaning quite different from what one might think, and in any event the content of the conversation is utterly opaque. Nonetheless, this is not jargon, invented to give dignity to a familiar concept, but is the skeleton of the subject, on which the muscles of theorems are hung.

These definitions may be short lived, used only to avoid repetition within a paper, but they sometimes stick, being such useful concepts that others beside their inventor are inspired to probe them more deeply. Thus the skeleton grows, and the subject advances.

Proving theorems is another matter. With concepts in hand one strives to answer a question, posed either by oneself or by another in the field. These could range from, “are all odd numbers prime?” to “can every Hermitian vector bundle with connection over a smooth manifold be realized as the pull-back of the canonical bundle and connection over the classifying space, BU , under a smooth map of the manifold into BU ?” As almost everyone knows, the answer to the first question is no; and, as almost no-

body knows, the answer to the second question is yes.

The choice of the questions one works on is very important. First, one must believe that a question’s answer may truly advance the field, perhaps settling other questions and, one hopes, giving rise to a host of new ones in which others will be interested. Second, one must believe that he actually has a chance

What is it that drives some people to do mathematics in the pursuit of knowledge so abstract it can be communicated to but a small group of people? The only answer I can give employs two words: mathematics is beautiful, and it is true.

to answer it. The first is a matter of taste, rather than of intellectual musculature, and quality of taste has been shown to vary widely among practitioners. The second, like many things, depends on self-knowledge and courage.

The process of proving a theorem involves immersing oneself in a cocoon of preoccupation, in which ideas are generated and rejected, and formulae and pictures are imagined and contemplated (often without pencil and paper) – all in a mental place temporarily insulated from the cares of the day. This process may continue for weeks,

months, even years, and can take place almost anywhere, from the ballroom to the bathroom and on the walk in between. Such immersions are not continuous: sometimes it is necessary to break out to teach a class, do taxes, or even civilly respond to one's spouse or child. But the tranquility of the cocoon is always beckoning, and one yearns to return. In little bursts (occasionally in big ones) progress gets made. At such times one emerges in triumph. Often, however, the emergence is in frustration, as the damn thing just doesn't come together. Still, in the next hour, day, or week one goes back to the cocoon to try again, to test a new attack. And so it goes, ending sometimes in success, but often in failure.

At the end you might ask what is it that drives some people to do mathematics, preoccupying themselves so fully as to often annoy others, missing out on much that most others find engaging, and doing this in the pursuit of knowledge so abstract it can be communicated to but a small group of people? The only answer I can give employs two words, famously linked by John Keats: mathematics is beautiful, and it is true. ■

© 2009 by James Simons



Peter S. Kim

President, Merck Research Laboratories

Ask any biologist why he or she was attracted to the field and you are likely to hear about the hope that one's work ultimately will lead to improvements in human health. It's a hope rooted in optimism, but often tested by failure.

Over the course of my career, I have been fortunate to participate in biomedical discovery both in an academic setting and in a research pharmaceutical company. While there are some obvious distinctions between the two environments, one fundamental aspect is the same: more often than not, the process of discovery is a long, arduous journey, filled with many false starts, blind alleys, and frustrating setbacks.

Today I'd like to describe one such journey. It's a journey that, despite more than two decades of dedicated effort by literally thousands of scientists, is seemingly no closer to an answer now than it was 20 years ago.

Historically one of the most cost-effective methods to improve human health has been vaccination against infectious disease. Nothing is more important today in the world of vaccine research than discovering and devel-

oping a vaccine for HIV/AIDS. And nothing more clearly illustrates just how frustrating – and humbling – that search can be.

Back in 1984, Margaret Heckler, then Secretary of the U.S. Department of Health and Human Services, optimistically declared, "We hope to have a vaccine ready for testing in about two years – yet another terrible disease is about to yield to patience, persistence, and outright genius." Secretary Heckler's optimism was premature. Indeed, we are still many years away from knowing how to develop an efficacious HIV vaccine.

The classic approach to immunizing people against disease – administering a vaccine that elicits an antibody response from the body's immune system – does not work for HIV. This approach protects against infections caused by influenza, hepatitis B, and human papillomavirus, the agent that causes cervical cancer. But it does not protect against HIV.

The reason for this failure is fairly, and frustratingly, simple. HIV is extremely efficient at changing its outer shell. This trait enables the virus to evade detection by the antibodies elicited with a classical vaccine. HIV is, in a very real sense, a master of disguise.

The human immune system, however, has a second arm for fighting infection, called cell-mediated immunity. Through this response, the body produces what are known as killer T-cells, cells that kill other cells infected with viruses. Given the failures of the antibody approach, the scientific community has spent more than 15 years pursuing an HIV vaccine based on the cell-mediated approach.

To describe better why scientists pursued the cell-mediated approach, I would like to take a minute to explain the three stages of the disease, once a person is infected with HIV.

In the first stage, soon after infection, the virus undergoes explosive growth. Within a matter of weeks, the amount of virus in the patient's blood – the "viral load" – skyrockets, as virus replication far outpaces the body's ability to combat it.

Induction Ceremony

Then, the body's natural defenses begin to fight back. Within weeks, the patient's viral load drops until the virus and the immune system reach what is essentially a stalemate. The virus is not eliminated; instead the patient's viral load reaches what we call a set point, a point at which it likely will remain for many years.

I am confident that the founders of the Academy would encourage us today, as they did more than 200 years ago, to apply our best efforts to the betterment of the American people, and the people of the world, even in the face of seemingly insurmountable barriers. As scientists, that is a call we must continue to answer.

The length of time that stalemate lasts depends on the patient's viral load. The lower the viral load – the lower the set point – the longer it will take for HIV to progress to the third stage, full-blown AIDS. That's why we believed with some confidence that stimulating the production of killer T-cells would be a very important breakthrough in the search for a vaccine. Based on our knowledge of HIV, if the vaccine worked as expected, there would be two very favorable results.

First, a cell-mediated vaccine would lower the set point, extending the lives of patients and giving them a better quality of life. And second, it would lower the rate of transmission, slowing the spread of the disease. Given the size of the HIV/AIDS epidemic, even a small decrease in the rate of transmission could save countless numbers of lives.

At Merck, we developed a vaccine based on this approach. In pre-clinical testing on rhesus monkeys, our cell-mediated vaccine increased production of killer T-cells. It also dramatically drove down the set point of the infected animals.

The connection between these two results – more killer T-cells and a lower set point – led us to think that we had found what is called a correlate of immunity. In other words, our pre-clinical results strongly suggested that there would be a correlation between increased production of killer T-cells by the immune system and reduction of a patient's viral load.

Therefore, together with the National Institutes of Health, we sought and received approval to test the vaccine in 3,000 human volunteers who are at high risk of HIV infection. And while few scientists saw this approach as the ultimate HIV vaccine, many in the field, myself included, expected that our vaccine would reduce the viral set point in infected individuals, which would improve their health and reduce the risk of transmission.

Such a result would have been the biggest step forward in the search for a vaccine in two decades; it finally would have given us a promising place to start. Indeed, Merck committed to invest hundreds of millions of dollars to scale up production of the vaccine and move into the final stage of testing if the vaccine showed even just a ten-fold decrease in patients' viral loads. Unfortunately, it did not.

Much to the surprise of many in the scientific community, the cell-mediated approach did not have the expected effect in humans. Although the vaccine did stimulate the production of killer T-cells, as it had in monkeys, that increase did not prevent an initial HIV infection. What's more important, it did not reduce the viral load of those in the trial who became infected with HIV.

As a result, we stopped the trial. We had not discovered a way to stimulate the second arm of the immune system to reduce the viral load. Neither had we confirmed a correlate of immunity that would have helped advance the search for a vaccine. In short, we were back to square one.

Obviously, the results of the clinical trial were deeply disappointing. What many thought was the most promising path forward turned out to be a discouraging detour. As dispiriting as the results are, however, the paradox is that they represent an accomplishment. Although the answer is not the one we desired, we have obtained an answer nonetheless. I echo what Thomas Edison once observed, "I am not discouraged, because every wrong attempt discarded is another step forward."

The history of vaccines, after all, provides numerous examples of long and difficult searches for success. It took scientists more than 40 years to develop a safe and efficacious measles vaccine, more than 50 years for polio, and the search is ongoing, after more than 60 years, for a malaria vaccine. It is far too early to stop the search for an HIV vaccine.

To conquer HIV and other public health challenges, basic research on truly novel ideas must be funded and pursued. Encouraging and funding creative and transformative research, as called for in the Academy's recent *ARISE* report, is absolutely essential. We must continue our efforts, so that the best of science can discover and develop the HIV vaccine the world so clearly needs.

This Academy was founded with the express goal, among others, "to promote and encourage medical discoveries." The founders of the Academy would undoubtedly be astonished at what we have discovered and learned over the past two centuries. I suspect they would not, however, be at all surprised at how difficult the process of biomedical discovery remains.

Indeed, I am confident that they would encourage us today, as they did more than 200 years ago, to apply our best efforts to the betterment of the American people, and the people of the world, even in the face of seemingly insurmountable barriers. As scientists, that is a call we must continue to answer. ■

© 2009 by Peter S. Kim



Susan Athey

Professor of Economics, Harvard University

Central to economics is the question of how scarce resources are allocated. Often, resource allocation takes place through decentralized transactions among individuals, governed by a generic set of legal constraints concerning property rights, contracts, and fraud – for example, farmers and customers go to a farmer’s market and exchange goods for money in a set of individual transactions. However, some kinds of resource allocation problems do not lend themselves to such a decentralized and unstructured approach. Market design is a subfield of economics that focuses on problems when decentralized markets do not perform very well, and where actively designed institutions can improve the efficiency or fairness of resource allocation. The design of market institutions also affects profit for the owners of resources and often for the market institution itself.

When do markets need to be actively designed? Why don’t all markets just “happen”? The events of the past few weeks have brought into sharp focus the crucial role of well-designed institutions. With 20/20 hindsight, it seems obvious that financial institutions require oversight when the government implicitly or explicitly insures them; that the rules of the game matter; and that individuals and firms will under-

stand the sometimes perverse incentives created by a regulatory and institutional environment, and respond to them. But until recently, many argued that markets could be self-regulating. How do we know when design is needed? I don’t have the answers to the current crisis, but I will say a little about more manageable problems.

Typically an actively designed market is most likely to add value when participants have private information about their valuations for objects, and these are heterogeneous across market participants; when the items are unique or perishable; when the allocation is complex or coordination is difficult; when there are impediments to market pricing due to legal or ethical constraints (for example, organ donation or allocating students to schools); or when the government cannot commit itself *not* to intervene, as in the case of health, welfare . . . or bailing out financial institutions.

For thousands of years, people have recognized that a seller of a unique or perishable item may find it most effective to sell the item via auction. Fish and flowers were historically sold using open-outcry auctions, where bidders announce successively higher prices that they are willing to pay for an item. In modern times, auctions are the method of choice for selling natural resources, such as oil, timber, and spectrum, as well as for procuring unique, made-to-order, or complex bundles of goods and services. Under ideal conditions, an auction gets the item into the hands of the buyer who values it the most.

My own passion for the design of auctions started when I studied timber auctions as an undergraduate at Duke University. I continue to work on timber auctions today, helping governments design auction-based marketplaces for timber that work well even when the government owns most of the timber land.

However, my most recent foray into auction design concerns another brand-new kind of auction, this one less than 10 years old and designed not by economists, but by search engines like Google: auctions for slots in which to display short text advertisements alongside the results returned by search engines. In just a few years, the marketplace for

search advertising has grown to well over \$10 billion in annual revenue in the United States. Perhaps more remarkably, each month over 10 billion individual auctions are held among advertisers. Every time someone enters text into a search box, an auction is held in real time using standing bids that can be entered into an order database and updated by advertisers at any time. Hundreds of thousands of advertisers have bids entered on millions of distinct keywords. When a phrase is entered by a user, advertisements are scored for quality and expected clicks, bidders are ranked, and advertisers appear in order of the rankings. The highest positions tend to get more clicks from users.

Whether we’ll have competition among search engines in the future is an open question, and this is an issue of vital importance for all of society, given the important role search engines play in determining what information people receive about politics, culture, and commerce.

Early auction designs asked bidders to pay their bids for each click they received; but the ability to update bids in real time led bidders to adopt automated bidding agents, and bids moved in cycles. Bidders continually outbid one another by a penny, with the rankings of bidders reversing continuously until prices rose so high that it was no longer profitable. Then prices collapsed and the cycle began anew, with many cycles taking place each day. New designs are more stable, adapted from the economic theory literature about “second-price auctions,” and now bidders pay the minimum bid required for them to maintain their positions, which reduces the incentive for cycling.

Induction Ceremony

Search engines, like the yellow pages, provide advertisements alongside their unpaid “directory.” Top-ranked advertisements, like extra-large yellow pages ads, generate more leads for the advertisers; they also help consumers figure out which advertiser is most likely to meet the needs of people who typed the same search query that they did. Just as the advertiser with a large yellow pages ad might be a good place to call first when your toilet is overflowing at midnight, the advertiser at the top of the search page may be a good bet for your investment of valuable time in searching the Internet for an online purchase.

In the United States, three main firms, Google, Yahoo!, and Microsoft, currently operate search advertising platforms. These platforms have what economists call “indirect network effects”: the more consumers there are, the more advertisers join; and the more advertisers there are available for the search engine to choose from, the better the consumer experience can in principle be. Competing search engines vie to attract consumer “eyeballs,” as well as advertising expenditures, to their platforms, and the platform with the most efficient auction will have an advantage at attracting users. At the same time, search engines earn profits from the auction, and auction design (including the use of reserve prices) affects both how much value is created and how much the search engine extracts. Platforms then bid for the ability to provide search services, such as search toolbars for publishers of online newspapers, with whom they share the revenue. This provides incentives for publishers and individuals to publish content all over the Web. It also enhances a virtuous circle, whereby the biggest platforms get bigger. Yet, despite that, competing platforms can coexist.

Whether we’ll have competition among search engines in the future is an open question, and this is an issue of vital importance for all of society, given the important role search engines play in determining what information people receive about politics, culture, and commerce. But if you want a competing search engine to succeed, the revenue

from advertising auctions is a driving force behind funding it, and a carefully designed auction can attract more advertisers and consumers to the platform, thereby fostering competition.

The auction design is constantly evolving, and there is an ongoing and close interaction between the academic literature concerning these auctions and innovations in practice. All search engines actively run experiments with the auction design and measure the results; academic-style corporate research labs play an important role in this. I am currently a visiting researcher at Microsoft Research, where I am working with Microsoft on its own auctions. It is a fantastic playground for an auction designer, and the opportunity to take research into practice is amazing.

One reason that search advertising creates so much value is that the advertisements are highly targeted: people are looking for what the advertisers are selling. Highly personalized advertising can be an enormous benefit to a consumer. Imagine if every advertisement you saw reflected your current needs and interests! As advertising becomes better and better targeted, fewer advertisements are wasted, and the value created by showing advertisements grows dramatically. Online advertising firms are amassing enormous troves of data that can be “mined” to better predict what users will respond to, based on whatever information the firm has about the searcher. Particularly valuable data would include the searchers’ demographics, their searching behavior online, the content of their email, and, potentially, their financial transactions.

A number of crucial questions about the future of this industry remain open. How effective will targeting technology be, eventually? Will users appreciate receiving targeted ads, or will they attempt to shield their behavior from observation? Who will benefit from the individual data? Will consumers share in the advertising revenue, for example, receiving free high-speed Internet or cable television in exchange for allowing their information to be used to target advertise-

ments? If so, will rich and poor consumers receive comparable offers for services in exchange for their information? How will privacy be safeguarded? What role will the government play? Firms will innovate in creating marketplaces for targeted advertising, but society as a whole will participate in setting the ground rules for this next wave of market design. ■

© 2009 by Susan Athey



Earl Lewis

Provost; Executive Vice President for Academic Affairs; Asa Griggs Candler Professor of History and African American Studies, Emory University

It is a real pleasure to say a few words about the humanities and share my love of fashioning an understanding from the fragments of lives. When we think of the humanities, we often think of, among other disciplines, philosophy, literature, history, religion, culture, language, and the ways in which we as individuals fit into, make use of, and move forward larger and more complex institutions and organizations. Today, I want to touch on those topics by talking about stories. All of us have stories: some stories are apocryphal; some we share with only a few friends; a few we hope no one else knows anything about. Stories chronicle the ways in which we are human.

In the days before small batteries powered equally small tape recorders, a now forgotten army of ethnographers moved along our nation's highways and byways to capture the simple words of ordinary citizens who had experienced slavery. The human recorders had to listen hard for rhythm, diction, cadence, and meaning. That some did so better than others goes without saying. Some of those taking notes were black; others were white. Some had early audio recorders; many took notes longhand and transcribed them later. Most listened carefully and reproduced the comments according to the dialects they heard or imagined they heard. They worked

for the Federal Writers' Project, other New Deal programs, and state offices. Their recordings made possible new insights into what it meant to live as enslaved people, and powered a generation of scholarship beginning in the 1960s that provided glimpses into the inner worlds of African descended peoples in the United States.

The list of American Academy of Arts and Sciences members who made use of these materials to inform their scholarship is considerable. An example is the print and audio collection edited by Ira Berlin and associates. In *Remembering Slavery*, Berlin and team assiduously probed what it meant to be human,

The stories we tell, the stories we listen to, mark the humanities and the humanist interest in a lived experience. Here, the past and present remind us of what it means to be more than a collection of cells. We are reminded that in stories we find answers to what makes us who we are.

even for those whom others had seen as chattel. From the stories they captured, we see how ordinary people emerged in mind, body, and soul to reveal consciousness, free will, and poetic genius, despite legal limits on every aspect of their lives.

Fast forward to today, and to another attempt to let ordinary Americans tell their stories. The project is called StoryCorps, and many of you have heard radio vignettes on your local public radio station. It is the largest project of its kind since the 1930s, and as in the 1930s, the casual listener or reader will hear tales of hope and despair, love and heartbreak, beauty and pain, triumph and defeat, humor and tragedy: all of what it is to be human.

But scholars today seeking to use these materials benefit from significant advances in technology. Not only is the sound quality of the recordings considerably better than in the 1930s, but now we can tag the information digitally for easy retrieval. The sources can be sorted, analyzed, remixed, and otherwise used in manners barely imagined three generations ago. We can data mine and electronically reproduce. We can scan for visual expressions of body language, mood, and signs of affection. Today, it is as easy to focus on the technologies as it is the people captured by those technologies. It is here that the fundamentals of humanities scholarship and method make a difference.

Let me offer two historical examples. The ability to build a nuclear bomb is not the same as feeling compelled to detonate it. Piloting a massive aircraft is not the same as using it to destroy the lives of thousands of innocents. In both examples, we need greater insight into human motivation and behavior. We need an understanding of culture, language, history, religion, and worldview. We need stories. We need to analyze them in form and structure. We need to pause and posit, "Why? Why? Why?" Ultimately, technological advancement requires a humanist perspective to understand fully its importance. The stories we tell, the stories we listen to, mark the humanities and the humanist interest in a lived experience. Here, the past and present remind us of what it means to be more than a collection of cells. We are reminded that in stories we find answers to what makes us who we are. If you ever listen to or read a slave narrative, and the next time you hear a selection from the StoryCorps project, think about what is in a story. ■

© 2009 by Earl Lewis

Induction Ceremony



Indra Nooyi

Chairman and Chief Executive Officer, PepsiCo

Ladies and gentlemen, it is with great humility and no little pride that I stand before you today to accept this accolade on behalf of myself and Class V of the Academy. When I reflect on the distinguished members of the Academy and the remarkable men and women who are being honored on this occasion, I am truly humbled.

Indeed, this honor has forced me to reflect on the nature of what I do in leading my company, PepsiCo. The accomplishments of the vast majority of members of the Academy are impressive and clear. When scientists expand the frontier of knowledge, this is clear. When public servants help those in need, it is clear indeed. When writers change our understanding of the world, again, it is clear. So with no false modesty, I have wondered about my own contribution. What is the enduring achievement of business? In what way do I stand shoulder-to-shoulder with my fellow inductees today and with all of the distinguished people who have come before us?

Business, of course, makes a direct contribution to the health of society. It is an engine of growth and a source of employment. Our livelihoods would be less prosperous and more onerous if it were not for the ingenuity of entrepreneurs. The fiscal base of all nations would be depleted were it not for the contributions made by business. And

every company, of course, by definition supplies a product that people want. Life is, in some small way, enriched by the work done by business.

But believe me, none of these reasons is special enough to warrant this award. Companies are linked into society inevitably, and I think we need to lead this argument just a bit further. I like to think that it is in the process of advancing the idea of “the good company” that I may have come to the attention of the Academy. It is a deceptively simple idea: that a company must redeem a moral promise as well as yield a return on capital. It is not enough, in my view, simply to comply with the existing rules and regulations in pursuit of the maximum return to shareholders. If that is your approach, it will prove to be self-defeating.

Business, of course, makes a direct contribution to the health of society. It is an engine of growth and a source of employment. Our livelihoods would be less prosperous and more onerous if it were not for the ingenuity of entrepreneurs.

The modern company today lives in a world crisscrossed with networks of governments, NGOs, transnational agencies, and other companies. That complexity is compounded by the fact that we operate in very many more countries than ever before, selling into very many more different cultures. And all the while, the scrutiny of global media means that any error is put up to the light almost in an instant.

It has always been the case that a company guards its reputation for probity with great zeal. But there was a time when mistakes would pass unnoticed. Once won, it took a lot to tarnish the reputation.

This is no longer true. There are companies that have taken years to recover from a single instance of unethical practice. In due course, they find it difficult to recruit the best staff. Young people today want to know that they are working in a good company. Our new recruits pose a stringent test that we have to pass.

If PepsiCo’s ethical position is not aligned with our commercial position, then both will suffer. The future of our company is in the marriage of what is good ethically and what is good commercially.

This is not the occasion for a parade of examples from PepsiCo and how we live up to this exacting standard. Let me simply say that we have tried to embed the notion of a good company in everything we do.

This age has been one in which nation-states have seen power slowly migrate. Open markets are changing the world, and in that context, companies have become what Robert Lowe, the founder of Limited Liability, once called “little republics.” They have gained a power they never sought. The task is to exercise it responsibly.

It is, I hope, for the responsible exercise of that power that I stand before you today. It is a great honor, I am overwhelmed, and I cannot thank you enough. ■

© 2009 by Indra Nooyi

Projects and Studies

At a morning briefing for new members, held on October 11, 2008, leaders of current Academy projects presented updates on their work. Their remarks appear below.

ARISE: Advancing Research in Science and Engineering

Neal Lane

Malcolm Gillis University Professor, Senior Fellow at the James A. Baker III Institute for Public Policy, and Professor in the Department of Physics and Astronomy at Rice University.

As cochair of the Academy's Initiative for Science, Engineering, and Technology (SET), I would like to discuss a report we recently issued on the need to develop funding policies and programs to support early-career scientists and high-risk, potentially high-reward or transformational research. The report, entitled *ARISE: Advancing Research In Science and Engineering*, has received widespread attention in government and in the media.

The purpose of the Academy's SET Initiative is to identify areas of concern in science and technology policy where the Academy's influential voice can make a difference. Our first study focused on the modes used by federal agencies to fund research. We chose not to address how much money ought to be spent – a lot has been said about that matter – but rather how the funds should be allocated. The objective was to complement the findings of the National Academies' report, *Rising above the Gathering Storm*, which dealt with the need for additional federal investment in scientific and technological research and education by the federal government and other policy actions to lower existing barriers to innovation by U.S. industry. The Academy study identified issues that the committee felt were important no matter what the funding levels were.

The project's study committee, chaired by Nobel laureate and President of the Howard Hughes Medical Institute Thomas R. Cech, included scientists and science-policy experts from academia, industry, government, and the private sector. I served on the committee. A headline for the report might read: "If this country really expects to stay in a leadership position in the next century, we need to invest in the people and the ideas to make that happen." It fits well with the Academy's motto: Cherishing Knowledge, Shaping the Future.

I would like to tell you briefly what we had to say about each of these topics and what we felt should be done. In the case of early-career investigators, it is obvious why they are important: they are the future and they face ever-increasing barriers that are much higher than those many of us faced when we were starting

out. Here are some indicators of what lies ahead for young scientists. First, the average age of the recipient of the first competitive National Institutes of Health grant is over forty-two years. Many young people are finding that by the time they get their first competitive grant and have a chance to do anything with it, the tenure clock has run out. This is terribly wasteful in terms of the talent and money invested by the federal government, by universities, and, sometimes, by the parents and spouses who support these young investigators.

Another indicator, the success rate for first-time applicants (and now I am still talking about National Institutes of Health) has declined from 86 percent in 1980 to 28 percent in 2007. The National Science Foundation has had a similar experience. Too much time is spent preparing grant proposals and, if rejected, the



Selected leaders of current Academy projects: front (left to right): Robert H. Legvold (Columbia University), Patricia Meyer Spacks (University of Virginia), Francis Oakley (Williams College), Bruce Western (Harvard University); back (left to right): David Clark (MIT), John D. Steinbruner (University of Maryland), David E. Bloom (Harvard School of Public Health), Steven E. Miller (Harvard Kennedy School), Neal Lane (Rice University), Robert I. Rotberg (Harvard University), Leslie Berlowitz (American Academy), Jesse H. Choper (UC Berkeley School of Law), Scott D. Sagan (Stanford University)

second and third amendments to the original proposals. That time could be spent more productively on research.

The ARISE report makes a number of recommendations to federal agencies, foundations, and universities, including the creation of target grant and seed funding programs for early-career scientists as well as reconsideration of promotion and tenure policies. In addition, the report advocates for the systematic tracking of demographic data about grant applicants on a government-wide basis: the current non-standardized track-

If this country really expects to stay in a leadership position in the next century, we need to invest in the people and the ideas to make that happen.

ing hinders efforts to determine how well we are supporting younger scientists. We also suggest that federal agencies and universities pay special attention to women and their childbearing needs.

In my view, the question of support for high-risk, high-reward research is less straightforward, but based on our discussions at federal agencies and our interviews with people in the research community, it is clear that many years of tight budgets and conservative thinking within funding agencies have created a bias against potentially transformative research. Scientists, both young and established, are often told, "If you don't know it's go-

ing to work, don't put it in your proposal, because it won't get past the reviewers." If America is to remain competitive in the new global environment, we must address this issue through special programs focused on bold research ideas, a strengthened peer-review system, and greater support for the program officers who are making key decisions. These program officers need to be active in the research community, attending conferences, visiting laboratories, and staying current in the field. As many of us who have worked in federal agencies know, the budgets to support these activities have been squeezed over the years and are simply too small.

Now some of you may be asking yourselves, "Why is this Academy focusing on these issues?" This is a very good question. We think this study is an excellent example of something this Academy can do by building on its multidisciplinary membership, including fields and professions that reach far beyond science, engineering, and research. Moreover, the Academy's acknowledged status as a neutral party without an ideological agenda – not beholden to government or corporate funders – gives us a special credibility.

Since June, when the Academy released the report, there have been a number of outreach efforts. We have sent the report to more than 6,000 academic, government, industry, and foundations leaders as well as to members of the media and, of course, all of our Fellows. We've been on the Hill, and committee members have conducted briefings at a number of government agencies. There have been more than 135,000 hits on the Academy's website that includes the full text of the report and a summary of the findings.

A number of actions have been taken: we don't take credit for them, but they do dovetail with what we are talking about. The National Institutes of Health has made significant changes to enhance and improve its peer-review system. NIH has also announced a new program of first grants to support high-risk, high-reward research called the EUREKA program. In addition, the National Science Foundation has developed a transformative research initiative.

The next steps are implementation. Many fine reports are written and end up on the shelf. So we need to spread the word, finding anybody who will listen. A new executive branch of government and a new Congress are about to take office. We are actively working to ensure that this report will be part of the transition material for the new administration and that it will have a significant impact in the years to come.

The Global Nuclear Future

Steven E. Miller

Director of the International Security Program at the Belfer Center for Science and International Affairs at Harvard Kennedy School.

The global nuclear order is changing before our eyes. Existing nuclear power programs are being expanded while elsewhere around the world there is a big appetite for adding nuclear power to the energy mix. The upsurge of interest in nuclear power is driven in part by growing global energy demand and serious worries about long-term fossil fuel costs. Further, in many places concerned about global climate

change, nuclear power – the most proven large-scale alternative to fossil fuels – looks more attractive and even more necessary than in the past. Rapid expansion of nuclear power may be necessary if greenhouse gas emissions from use of fossil fuel are to be significantly reduced.

All of this momentum toward nuclear power leads many people to believe that we are on the edge of a so-called nuclear renaissance. But what are the implications of the nuclear world into which we seem to be heading? How can the benefits of nuclear power be obtained while minimizing the risks and potential problems associated with nuclear technology? How can a world in which nuclear technology is both more abundant and more widely spread be safely managed? Moreover, the spread of nuclear power has inherent weapons implications, given the dual-use nature of many of the sensitive nuclear technologies. How can the risks of nuclear proliferation be contained as nuclear power spreads? These are the big questions we are addressing in our project.

With generous support from the William and Flora Hewlett Foundation, we are conducting this study under the auspices of the Academy's Committee on International Security Studies. Three strands of work are being pursued through commissioned research and a series of workshops. First, there is the question of safety and security: the need to ensure that future nuclear facilities meet desirable standards of safety and security to minimize the risk of accident and of terrorist abuse. This concern is particularly evident in the case of nuclear newcomers, places that currently have a declared appetite for nuclear power.

er but do not have an existing legal, technical, or regulatory infrastructure for managing nuclear power.

A second strand of work centers on the management of the nuclear fuel cycle. At the front end of the cycle, we are dealing with fuel supplies, various multilateral schemes, and problems of

If you think that nuclear power simply has to be part of the mix for addressing global climate change, then successfully addressing the nonproliferation challenges related to the expansion of nuclear power is a real imperative, not only from a security point of view, but from an energy and climate change point of view as well.

fuel assurances. Above all, we are trying to discourage the spread of the kind of technologies that are proving so troublesome in the case of Iran: if you get national enrichment capabilities, you inherently are providing a weapons option for that state. At the back end of the fuel cycle, we have a waste disposition problem. These wastes are very long-lived, hard and dangerous to handle, and costly to deal with, but they also

have weapons implications because the spent fuel rods contain plutonium, and, if separated, they can help produce a bomb.

The third strand of our work deals with the international nonproliferation regime by examining the adequacy of existing arrangements for enforcing the separation between civilian nuclear power and nuclear weapons programs. Even if you think that the mechanisms now in place are adequate for today's challenges – and many experts do not think that is the case – we want to consider whether these arrangements will be adequate for a future in which there may be many more nuclear power reactors spread across many more countries with a much larger burden of transparency and inspection imposed on the international order.

The failure to meet that challenge could impinge dramatically on the prospects for utilizing nuclear power in the future. A nonproliferation catastrophe will have enormous ripple effects on the global nuclear power industry. And if you think, as many increasingly do, that nuclear power simply has to be part of the mix for addressing global climate change, then successfully addressing the nonproliferation challenges related to the expansion of nuclear power is a real imperative, not only from a security point of view, but from an energy and climate change point of view as well.

All three strands of our work are driven by the belief that we are entering a world that will be to some large degree unlike the nuclear past. There will be more players, more reactors, more challenges, and also more risks and worries that we will attempt to hold at bay with recommenda-

tions about what arrangements in the future may be best for limiting risk.

One final point: we held our first conference here at the Academy in May 2008. Participants included a remarkable set of interdisciplinary, and even inter-professional, individuals such as physicists, political scientists, economists, nuclear engineers, material science specialists, and industry specialists. At that meeting, a representative of the nuclear power industry showed a slide consisting of concentric circles. He put question marks in the inner circles and explained they represented the challenges that he saw for the global expansion of nuclear power. The two biggest challenges were financial and technical constraints that inhibit the ability to expand nuclear power as rapidly as might be desired.

On the outside ring were problems that, in his view, have been solved, including physical security – the antiterrorism problem – and the nonproliferation problem. He maintained that we have standards, we have rules, and we are following the rules. His comment created an interesting dialogue because those who deal with proliferation said, “No, you don't understand, *these* are the biggest problems,” while the representatives from industry argued, “No, we're dealing with those as effectively as we can.” It was clear that the people in that room do not talk to each other nearly as often as they should. We all get “stove piped” into our own professional disciplines and our own subfields but the Academy's project offers us the opportunity to cross those boundaries.

The Global Nuclear Future

Scott D. Sagan

Professor of Political Science and Codirector of the Center for International Security and Cooperation at Stanford University.

Our project on The Global Nuclear Future is still at a very early stage of development. Here I will lay the groundwork by discussing very briefly the global status of nuclear weapons and nuclear power development today, and how this influences the framework for our project. The three figures presented below provide a graphic display of both successes and challenges that we face.

Looking at nuclear weapons proliferation in Figure 1, there is both good and bad news. Historically, the number of nuclear states has been steadily rising, although not as rapidly as many predicted in the 1960s. Indeed, there have been a number of important nuclear reversals, states that acquired nuclear weapons and then gave them up. Belarus, Ukraine, and Kazakhstan inherited their weapons after the collapse of the Soviet Union. They later were persuaded to ship them back to Russia where some were put into storage, and others were dismantled. The materials in some of the dismantled weapons from the Soviet stockpile were downblended and then shipped to the United States for use in nuclear power plants; much of the energy in the state of Illinois, for example, is produced from nuclear materials that originated in Soviet nuclear weapons. South Africa also had a small number of nuclear weapons but gave them up just before the collapse of the Apartheid regime, keeping its

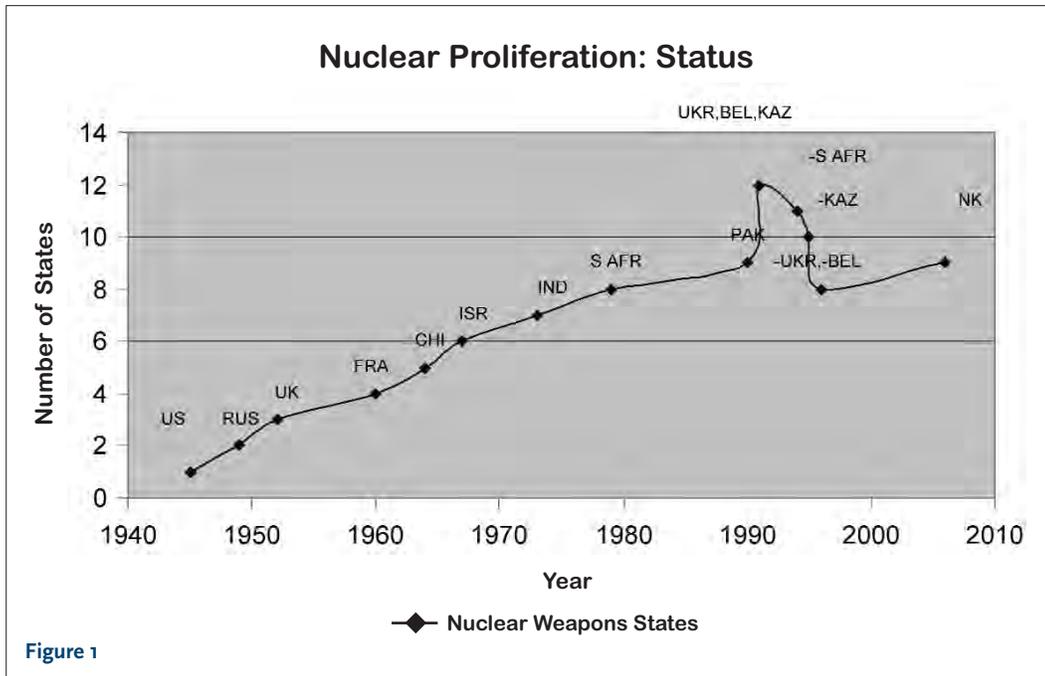


Figure 1

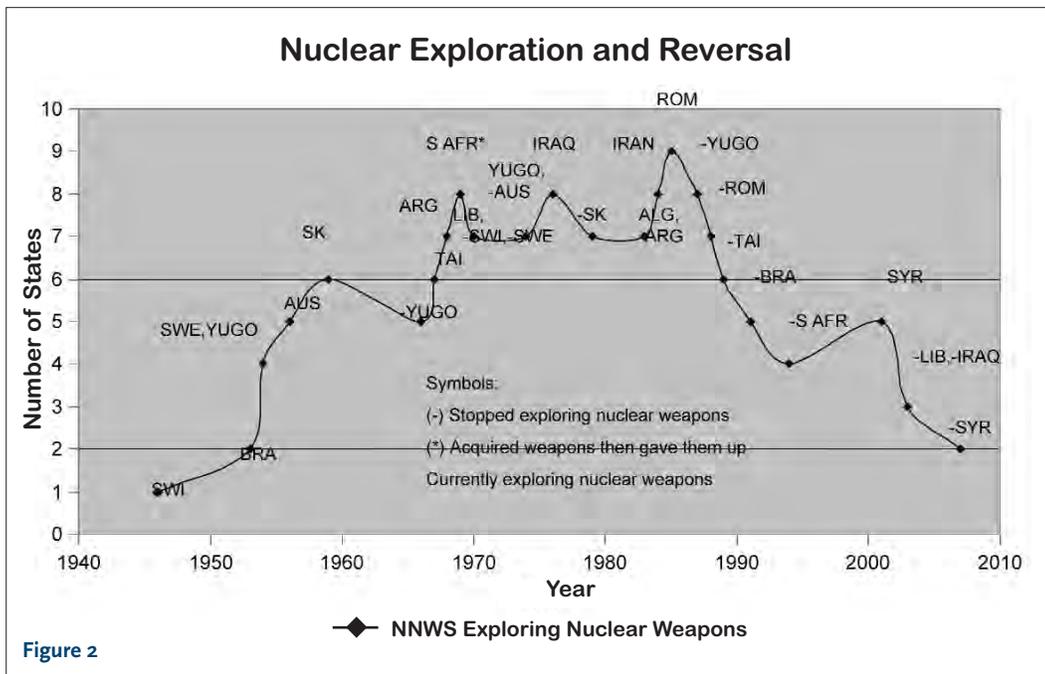


Figure 2

highly enriched uranium in a facility called Pelindaba under full IAEA (International Atomic Energy Agency) safeguard inspections. This positive disarmament record is heartening, but should not lead us to ignore how many others states have started but not completed their own nuclear weapons programs.

Figure 2 shows over time which states started developing nuclear weapons, when they did so, and when they ended their weapons programs. This figure provides only an estimate of this hidden history of proliferation attempts, because governments often try to keep any nuclear weapons research secret from the outside

world. Indeed, this figure had to be amended just in the last year when we discovered that Syria was secretly starting a nuclear weapons program but refusing to inform the IAEA and creating disguises for its reactor. The key Syrian facility was attacked in the summer of 2007 by the Israelis, and IAEA investigators remain

concerned that Syria is secretly concealing its nuclear weapons development work.

In the more complicated Figure 3 I show the number of states that have developed nuclear power and/or nuclear research reactors and therefore have some experience in dealing with nuclear technology. Some of the research reactors use highly enriched uranium, although the global clean-up program is trying to switch all of them to low enriched uranium in order to reduce terrorist risks, since highly enriched uranium can also be used for a bomb. This figure also shows countries that are engaged in uranium enrichment or plutonium reprocessing, either of which produces serious proliferation and security risks. If you *enrich* low-enriched uranium to fuel a power plant, for example, you can easily also make highly enriched uranium for nuclear weapons. In addition, the spent fuel rods coming out of a power reactor have plutonium in them, and if you have an ability to reprocess, you can turn that plutonium into weapons-grade material for a nuclear bomb. One serious problem we face in a world of expanding nuclear power, and demand for nuclear fuel, is how to control the fuel cycle so that more and more states do not develop enrichment and reprocessing plants, which would make such states “latent” nuclear weapons powers.

In Figure 3 you can see that the gap between countries that are using nuclear research reactors or power reactors for civilian, legitimate, treaty-acceptable purposes and those that have nuclear weapons is very significant. Our project focuses on how best to maintain that gap and potentially increase it.

Most specialists predict at least some continued global growth of nuclear power, and most predict some degree of spread of nuclear power to new countries, states that may not have highly developed regulatory systems or advanced security programs to prevent theft or diversion. Experts disagree, however, on the rapidity and ultimate level of growth in nuclear power for both economic and environmental reasons: the massive capital costs for the construction of nuclear reactors are all frontloaded, for example, and some countries' publics are highly opposed to nuclear waste storage. At the very time that the interest in nuclear power is increasing around the world, however, we have great challenges with the nonproliferation treaty (NPT). How can we best ensure that as nuclear power expands around the world, it does not inadvertently increase the danger of ma-

terials falling into the hands of terrorists or new countries dropping out of the treaty and using their new technology and new understandings to develop nuclear weapons? What kinds of new cooperative arms control measures could be negotiated to reduce these risks? The Global Nuclear Future Initiative is designed to bring together scholars and practitioners from both the nuclear power and nuclear weapons nonproliferation communities to answer these important questions.

Reconsidering the Rules of Space

John D. Steinbruner

Professor of Public Policy and Director of the Center for International and Security Studies at the University of Maryland

This project is examining the global security implications of U.S. policy in space. In recent years, the United States has made a disproportionate investment in military capability, creating a global power capacity that no other country can match or is anywhere close to matching. In terms of military operations, we really are in a league by ourselves.

Under the Bush administration, this established advantage has been associated with the implied intention to build a degree of superiority sufficient to allow the United States to eliminate any

serious threat with preemptive attack rather than by relying on deterrent effects. That intention has been most explicitly stated in our space policy, where a series of officially pronounced documents formulate an aspiration to utilize space for national advantage and deny a similar capability to any other country. This violates established legal rules, and it is not feasible for technical

It is in America's interests to initiate negotiations designed specifically to prohibit interference with space assets, to set a rule against that, and, more generally, to convey reassurance regarding the responsible use of U.S. military capability.

and economic reasons, which are well reviewed in the first of several monographs issued by our project. Physically and economically, we are not going to be able to dominate space in the way these documents claim.

The extensive effort to pursue this aspiration, however, will reinforce significantly the capacity to engage in highly intrusive long-range attack capability, resulting in a new dimension of military capability with significant implications. That emerging capability is likely to be of concern to other governments, China in particular, and could in-

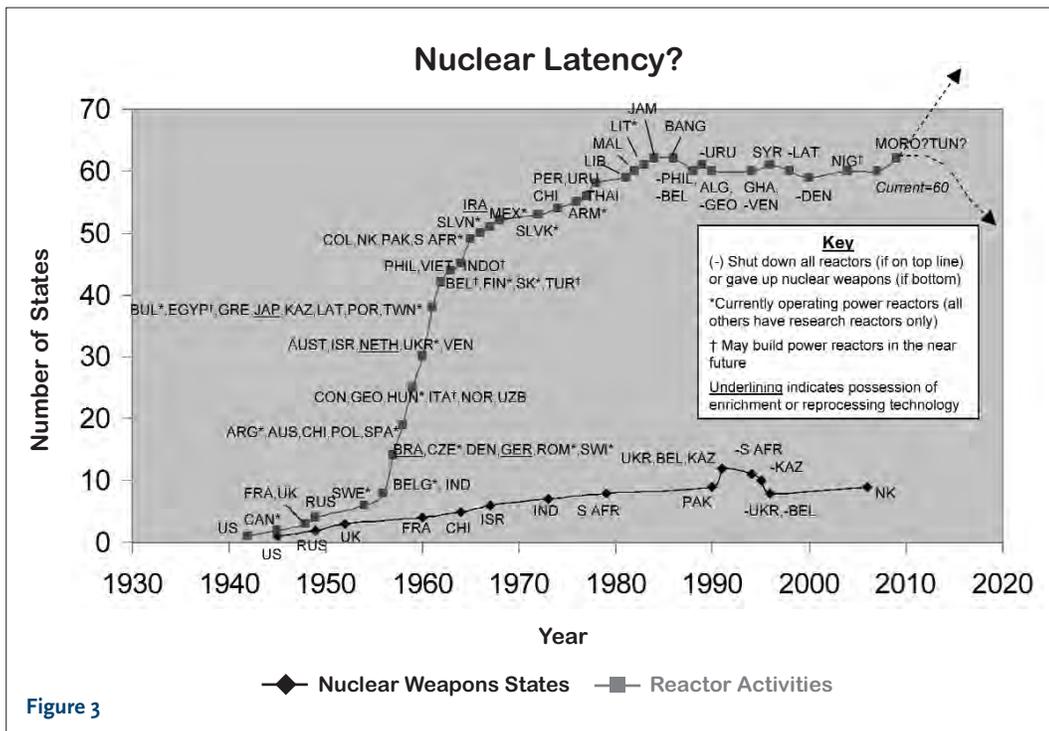


Figure 3

duce preparations to attack U.S. space assets, thereby creating a threat to those assets that would not otherwise exist.

Our assets in space are very valuable, and very vulnerable. In this situation, we argue that it is in America's interests to initiate negotiations designed specifically to prohibit interference with space assets, to set a rule against that, and, more generally, to convey reassurance regarding the responsible use of U.S. military capability.

Many of you may be aware that for 30 years the United States – alone in the world – has refused to negotiate on this subject; in fact, we have refused to contemplate even discussing an elaboration of the rules of space. If you can imagine climbing up and viewing the scene from some emotionally detached perspective, this is bizarre behavior on our behalf, especially since we have an overwhelming interest in establishing protective rules for our assets. It indicates that there is a serious problem in our political system in determining our real interests.

Countering Corruption in Nation-States

Robert I. Rotberg

Director of the Program on Intrastate Conflict and Conflict Resolution at Harvard Kennedy School and President of the World Peace Foundation

This Academy study represents a bold attempt to assess the enormous impact that corruption is having worldwide. Almost nothing strangles growth in the developing world more than corruption, yet the World Bank did not regard it as a serious issue until the 1990s. Peter Eigen, who is involved in our project, almost single-handedly brought corruption out of the closet in 1991–1992 when, after leaving the World Bank, he founded Transparency International. Nothing keeps people hungry more than corruption. Nothing keeps people in the developing world unhealthy and ill-educated more than corruption. Nothing causes more conflict in the world, particularly in the developing world, than corruption. Nothing undercuts good governance more than corruption. And nothing undercuts security more than corruption.

Think for a moment about Congo, Nigeria, Somalia, Burma, even Russia. The killings in the Niger Delta may be largely the result of corrupt practices in Nigeria. Look at what happened in Burma during the cyclone. One of the principal elements behind corruption is greed – a motivating force that is certainly evident in the developed world but which seems to be more prevalent in new societies than in some older ones. One reason may be the kind of leadership that begets good governance. The difference between Botswana and Singapore, where there is little corruption, and Nigeria,

Congo, Laos, or Burma can be traced clearly to the quality of leadership in these countries.

Our project at the Academy is preparing a book that describes the problems of corruption in the world. It analyzes its causes, prescribes remedies, and concludes with a number of critical case studies of how corruption affects security and the global order. There are chapters on the changing nature and character of corruption, including a discus-

This Academy study represents a bold attempt to assess the enormous impact that corruption is having worldwide. Almost nothing strangles growth in the developing world more than corruption.

sion of corruption and human rights and the relation between corruption and health and education. We also consider corruption in the trafficking of humans, drugs, and arms as well as corruption and terrorism and the impact of corruption on the proliferation of weapons of mass destruction.

The book examines the impact of leadership on multinational corporations and on how corporate leadership deals with corruption. There are several case studies. We have two chapters on Nigeria, one focusing on how its people regard corruption; and a second on how corruption is

destroying the fabric of Nigerian society. Papua New Guinea, one of the most corrupt places in the world, and Russia are the subject of the other case studies. The book, now in the editing stage, will be a valuable resource for scholars in international development, international relations, and comparative politics.

U.S. Policy toward Russia

Robert H. Legvold

Marshall D. Shulman Professor Emeritus of Political Science at Columbia University

For four years, the Carnegie Corporation has funded important work in Russian studies and on international relations involving the areas surrounding the Russian state. Recently the Carnegie Corporation grew impatient with the lack of serious, systematic, long-term, and broad-visioned thinking about the U.S.-Russian relationship, which in fact has become the victim of years of fragmentary thinking that focuses on only a limited but important range of issues, such as horizontal proliferation, loose nukes, or oil and gas in the Caspian Sea area. For many people, Russia was no longer an issue that required serious thought.

Within the last year, however, Russia has again become central to U.S. foreign policy. In response, the Carnegie Corporation wanted to launch a national effort to re-examine U.S. foreign policy toward Russia, and the question became where to locate such a study. As I became involved in the project, it seemed to me that the ideal location would be the American Academy for the rea-

sons that Neal Lane outlined earlier. It is a national organization, a neutral organization, and an independent organization. Above all, it is rich in human resources representing a diversity of fields and professions.

In terms of the project itself, we set two basic tasks for the participants. The first was to do something that U.S. foreign policy has not done through all the administrations since the collapse of the Soviet Union, and which think tanks, task forces, and commissions have not accomplished – namely to situate Russia in the context of overall U.S. foreign policy priorities. What is the relevance of Russia to the five or six most important international issues currently facing the United States? To what degree is Russia indispensable on any of these issues? In what cases is cooperation with Russia desirable? In what cases is it essentially unnecessary? There are very few areas in which Russian cooperation is unnecessary, including the rebuilding of the alliance with Europe, with whom we have a divide in terms of how we are going to deal with Russia and its neighbors.

Our second purpose is to design a policy that is comprehensive, coherent, and well-integrated across issue areas. Again, U.S. policy has not done this. The task is difficult conceptually, and in policy circles, it has not seemed worth the effort given the down-graded status we assigned to the Russians.

In order to build some perspective on where we want the U.S.-Russian relationship to be five years from now, we need to step back from the current climate, which has been deteriorating for the last three or four years, and particularly since the Russian-Georgian War last summer. We

need to develop a more effective policy that encompasses the difficult questions that lie ahead: from nonproliferation and NATO membership for Ukraine or Georgia to missile defense in Europe around Poland and the Czech Republic. Other issues include oil, gas, and energy, and the dynamics within the Eurasian landmass, including the critical Islamic southern front. These concerns must be embedded in a strategic dialogue that addresses the framing issues of European nuclear security, energy securi-

What is the relevance of Russia to the five or six most important international issues currently facing the United States? To what degree is Russia indispensable on any of these issues?

ty, and mutual security in and around the Eurasian landmass. And we need to act in a way that will serve the country, not simply by providing a new administration with policy recommendations, but by helping to stimulate a reconsideration of our Russian relations within congressional committees, the media, and world affairs councils.

To undertake its work, our project established three working groups: one at the Carnegie Moscow Center, where a 12-part seminar examined the security dimensions in U.S.-Russian relations, including areas of potential nuclear cooperation; a second in Washington with a six-part seminar centering on the broader is-

ssues surrounding the relationship; and a third, six-part seminar at the Center for Strategic and International Studies on the economic dimension of the relationship. In addition, former U.S. Ambassador to Russia James F. Collins is coordinating conversations with other former ambassadors on the issues of structure in U.S.-Russian relations. The findings of these groups will be used by a steering group, which will design a basic document that addresses the two tasks outlined earlier, as well as a series of more specific documents designed to inform the administration and Congress.

The outreach has already begun. I have worked with the Russian government and with the Russian Embassy in Washington; with the Foreign Relations Committee in the Senate; with key people within the administration, particularly at the State Department; and with both presidential campaigns. I am also working with the new Hart-Hagel Bipartisan Commission on U.S. Policy toward Russia. Outreach is critical because it is going to require a lot of hands to deal with the challenge of redesigning this policy. In this effort, I believe that the Academy project is essentially the bellwether for what will happen nationally.

I would hope that if this project succeeds even marginally, it will inspire reconsideration of other essential elements in U.S. foreign policy, including the U.S.-China relationship, our interactions with the world of Islam, and, of course, questions of global governance that are now being driven so forcefully by the current national and international financial crisis.

The Challenge of Mass Incarceration in America

Bruce Western

Professor of Sociology and Director of the Multidisciplinary Program in Inequality & Social Policy at Harvard Kennedy School

For most of the twentieth century, imprisonment in America was very rare. The incarceration rate was 100 per 100,000, meaning that just one tenth of 1 percent of the population was behind bars on any given day. So why should the Academy convene a group of social scientists, lawyers, and policymakers to study incarceration in America? The answer lies in the tremendous growth of the prison and jail population in this country since the 1970s. That population has grown every single year for the last 35 years, until today the incarceration rate stands at about five times its historic average. In fact, the incarceration rate in America is the highest in the world, exceeding that of Russia and some former Soviet republics and the Republic of South Africa, which are the nearest competitors.

What is the significance of this historically high rate of incarceration? The average level of incarceration is perhaps less important than its distribution across the population. Although imprisonment is very rare in the general population, about 15 percent of men born since the late 1970s will go to prison at some point in their lives if they have never attended college. For young, non-college educated African American men, 35 percent will go to prison at some point. And among young black men who have dropped out of high school, 70 percent will

have prison records. So the experience of young adulthood has been transformed by the growth in incarceration rates in the United States, and the effects of this transformation have been concentrated overwhelmingly among those who have never been to college, and among African Americans in particular.

The prison is a vivid symbol of both social order and social failure. Something fundamental has changed about its role in American society, and we suspect something fundamental has changed within American society as a consequence.

If we think that the astonishing rate of incarceration that prevails today is simply due to very high rates of crime among young men with little schooling, we have to remember that this level of incarceration is entirely new. Prison has only become a normal part of the life course for low-educated young men over the last 10 years. Researchers working on the problem are also finding – as you might expect – that a prison record brings a whole array of diminished life chances. Men coming out of prison have a high risk of contracting an infectious disease and have extremely low earnings and high rates of joblessness. They are unlikely to get

married, but if they do, they are extremely likely to get divorced or separated. Employment and marriage are extremely important, because criminologists find that they are two key steppingstones on a path out of crime. If incarceration is undermining people's economic prospects and disrupting family life, the expansion of the penal system may indeed be a self-defeating strategy for crime control, because we are undermining the conditions that promote criminal desistance.

There is solid evidence that the growth of the prison population has produced real gains in public safety and contributed to falling crime rates, particularly through the 1990s. Poor communities that supply most of the nation's prison population are also most exposed to the risks of serious violence. Given its considerable social cost, though, I think we need to understand the extent to which prison reduces crime. We also need to ask whether prison may undermine public safety in the long run by returning to society large numbers of young men with few prospects, broken families, and the stigma of a prison record.

The Academy is playing a vital role in addressing these questions. The statistics I have quoted point to a deep crisis in our poorest communities, but the situation is largely unknown except to a small group of researchers. When Leslie Berlowitz first came to me with the idea of convening a group to study mass incarceration in America, she presented the opportunity for a broader public conversation about what has largely been a subterranean issue. The convening power of the Academy has allowed us to draw together the best researchers from around the

country, from all the social science specializations, and from the professions as well. The breadth of the Academy's membership will also allow us to enlist artists and humanists in our investigation – a novel experience for me, certainly, and for many in the group.

The prison is a vivid symbol of both social order and social failure. Something fundamental has changed about its role in American society, and we suspect something fundamental has changed within American society as a consequence. Those of us involved in the study are grateful to the Academy for the extraordinary forum that it provides to examine this issue.

The Independence of the Judiciary

Jesse H. Choper

Earl Warren Professor of Public Law at UC Berkeley School of Law

This project, now called The Independence of the Judiciary, originated in 2002 as a study of Congress and the Court. In the early 1990s, the U.S. Supreme Court had begun invalidating a series of federal statutes on the ground that Congress lacked the constitutional authority to enact them. The Violence against Women Act was one; another concerned the application of several federal statutes – including the Americans with Disabilities Act and the Age Discrimination in Employment Act – to state officials, such as state university faculty. This was the first time since the end of the New Deal that the Court had actively rejected the work of one of its coordinate branches.

At the same time, the relationship between the Court and Congress became very contentious because of the politicization of the judiciary attributable to the growing controversy over abortion and the judicial confirmation process in the Senate. A group of scholars from political science and law, the Supreme Court correspondent of the *New York Times*, and several judges, including one who also served as a five-term member of Congress and as White House counsel, thought

This project contributes to our understanding of the concept and practice of judicial independence, which is so vital in our democracy.

it important to have a neutral arbiter, such as the Academy, convene several off-the-record, closed door sessions to assess the deteriorating relationship. A number of Supreme Court justices – as many as five at one of our meetings in Washington – as well as several lower court federal judges and Capitol Hill leaders, such as Charles Schumer of New York, Christopher Shays of Connecticut, and Howard Berman of California, participated in these meetings. We supplemented the sessions with a series of lectures and panel discussions on broader topics affecting judicial independence: the career paths of judges, their compensation and benefits, and the confirmation process.

When we initiated this project, the Court was thwarting Congress, but as our study evolved,

Congress sought to exert its power over the judicial branch by considering measures such as prohibiting federal judges from traveling to meetings at government expense and from citing foreign law, for example. At one point, a group called “JAIL for Judges” sponsored referenda in several states that would have imposed criminal liability on judges for rendering “wrong decisions.” None of them, at least as yet, has passed.

It was apparent that our project would benefit from a wider-ranging discussion that would reach the public. We focused on many of these issues at a joint meeting of the American Academy and the American Philosophical Society held in April 2007 in Washington, DC. Retired Supreme Court Justice Sandra Day O’Connor and Chief Judge of the State of New York Judith Kaye participated in the panel on the Independence of the Courts. In fall 2008, the Academy published an issue of *Dædalus* on the theme of judicial independence. The volume contains an impressive array of essays by such eminent jurists as Supreme Court Justices O’Connor and Breyer, Chief Justice of the Supreme Court of California Ronald George, Chief Justice of the Massachusetts Supreme Judicial Court Margaret Marshall, Chief Justice of the Arizona Supreme Court Ruth McGregor, and Chief Judge J. Harvie Wilkinson of the U.S. Court of Appeals for the Fourth Circuit. Linda Greenhouse, formerly of the *New York Times*, congressional leaders such as Senator Charles Schumer, and several prominent legal scholars and political scientists also wrote for the issue. The collection is a compilation of essays drawn from meetings organized by our project and papers prepared for conferences sponsored by the Sandra Day O’Connor

Project on the State of the Judiciary at Georgetown University Law Center. These perspectives contribute to our understanding of the concept and practice of judicial independence, which is so vital in our democracy.

The Humanities Indicators Project

Francis Oakley

Edward Dorr Griffin Professor of the History of Ideas and President Emeritus at Williams College

When the Academy launched its Initiative for the Humanities and Culture in 1998, one of the first questions those involved had to face was this: Why it is that those of us involved in the humanities seem to find it so very hard to convey to others the significance of what we do, or its importance for the national well-being, or even the status and current condition of the various fields of humanistic endeavor to which we severally bring so passionate a commitment. Not an issue, of course, or set of issues, susceptible in all its formidable complexity to resolution via any single or simple mode of approach. Part of the problem may well be that we ourselves do not fully understand what it is that we do, why we do it, or why it might be as important as we instinctively take it to be. And part of the reason for that particular failure of understanding, or so those of us involved in the Initiative came quickly to conclude, was that the humanities, whether in the primary and secondary school sector, or at the undergraduate and graduate levels, or, for that matter, in American life at large, have long suffered from a debilitating and protracted case of

data deprivation. That is to say, even when those of us concerned with the humanities try to understand the significance of what we do by placing it in some larger context or seeing it from some broader perspective, we find, alas, that we lack the supportive interpretative tools provided by the systematic gathering, assem-

The Humanities Indicators Prototype, a comprehensive portfolio of statistics in the humanities based on existing data, is intended to inform decision-making by educators and national policymakers alike.

bly, organization, analysis, and dissemination of the type of pertinent empirical data long since made available to our colleagues in the natural sciences.

For the humanities, perhaps surprisingly, such data – concerning matters as fundamental as the number of students enrolled nationally in courses devoted to the humanities – we found were either altogether lacking, or were inconsistently assembled, hard to access, poorly disseminated, unwittingly ignored, and routinely underutilized. As a result, generalizations made about the humanities, whether critical or supportive, have tended to be characterized by a genial species of disheveled anecdotalism, punctuated unhelpfully from time to time by moments of cranky but attention-catching dyspepsia.

It was in the hope of dispelling the fog of confusion and misinformation that seemed to shroud humanistic endeavor, whether in relation to what was going on in higher education, or in our schools, or in American society at large, that the Academy, under the aegis of its Initiative for the Humanities and Culture, launched an ambitious effort to build a humanities data infrastructure paralleling the 30-year-old series of *Science and Engineering Indicators* published by the National Science Foundation. The first fruit of this complex and demanding undertaking, which has been prosecuted by a fine team ably led by Norman Bradburn of the National Opinion Research Center, is scheduled soon for release to educational leaders, policymakers, and the American public at large. It is the *Humanities Indicators Prototype*, a comprehensive portfolio of statistics in the humanities based on existing data, intended to inform decision-making by educators and national policymakers alike.

The Prototype, which encompasses some 74 indicators and over 200 accompanying tables and charts, focuses on five subject areas: 1) primary and secondary education in the humanities; 2) undergraduate and graduate education in the humanities; 3) humanities workforce; 4) humanities funding and research; and 5) humanities in American life. Interpretative essays by such scholars as Alan Brinkley of Columbia University have been commissioned for each subject area, and they will provide commentary on the data collected, as well as on data not currently available but of potential value to users. In relation to this last point, and in addition to compiling existing data, the Academy, in collaboration with such hu-

manities organizations as the American Council of Learned Societies and the National Humanities Alliance, has launched a Humanities Departmental Survey in order to gather new data. The results of that survey will also become available before the end of this calendar year and will be incorporated into the Humanities Indicators Project.

As I describe this great effort, I have a sinking feeling that it may come across as dull old stuff, the enervating rattle of some very dry bones indeed. Maybe so. But I would wager that no one who has had the experience, while trying to assess the health of humanistic studies nationwide, of finding himself or herself caught in a crossfire of sweepingly negative attack and outraged by undisciplined response and bereft of any easy access to the array of factual data needed if one is to make what I believe tends now to be called (sometimes disparagingly) a “reality-based” assessment – I would wager that no one who has been in that position is likely to feel anything other than gratitude for the assistance that the Indicators will serve to make so readily available.

Let me give but one illustration. It comes from the “Humanities in American Life” section of the Indicators. So far as the possession of those literacy skills necessary for successful high school completion goes, it seems that the United States at 54 percent comes in near the middle of the international rankings behind such countries as Sweden, Canada, and Australia, but ahead of such other industrialized countries as Britain and Germany. But for those Americans prone to a species of cultural pessimism or, perhaps more accurately, cultural masochism, it may come as something of a surprise to learn

that the nation’s book-reading rates are well above those of many European nations, among them Italy, France, and Germany, though they still fall below those for Britain and Sweden. Similarly, that at 21 percent the United States has one of the world’s highest percentages of highly literate adults. Unfortunately, that is balanced by the fact that a higher percentage of Americans (again 21 percent) demonstrate very poor literacy skills than do people in *any* other Western industrialized nation. In effect, our literacy profile turns out to be alarmingly bipolar.

And so on. It will take a while to assess the measure of understanding we can expect to squeeze out of this first round of Indicators and the degree to which they can provide the needed foundation for a national humanities policy that treats the academic and the public and nonprofit domains as part of a single whole. But the promise, I firmly believe, is great.

All praise, then, to the Academy not simply for taking the initiative on this project but also for demonstrating the tenacity needed to bring it to this preliminary conclusion. In order to do that it had to succeed in generating unparalleled cooperation between humanities organizations and social scientists. And its success in so doing speaks to its unique convening power and its demonstrated track record of commitment to the humanities. All praise, too, to the broad group of donors and foundations who were far-sighted enough to support the initiative, not least among them the William and Flora Hewlett Foundation, the Andrew W. Mellon Foundation, the National Endowment for the Humanities, and our distinguished Fellow John P. Birkelund.

The Evolution of the Humanities

Patricia Meyer Spacks

Edgar F. Shannon Professor of English Emerita at the University of Virginia

Frank Oakley has just told you about one of the important ongoing projects in the humanities, and I want to tell you about another. The Academy has supported humanistic activity for a long time, through one alleged crisis after another. We helped to found the National Humanities Center in North Carolina. Fellows of the Academy testified in support of the establishment of the National Endowment for the Humanities. And, more recently, our Visiting Scholars Program has helped to support young academics in the humanities.

But the enterprise I am most actively involved with at the moment, and the one I want to discuss, is a collection of essays on the humanities that will be published in the Winter 2009 issue of *Daedalus*. It is part of a series of Academy writings about the complex situation of the humanities. In 2006, David Hollinger edited a volume called *The Humanities and the Dynamics of Inclusion since World War II*, a collection of essays about the influence of previously excluded demographic groups on the structure and values of academic institutions. Subsequently I edited an issue of *Daedalus* consisting of essays on the histories of humanistic academic disciplines. A piece by Steven Marcus on the humanities collectively went back to classic times. Gerald Early, writing about African American studies, started just after the Civil War. The essay on philosophy

dwelt heavily on the late nineteenth and early twentieth centuries. In other words, individual writers selected different pieces of history. All, however, demonstrated how disciplines had changed and continue to change in outline and in substance.

When I was President of the Academy, I did a good deal of traveling around the country, meeting with groups of Fellows in various places. More than once a scientist asked me one or another version of the same question: Exactly what do the humanistic disciplines do? They seemed to have the impression that what we mainly did was argue over meaningless subjects.

Exactly what do the humanistic disciplines do? A new collection, entitled “Reflecting on the Humanities,” concerns larger issues about the functioning of the humanities in society.

The essays that we are editing now focus quite directly on what the humanities do. Only two of the contributions concentrate on specific academic disciplines. Most of them concern larger issues about the functioning of the humanities in society. The new collection, entitled *Reflecting on the Humanities*, which Leslie Berlowitz and I are coediting, is intended to provide a kind of sequel to the volume published un-

der the auspices of the Mellon Foundation in 1997: *What's Happened to the Humanities?* That provocative group of statements took a largely negative view of the condition of the humanities at its historical moment. Our *Dædalus* issue is rather more cheerful, although it too calls attention to immediate problems. It considers a broad range of perplexities in essays and in shorter notes. The contributors to the volume include the head of a major foundation, a nonacademic philanthropist who has generously supported the humanities, a university president, a former college president who is sitting next to me right now, a provost, and the director of a humanities center. They write about matters ranging from the digital humanities to recent trends in funding. Several of them make productive use of information emerging from the Indicators that Frank told you about. They consider the humanities and social change, the future of the so-called public humanities, and the role of the humanities in liberal arts colleges as well as some disciplinary questions. Caroline Bynum, writing about what's happening in history now, offers a bold proposal for confronting two kinds of crises: that in academic publishing and the more amorphous one that pressures academics to accomplish ever more in ever less time. In one of the notes, Kay Shelemay argues for understanding certain kinds of performances as acts of humanistic interpretation.

Points of view as well as focus vary widely within this collection, but all the writing demonstrates and asserts the vitality of the humanities. I hope you will read this issue of *Dædalus* and that it will excite you too about the humanities now.

Universal Basic and Secondary Education

David E. Bloom

Clarence James Gamble Professor of Economics and Demography and Chair of the Department of Global Health and Population at the Harvard School of Public Health

In 1990, delegates from 155 countries met in Jomtien, Thailand, and pledged to achieve universal primary education by the year 2000. In the years following that famous meeting, respectable educational advances were made, but it became absolutely clear by the year 2000 that the goal of universal primary education was nowhere close to being achieved. So the international community took a page out of our academic playbooks and very graciously granted itself a no-cost extension. That extension took the form of the Millennium Development Goals, in which world leaders pledged to achieve universal primary education by 2015. Now we are in striking distance of that 2015 deadline, and we see a picture that appears simultaneously good, bad, and ugly.

The good news is that the world has continued to make progress on the primary school enrollment front.

The bad news is that it is becoming increasingly apparent that the world will not meet the 2015 goal. Even if enrollment rates continue to grow at the pace they did between 1990 and 2000, an estimated 118 million primary-school-age children will not be enrolled in school in 2015. That represents one in six of the world's primary-school-age children. And the shortfall with respect to secondary education is even more striking, despite growing recognition of the economic, social, and political importance of secondary

What we need is a concrete blueprint for achieving universal basic and secondary education. Policymakers and business leaders understand that global education is not what it could be and that the deficit is highly consequential.

school. Two hundred seventeen million children of secondary-school age are projected not to be enrolled in secondary school in 2015. That is nearly one in three of the world's secondary-school-age children.

And then we have the ugly news, which involves educational disparities. I am referring here to disparities in both educational access and educational quality between the wealthy industrial countries at one extreme and countries mainly in sub-Saharan Africa and South Asia at the other. I am also referring to disparities within countries, especially those between female and male children, which tend to be especially pronounced at the secondary level.

In recognition of both the challenge and the promise of providing a quality education to all the world's children, the Academy began the UBASE project in 2001. UBASE is an acronym that stands for Universal Basic and Secondary Education. The aim of this rather ambitious project is to explore the rationale, the means, and the consequences of provid-

ing basic and secondary education of quality to all the world's children.

I have been working on this project with Academy Fellow Joel Cohen, who has a base at both Rockefeller University and Columbia University. Over the years, Joel and I have benefited from the unflagging support and encouragement of Leslie Berlowitz, and we have had outstanding assistance from various Academy staff, especially Martin Malin, Helen Curry, Alice Noble, and Paul Karoff. The project has received financial support from the Academy, the William and Flora Hewlett Foundation, and a number of generous individuals.

From the start, our focus has been not on advocacy but rather on taking careful and critical stock of what we already know and what we still need to know, and blending it with as much fresh and out-of-the-box thinking as possible.

We began by dividing our task into reasonably manageable components, and we recruited experts to lead research efforts in a number of areas. We surrounded these experts with working groups that included people from a wide range of geographic, institutional, and disciplinary backgrounds to review and comment on their work.

The project's components include the nature and information content of education data; the history of efforts to achieve universal education and the likely consequences of achieving it; the meaning and measurement of educational quality; the politics of achieving universal education; and the costs of reaching that goal.

With respect to cost, as just one example of a key project finding, estimates made by Paul Glewwe,

Meng Zhao, and Melissa Binder suggest an upper limit of an additional \$70 billion per year for all children to receive a decent primary and secondary school education. At one level, this seems like a rather modest sum. It is less than one-seventh of the U.S. government's annual military budget, and it is only one-fourth of the foreign aid goal of 0.7 percent of the \$37 trillion of gross national income of the developed countries. On the other hand, it is a formidable amount, since foreign aid is substantially below the 0.7 percent target, especially in the United States where sentiment in favor of international aid seems to be drying up by the hour.

The American Academy has been an ideal home for this project. It has enhanced our capacity to convene outstanding working groups, with representation from across disciplines and professions. It has provided neutral territory for discussion and an integrity and independence that add to the gravity of what we produce. And it is also, as you can see, a great meeting venue.

Our work to date has come to fruition partly in the form of two books. The first of these is *Educating All Children: A Global Agenda*, which I coedited with Joel Cohen and Martin Malin, and which was published by MIT Press in 2006. The book lays out the justification for universal basic and secondary education: the moral, ethical, and humanitarian justification; the international law justification; the social justification; the political justification; and the economic justification. And the book argues that UBASE is, in general terms, not impossibly out of reach.

The second book is *International Perspectives on the Goals of Univer-*

sal Basic and Secondary Education, edited by Joel Cohen and Martin Malin. It will be published by Routledge in 2009. The book consists of a series of essays that explores the economic, political, civic, and personal goals of education.

Our hope at this point is that this project will lead to more than just publications, as the dominant issue seems to be changing from whether to do something in the UBASE arena to what to do and how to do it.

What we now need, and what we plan to develop in the next phase of the project, is a concrete blueprint for achieving universal basic and secondary education. Policymakers and business leaders understand that global education is not what it could be and that the deficit is highly consequential. What they increasingly want to know is what we need to do to remedy the deficits and disparities. With this in mind, a new phase of UBASE will consider how to meet the challenge of implementation, which is essentially a matter of design, leadership, management, coordination, and funding. We are hoping to rely on many of you for help with the next phase of UBASE.

As a segue to this next phase, we are assembling a small blue-ribbon advisory committee that will produce by early 2009 a white paper containing a highly accessible summary of our conclusions to date, with a key objective to promote a deeper engagement among U.S. policymakers in the idea of UBASE. Tentatively entitled *EDUCATE*, the paper is using the *ARISE* report that Neal Lane described earlier as its model. Please stay tuned for further updates.

Securing the Internet as Public Space

David Clark

Senior Research Scientist at the Computer Science and Artificial Intelligence Laboratory at the Massachusetts Institute of Technology

Our study began with a recommendation by Fellow Tom Leighton that the Academy assess the state of security on the Internet. I knew that a number of studies and presidential advisory committee reports had examined this issue, and they generally took two forms. One sort of study argues, in varying tones of shrillness and almost equal ineffectiveness, that the sky is falling, something bad is about to happen, and someone should do something. The second sort involves developing research agendas that are left under-funded. I did not think that the Academy should repeat either of these approaches.

When I was asked to participate in this study, I proposed that the Academy take a different approach. The Academy, with its broad fellowship, was an ideal setting to examine the security problem not simply as a technical issue but as a sociotechnical problem that arises from the deep embedding of the Internet in society. However, this approach involves a problem of scope. If you define the scope too broadly, you find yourself in the previous panel where we were talking about corruption, Nigerian scammers, and the Russian mafia: you are boiling the ocean. So we struggled in this space and realized we needed to define the project more narrowly. But as we tried to identify people who had thought about the interplay be-

tween the social issues and the technical issues, we found that there had not been much work done. And so in fact it was time to call for a fresh cycle of research.

While we were deciding how to formulate and scope our effort, we learned that the Alfred P. Sloan Foundation had asked the Academy to look at the relationship between the scientist and the citizen, and had posed a question that I would frame as follows. The usual assumption with respect to scientists and citizens is that the citizen does not understand the scientific issues as well as the scientist, so the role of the scientist is to educate the citizen. When science develops something that might have harmful effects, such as genetically modified food or particle accelerators that produce little black holes, scientists should evaluate the risks and the benefits, explain them, and give comfort to the citizen. The Sloan Foundation said that the conversation should be a two-way exchange. Scientists need to listen as well as educate.

The Academy is exploring this point of view through a series of workshops in different areas, including the impact of genetic biology and the threat of dangerous pathogens. We decided to have a workshop on the Internet, and in particular on the relationship between the citizen and the Internet.

At that workshop we looked at some specific examples of the relationship between the citizen and the Internet. Let me describe one example, namely, the issue of how the Internet manages identity and privacy. You may have seen a *New Yorker* cartoon with two dogs: one is typing on a keyboard and turns to the other and says, "On the Internet, no one can tell you're a dog." Reality is not quite like that. In some respects I would say that on the

Internet we have issues of identity that are completely backwards, which is to say that whenever you want some signal of identity, you don't have it, but when you want some privacy, you don't have that either.

Attribution of security attacks is a serious problem on the Internet. Your computers are being attacked all the time. Unless your computer is up-to-date with all its patches, it is quite likely that somebody has penetrated it and is using it to send spam in your name or perhaps to attack some other computer in Estonia or Georgia. It is important to realize that if someone tried to figure out who had launched the attack, you would be identified as the attacker. Somebody is pretending to be you when they send spam from your computer or use your computer to attack someone else. And it is not only that they pretend to be you. They pretend to be your bank or the government or your employer, and they send you email – called “phishing” – that says: “It's terribly important that you send us your password.”

On the other hand, while you cannot tell who is pretending to be you, other people are monitoring you closely. Folks want to correlate information about everything you do. They want to build a profile of what you like, and, to get to the point, what sort of advertising you might like to see. I don't know whether any of you bother to read your ISP's privacy policy, which is buried someplace in the fine print of your service contract. But in most cases your ISP or its business partner can track every website you go to in order to profile your interests and desires. Google can track every search that you do.

Right now the Internet in the United States is a creature of the private sector. There is currently a movement in place, driven by the United Nations, to take the Internet away from the United States in order to save it. Which is the right path to build the Internet that we, whoever we are, would want to have?

You should be sure to check if your mail service has the right to read all of your email.

So here is a question for you to ponder. Perhaps your ISP or your mail service has made a commitment not to reveal anything about you in a way that can be traced back to you personally (ignoring such issues as subpoenas that can be filed by the recording industry to find out if you are hosting copyrighted music). If your service has made a commitment not to release any of this information, should you object to the fact that it may be building profiles of you? That is a complicated question, and I think it exemplifies the issues that arise when you look at the complex relationship between the citizen and all the activities and technology that make up the Internet. Who decides if you

have the right to keep others from looking at what you do?

I am an engineer. I build things. The National Science Foundation has challenged the network research community to describe the type of Internet we should have in fifteen years. This involves people building things. But what should we build? And who should have a seat at the table to speak to the design? The question that Sloan has asked applies here. How should the point of view of the citizen (the user) be heard?

Who listens to you if you have opinions about the Internet today? Your elected officials listen if you bother to tell them you are upset about something. The Federal Trade Commission listens, and it also listens to people who advocate for the citizen, such as consumer advocacy groups. There are corporate players that care; companies like Google or your ISP want to produce products that you want. They want to persuade you that they are treating you well with the products they have. The set of “experts” who do (or should) listen to the citizen is much broader than just “scientists.”

Let me conclude by returning to the question I posed earlier. If there was a company that you decided to trust, can you imagine a world in which you would let that company look at everything you do in exchange for showing you ads, but only ads that were so wonderful you wanted to watch them? By the way, you might have to watch them. The remote control on your TiVo might not skip over ads, because your TiVo is inserting those ads. But they might give you the TiVo for free, and it would only be ads you wanted to see. Can you imagine wanting that world? I use this example to

remind you that you as users and we as designers are all active players in this process. There are almost no design decisions we take in this space that are value-neutral. So who should educate? Who should listen? Who should decide?

Right now the Internet in the United States is a creature of the private sector. Different countries have very different answers to my questions. There is currently a movement in place, driven by the United Nations, to take the Internet away from the United States in order to save it. Which is the right path to build the Internet that we, whoever we are, would want to have? The history of the Internet and its impact on society from a variety of perspectives will be among the topics discussed at an Academy conference on *The Public Good: The Impact of Information Technology*, to be held in Mountain View, California, on February 28 – March 1, 2009. If any of you will be in the area, we cordially invite you to join us. ■

© 2009 by Neal Lane, Steven E. Miller, Scott D. Sagan, John D. Steinbruner, Robert I. Rotberg, Robert H. Legvold, Bruce Western, Jesse H. Choper, Francis Oakley, Patricia Meyer Spacks, David E. Bloom, and David Clark, respectively

Fellowship Programs

Visiting Scholars Program

Last fall, the 2008–2009 class of Visiting Scholars began their residency at the Academy. Drawn from a broad range of public and private universities across the nation, the scholars represent the fields of American history, art history, anthropology, comparative literature, history of science, political science, and religion.

Founded in 2002, under the leadership of Chief Executive Officer Leslie Berlowitz, the Visiting Scholars Program offers postdoctoral students and untenured junior faculty in the humanities, social sciences, and policy studies the opportunity to combine independent research with active involvement in Academy activities. Former Academy President Patricia Meyer Spacks chairs the program, mentoring the scholars on their writing, career choices, and publications plans and leading their formal presentations and informal discussions.

Throughout the year, Visiting Scholars contribute to Academy programs; participate in forums that bring together members of the surrounding academic, business, and cultural communities for discussions of timely scholarly and social issues; and attend lectures on topics ranging from reading poetry to the global nuclear future. They also meet regularly to present their research to colleagues and interested Academy members. They critique each other's chapters, papers prepared for professional meetings, and job talks. From time to time, Fellows working on Academy projects join the scholars in residence, and program alumni are invited to continue their participation in Academy conferences and events.

Over the last seven years, the number of applicants to the Visiting Scholars Program has increased to approximately 175 annually. In 2008, they represented over 60 public and private institutions in 27 states. The program's success is reflected in the teaching and research appointments of the alumni scholars; in their numerous articles and reports in scholarly journals, newspapers, and general-interest publications, both in print and online; and in a growing number of books.



Seated: Academy CEO Leslie Berlowitz and Chair of the VSP Patricia Meyer Spacks
Standing, 2008–2009 Visiting Scholars: Erez Manela, Daniel Foster, Rocío Magaña, Louis Hyman, David Singer, Thomas Stapleford, Victoria Solan, and Michael Pasquier

The Academy is grateful to the Director of the Harvard Humanities Center, Homi Bhabha, and Executive Director, Steven Biel, for providing the scholars with access to Harvard's research facilities. We are indebted to the Academy's University Affiliates and to the following foundations for their continued support: The Annenberg Foundation, The Cabot Family Charitable Trust, The Virginia Wellington Cabot Foundation, The Haar Family Endowment, The National Endowment for the Humanities, and The Carl and Lily Pforzheimer Foundation.

2008–2009 Visiting Scholars

Daniel Foster – Assistant Professor, Department of Theater Studies, Duke University. Ph.D., University of Chicago; B.A., St. Johns College. Field: Comparative Literature. *The Transatlantic Minstrel Show: British Romanticism and American Blackface*. A history of blackface minstrels as a movement bringing together scholarship and art, parody and emulation, social misfits and social reformers, black and white, England and America.

Louis Hyman – Ph.D., Harvard University; B.A., Columbia University. Field: History. *Debtor Nation: How Consumer Credit Built Post-war America*. An analysis of the political and economic institutions, consumer behaviors, and legal framework that converged, by the 1970s and 1980s, to bring about a major personal debt crisis with deep implications for American society.

Rocío Magaña – Ph.D., University of Chicago; B.A., California State University, Fresno. Field: Anthropology. *Bodies on the Line: Life, Death, and Authority on the Arizona-Mexican Border*. An examination of the complex social, economic, moral, and political space that constitutes the U.S.-Mexico border and the tension among securing the border, procuring the safety of those who try to cross it illegally, and managing the bodies of those who die in the attempt.

Erez Manela – Associate Professor of American History, Harvard University. Ph.D., Yale University; B.A., Hebrew University, Jerusalem. Field: History. *The Eradication of Smallpox: An International History*. A study of the World Health Organization's Global Smallpox Eradication Program that provides insight into the history of the Cold War, post-colonial international relations, the role of transnational organizations in globalization, and the development of modern medicine and international public health. (Spring 2009)

Michael Pasquier – Ph.D., Florida State University; B.A., Louisiana State University. Field: Religion. *Catholic Creole Frontier: Religion and Colonialism in the Lower Mississippi Valley*. An analysis of religion in the frontier society of the Lower Mississippi Valley, illustrating the impotence of state-sponsored Roman Catholic officials in controlling the religious beliefs and practices of European missionaries and settlers, displaced Native Americans, and free and enslaved persons of African descent.

David Singer – Assistant Professor, Massachusetts Institute of Technology. Ph.D., Harvard University; B.A., University of Michigan. Field: Political Science. *International Finance within Families: Migrant Remittances in the Global Economy*. An examination of migrant remittances that will contribute to our understanding of the financial implications of immigration, the influence of global capital flows on government policy-making, and the dilemmas facing U.S. policy-makers as they consider immigration policy, foreign aid, and financial deregulation.

Victoria Solan – Ph.D., Yale University; B.A., Oberlin College. Field: Art History. *Healthy Design: Modernist Architecture in Los Angeles in the 1920s*. An examination of health and the American house within the context of twentieth-century California architecture, focusing on the persistence of seemingly antimodern, folkloric, or homeopathic elements among proponents of some of the most technologically advanced and aesthetically forward-looking design in America.

Thomas Stapleford – Assistant Professor of Liberal Arts, Notre Dame University. Ph.D., Harvard University; B.A., University of Delaware. Field: History of Science. *Home and Market: Women, Economics, and the Study of Consumption, 1910 – 1960*. An exploration of the discipline of home economics in universities and government agencies, focusing on the work of female social scientists and their influence on the understanding of modern consumption.

Chair of the Visiting Scholars Program

Patricia Meyer Spacks – President of the Academy, 2001 – 2006. Edgar F. Shannon Professor of English Emerita, University of Virginia. Ph.D., University of California, Berkeley; M.A., Yale University; B.A., Rollins College. She is a scholar of eighteenth-century literature and culture whose work encompasses issues of identity and selfhood, privacy, gossip, and feminism. Her most recent work is *Novel Beginnings: Experiments in Eighteenth-Century English Fiction*, an account of the diverse forms and themes that contributed to the development of the eighteenth-century novel.

During the past year, a number of Fellows have graciously agreed to serve as reviewers for the Visiting Scholars Program, and we are deeply appreciative of their advice and guidance.

Joyce Appleby, University of California, Los Angeles

Steven Biel, Harvard University

David Bromwich, Yale University

Bruce Bueno de Mesquita, Stanford University/New York University

Albert Carnesale, University of California, Los Angeles

William Chafe, Duke University

Thomas Cook, Northwestern University

Frederick Crews, University of California, Berkeley

Jonathan Culler, Cornell University

Frank Furstenberg, University of Pennsylvania

Nathan Glazer, Harvard University

John Mark Hansen, University of Chicago

Neil Harris, University of Chicago

M. Kent Jennings, University of California, Santa Barbara

Robert Jervis, Columbia University

Jacqueline Jones, University of Texas at Austin

Carl Kaysen, MIT

Alice Kessler-Harris, Columbia University

Philip S. Khoury, MIT

David Lake, University of California, San Diego

William McFeely, University of Georgia

James Olney, Louisiana State University

Bruce Redford, Boston University

Bruce Russett, Yale University

Howard Schuman, University of Michigan

Kenneth Silverman, New York University

Eugene Skolnikoff, MIT

Paul Sniderman, Stanford University

Werner Sollors, Harvard University

James Stimson, University of North Carolina

Hellman Fellowship in Science and Technology Policy

Established in 2007 as part of the Academy's Initiative for Science, Engineering, and Technology, the Hellman Fellowship encourages scholarship in science policy. The fellowship is open to early-career professionals with training in science and engineering who want to transition to a career in policy or to acquire experience working on science-policy issues. While in residence, Hellman Fellows work with senior scientists and policy experts on national and international policy issues related to science, engineering, and technology.

The program supports and guides individuals with training in science and engineering who want to develop expertise on science-policy issues; increases the number of science-policy professionals who are engaged in substantive discussion of science and engineering research questions, with a broad understanding of their social implications; and expands the scale of Academy projects and studies focused on the challenges facing scientific research and science education.

Hellman Fellows are assigned to one or more of the Academy's ongoing research projects under the Initiative for Science, Engineering, and Technology, including Alternative Models for the Federal Funding of Science; The Global Nuclear Future; Scientists' Understanding of the Public; Science and the Liberal Arts Curriculum; Securing the Internet as Public Space; and Reconsidering the Rules of Space.

The Academy is grateful to the Hellman Family Foundation for establishing and supporting this fellowship. The Academy is also grateful to the individuals who served on the fellowship review board: Susan Graham, University of California, Berkeley; Brigid Hogan, Duke University; John Katzenellenbogen, University of Illinois at Urbana-Champaign; Carl Kaysen, MIT; Richard A. Meserve, Carnegie Institution for Science; and Robert Nerem, Georgia Institute of Technology.

2008 – 2009 Hellman Fellows



Kimberly J. Durniak – Ph.D., Molecular Biophysics and Biochemistry, Yale University; B.A. and B.S., University of Pittsburgh. Working in the laboratory of Thomas A. Steitz at Yale, she studied the process of gene expression and used X-ray crystallography to solve the structure of the bacteriophage T7 RNA Polymerase during a crucial step in RNA synthesis. During her time at Yale, she was a McDougal Fellow in the Graduate Career Services Office and worked as a liaison with the New York Academy of Sciences to provide career workshops for fellow graduate students.



Dorit Zuk – Ph.D., Molecular Biology, Weizmann Institute of Science; B.Sc., Tel-Aviv University. She came to the Academy after spending a year at the National Institutes of Health, where she was an American Association for the Advancement of Science (AAAS) Science & Technology Policy Fellow. Before that, she was the Editor of the journal *Molecular Cell*. She is a member of the Education and Professional Development Committee of the American Society of Biochemists and Molecular Biologists (ASBMB). She is also serving as a Program Officer for Science Policy at the Academy.

Academy Meetings



Students pass through Sather Gate, the south entrance to the UC Berkeley campus. Photo courtesy of the University of California, Berkeley.

Challenges to Public Universities

Robert J. Birgeneau, Mark G. Yudof, and Christopher F. Edley, Jr.

This presentation was given at the 1935th Stated Meeting, held at the University of California, Berkeley, on December 2, 2008.

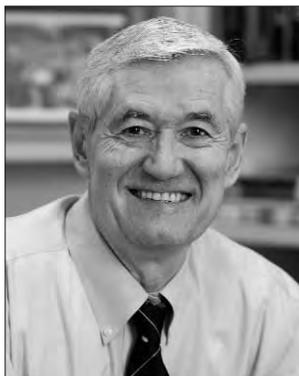


Photo: John Blaustein

Robert J. Birgeneau

Robert J. Birgeneau is Chancellor of the University of California, Berkeley. He has been a Fellow of the American Academy of Arts and Sciences since 1987.

America's higher education system of private and public universities is the envy of the world. Within this dual system, America's public universities were created to serve the public good by providing excellent educational opportunities to the entire population. Today we clearly recognize that public universities are pivotal in realizing society's potential for opportunity, social justice, and prosperity. For public universities to continue to meet these goals, two key questions must be addressed. First, who are the students we are educating, and what financial challenges do they face? Second, in the competition with private universities for funding and faculty, what challenges do public universities confront?

Public teaching and research universities educate 75 percent of the nation's college-going population. In fact, the ten leading public research and teaching universities in the country now educate more than 350,000 students, a figure that has grown by 50,000 over the past thirty years.¹ By contrast, the Ivy League educates about 1 percent of the student body in the country. Public universities are important, first and foremost, be-

¹ This talk, which was given at the American Academy of Arts & Sciences meeting at UC Berkeley on December 2, 2008, is based upon a comparison of ten leading public universities that include Berkeley, Colorado, Florida, Illinois, Michigan, North Carolina, Rutgers, Texas, Virginia, and Wisconsin from 1978 to 2008.

Academy Meetings

cause they provide an outstanding education to large numbers of people who go on to play leadership roles in all sectors of society in this country (see Figure 1).

Compared to private universities, the student bodies of public universities tend to be dominated by undergraduate rather than graduate students. For example, MIT has about 4,200 undergraduate students and they comprise 40 percent of the student body. In contrast, the University of California, Berkeley, has about 25,000 undergraduates and they comprise 70 percent of the student body. Thus, although public universities share with their private counterparts a dedication to both undergraduate and graduate education, the primary mission of public institutions is to educate large numbers of undergraduate students.

Some public universities – among them Berkeley, Rutgers, Texas, and the University of Illinois at Urbana-Champaign – choose to focus their mission on educating in-state students. At Berkeley, approximately 90 percent of our undergraduates are Californians. Another group of public universities – including Colorado, Michigan, and Virginia – enroll large numbers of out-of-state students, and so their student body profiles tend to look more like those at private universities (see Figure 2). The factors driving public universities to enroll large out-of-state undergraduate populations are diverse. Unfortunately, a significant factor appears to be state disinvestment in public educational institutions. This is especially troubling because the presence of large numbers of out-of-state students may have unfortunate social consequences for the makeup of a university's student body, as I will discuss below.

Public universities that focus on in-state students generally aspire to have student bodies that reflect their states' demographics. Thus, as demographics change, student populations should change too. In 1978–1979 California was more than two-thirds Caucasian, as was the student body at Berkeley. In 2007–2008, 44 percent of Californians were Caucasian, and 37 percent were Hispanic. At Berkeley in that academic year,

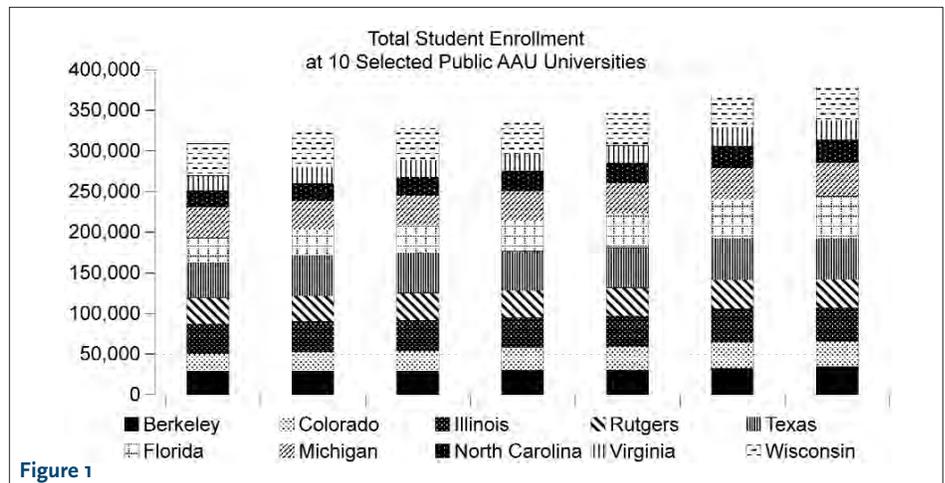


Figure 1

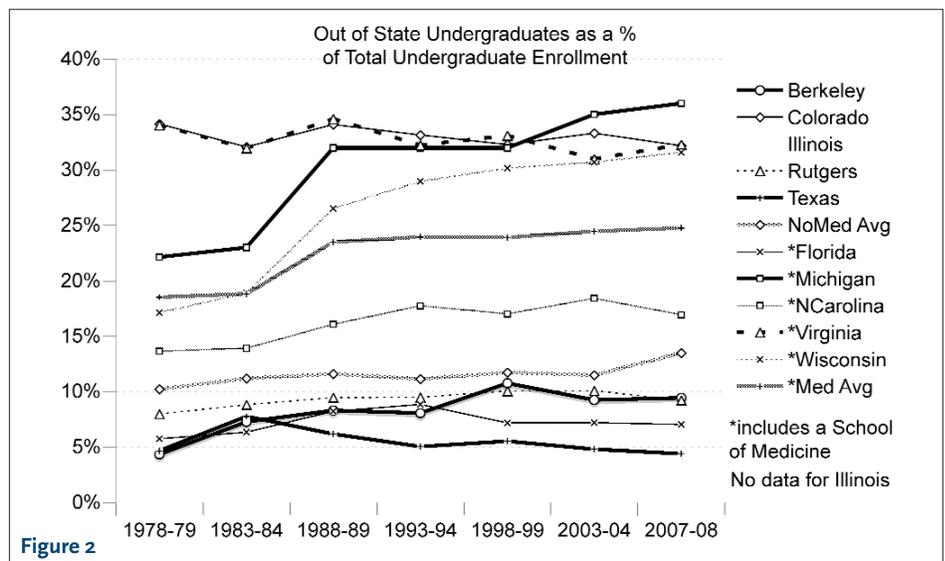


Figure 2

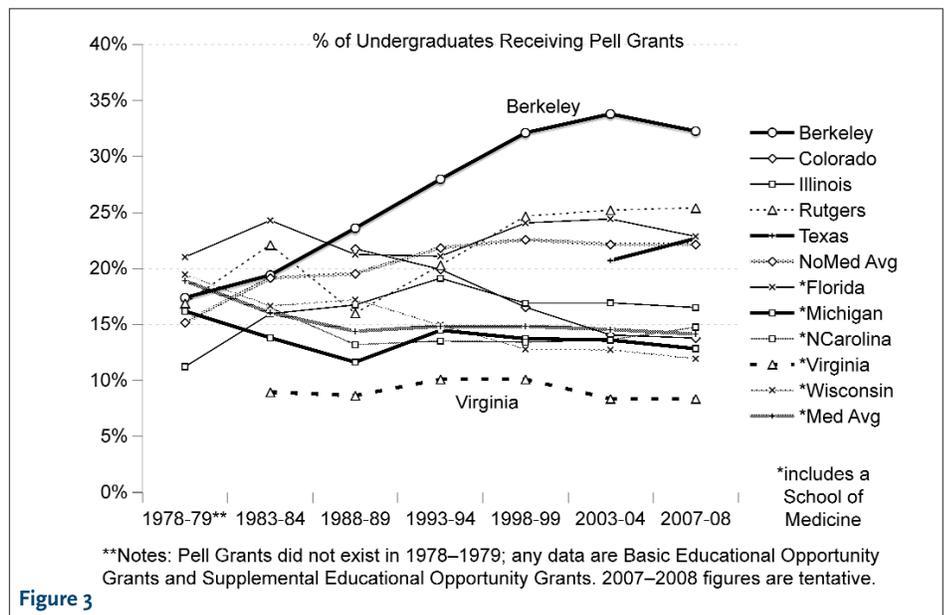


Figure 3

however, only 31 percent of the undergraduate body was Caucasian. Hispanic students, 3 percent of the undergraduate body in 1978, had increased to 12 percent. African American students remained at 3 percent. This rather dramatically illustrates the challenges of achieving ethnically and racially representative undergraduate student bodies.

Achieving economically representative student bodies has been somewhat easier, at least within the University of California system. One measure of this success is the number of University of California undergraduates who receive Federal Pell Grants, which are reserved for students whose family income is under \$45,000 per year. Berkeley – indeed, the entire University of California system – takes great pride in the remarkably high percentage of its undergraduate students who receive Federal Pell Grants. Even more remarkable, one-sixth of Berkeley’s undergraduate body, 4,000 students, comes from families whose income is \$20,000 per year or less (see Figure 3).

Public universities with a high percentage of in-state students tend to have a higher percentage of Pell Grant recipients than do public universities with large numbers of out-of-state students. A key challenge for public universities as they attempt to fulfill their missions is the trade-off between admitting financially disadvantaged in-state undergraduate students and well-to-do out-of-state students.

A fundamental responsibility for the University of California and for public universities generally is to guarantee accessibility. If you are qualified to attend the University of California, Berkeley, then we must make it possible for you to attend Berkeley. The University of California system has a financial aid policy that ensures that this is not an empty promise. This, in turn, explains the large number of extraordinarily talented students from very poor backgrounds within the University of California system. All University of California students are expected to contribute to their educational costs from both work and borrowing. Their parents are also expected to contribute, and the parental contribution is calculated using a formula provided by the federal government. Unfortunately, the federal formula, which is based on a national average, does not work well in

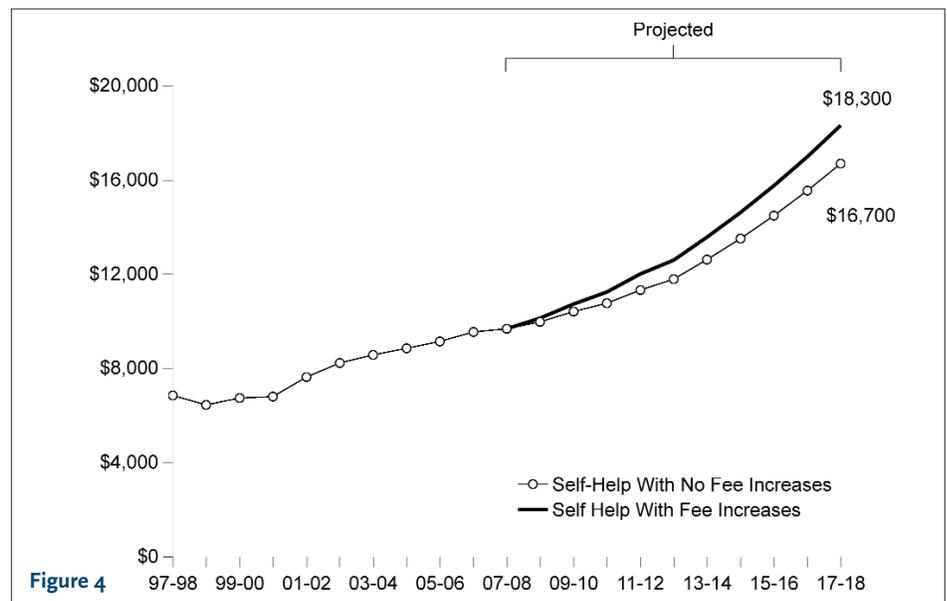


Figure 4

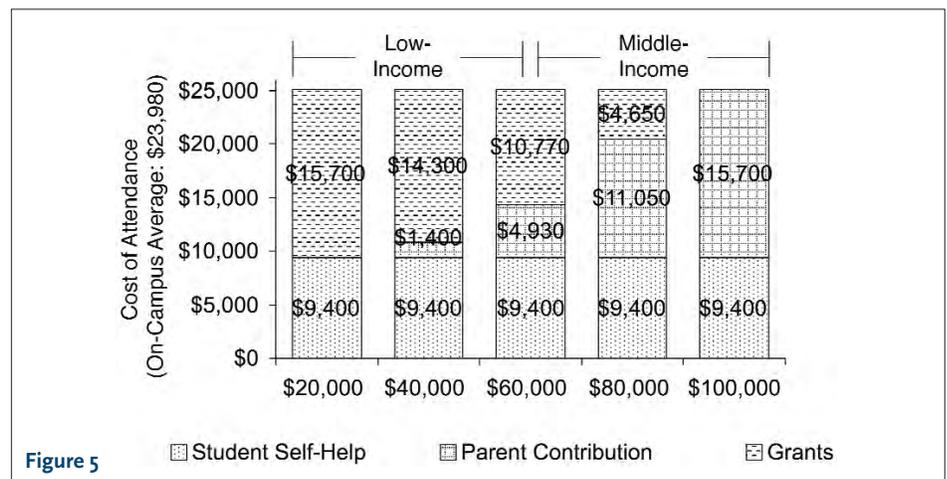


Figure 5

parts of California, such as the Bay area, because of the very high cost of living in those areas.

Suppose your family income is \$20,000 a year; in California, especially, this means that your discretionary resources are extraordinarily limited. To attend Berkeley, the total cost of which is about \$26,200, you will have to provide \$8,200 on your own. This is referred to as the “self-help level.” The university will provide you with a grant – not a loan, but a cash grant – for the \$18,000 balance. Your self-help contribution likely will come from a combination of work-study and loans. You will graduate with relatively low debt: about \$14,000, the average for Berkeley students from low- and middle-income families. The average debt for all Berkeley

students when they graduate is \$7,000. At present this financial aid system works well, at least for students from genuinely poor families. How will affairs look in ten years? Assuming consistency among the state’s financial aid policy, the federal government’s financial aid formula, and the University of California’s fee policy, the \$8,200 contribution required in 2008 projects to \$16,700 in 2018 (see Figure 4). It is difficult for me to imagine writing a letter to a student from a family whose income is \$20,000, saying, “Congratulations, you have been admitted to UC Berkeley! We are going to do whatever we can to enable you to attend Berkeley, but over the next four years, you will be responsible for contributing \$66,800 on your own.”

Academy Meetings

How can we avoid such a scenario? Should we freeze fees? In fact, this is exactly the wrong thing to do. As illustrated in Figure 4, if fees are frozen, the student self-help contribution actually increases to \$18,300. Instead of having to provide \$66,800 over four years, the hypothetical student from a family earning \$20,000 per year will have to provide \$73,200, a higher proportion of which will be debt. This counter-intuitive result occurs because of the way in which the University of California redistributes fee income. Currently, one-third of the undergraduate fee income is redistributed as financial aid to students from financially disadvantaged families. As fees rise, more money becomes available for financial aid. Freezing or reducing fees only reduces the resources available to help financially disadvantaged students.

Although facing greater financial challenges in the future, financially disadvantaged Californians currently are relatively well covered through the University of California financial aid system. The present-day challenge is for the middle class. To understand that challenge, we might look at Harvard, which last year announced that it would begin providing financial aid to all students from families with annual incomes at or below \$180,000. Harvard students with family incomes up to \$180,000 are expected to contribute no more than 10 percent of their family income toward their Harvard education. At Berkeley, because financial aid – driven by the federal guidelines – cuts off at about \$90,000, a student with family income of \$100,000 would receive a grant of zero dollars. Thus it is less expensive for a family whose income is \$180,000 to send a son or daughter to Harvard than for a family whose income is \$100,000 to send their child to Berkeley or any other University of California campus. This is a fundamental challenge that we must address for the middle class going forward (see Figure 5).

So, the news for students is mixed; it is good for students from low-income families now but looks threatening in the future; it is workable for middle-class students wanting to attend Harvard and many other well-endowed private universities but considerably more difficult for those in the University of California system. The news is also mixed for public university financing. Across the country, state appropriations per total student headcount at leading public universities vary by

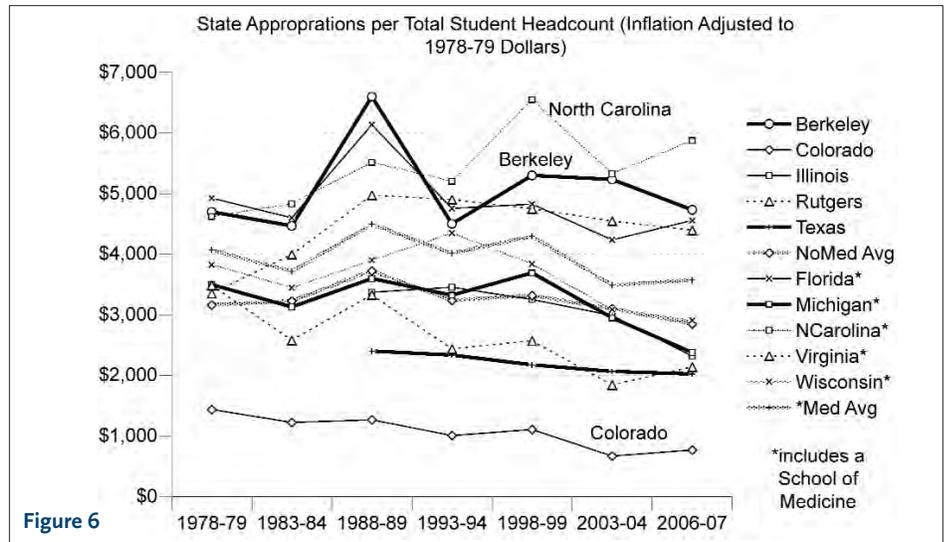


Figure 6

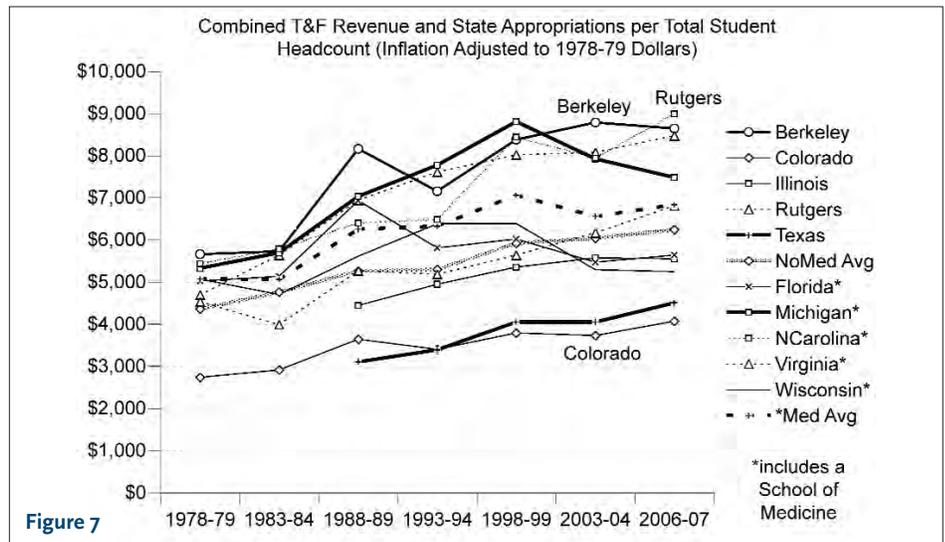


Figure 7

a wide margin. Among our group of ten public universities, at the top is North Carolina, followed by California, Florida, and Illinois. At the bottom is Colorado, where state funding per student is less than \$1,000 (see Figure 6). Thus, at least until 2008 the University of California system was well-funded compared to most state university systems. Some systems have been able to offset partially the progressive disinvestment by their state governments by continuously increasing fees. For example, while student fees at Berkeley are \$7,600, at the University of Michigan fees for in-state students are around \$12,000, the highest among top public universities. Of course, Michigan's in-state fees are still low compared to those of private universities, where fees are typically \$35,000 – \$40,000. Combining student

fee income with state appropriations reveals that, in constant dollars, public university funding per student has increased by about 35 percent over the past 30 years (see Figure 7). Although we feel like we are becoming poorer and poorer, that is actually not the case. So why *do* public universities feel that we are becoming impoverished despite rising total incomes?

We feel poorer because compared with private universities we, in fact, are less well resourced – most especially in our endowments. This is the bad news about public university funding. Our endowments, or relative lack thereof, place us at a significant competitive disadvantage with respect to private universities. Overall, public universities have low endowments, in good part

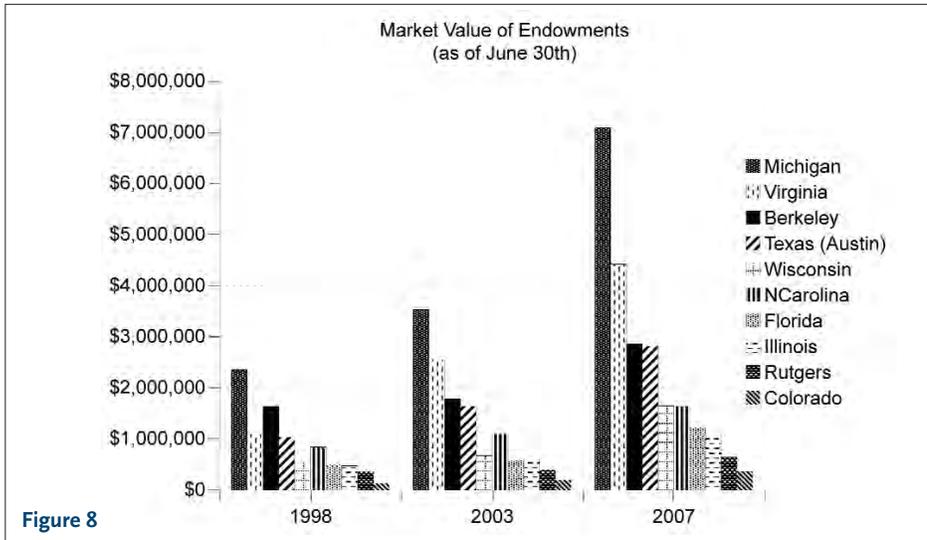


Figure 8

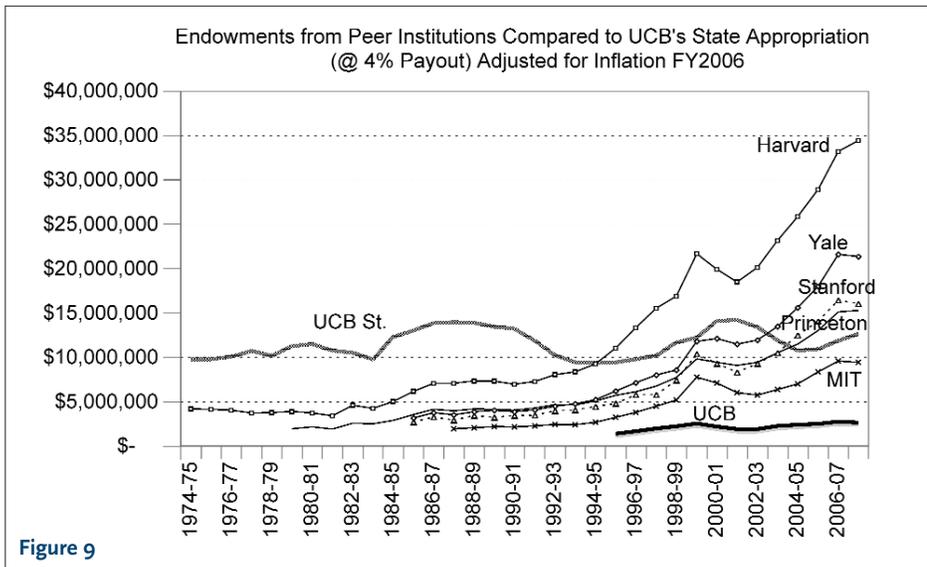


Figure 9

because we simply realized too late the prospective importance of endowments. Private universities have long understood the importance of raising large amounts of money for endowment, as opposed to raising funds for immediate expenditures, and investing those funds well. Public institutions, in the main, missed this, thinking that the state would always take care of them. Today the largest public university endowments are at Michigan, Virginia, Berkeley, and Texas (see Figure 8). Berkeley's endowment, large in comparison to that of most other public universities, is nonetheless dwarfed by the endowments of many leading private universities, especially Harvard, Princeton, Yale, and Stanford. The resources that these top private universities derive

from their endowments are extraordinary, comprising a significant fraction of their operating budgets. This allows these institutions to pay high faculty salaries, provide new faculty generous start-up packages, and make available copious graduate fellowships. An interesting way to think about the financing of public universities is to translate the state funding into an equivalent endowment and to compare the income from this "endowment" with the income private universities derive from their endowments (see Figure 9). In 1995, the payout from Harvard's endowment alone exceeded Berkeley's state funding. This is in absolute dollars, not normalized per student. Harvard has far fewer undergraduates than does Berkeley. Thus, the funding per Harvard student from en-

dowment income alone grew rapidly past the funding per Berkeley student in the mid-1990s. This disparity between Harvard and Berkeley is representative of the disparity that generally exists between private and public universities, a differentiation that has changed the competitive situation in a fundamental and, in my opinion, permanent way. This is true even in today's greatly depreciated investment markets. As another, rather dramatic example, last year the income from Stanford's endowment, assuming a 5 percent payout, exceeded our state appropriation at Berkeley by nearly \$300 million.

Many people would still like to believe that in due course the State of California will provide funding to the University of California commensurate with the endowment-derived income of the great private universities. My opinion is that this is not going to happen, at least not in the foreseeable future. Therefore, we must devote considerable energy to devising new financial strategies that are multidimensional, that will enable us to continue to offer the kind of facilities and faculty salaries necessary for us to be able to compete effectively and provide our public university students the education that they deserve.

Public universities are the conduits into mainstream society for an extraordinarily large number of highly talented people from financially disadvantaged backgrounds and the key to the American dream of an increasingly better life for the middle class. In order to fulfill our commitment to the public good, we have an obligation to offer through public higher education the opportunity for the same quality of education that is available at the very well-financed and fine private universities. Maintaining access and excellence in offering great public higher education is the foremost challenge that universities like Berkeley face.



Mark G. Yudof

Mark G. Yudof is President of the University of California system. He has been a Fellow of the American Academy of Arts and Sciences since 2001.

Investment in human capital drives prosperity and economic growth, not only in America but around the world. The business community often says we need a friendly business climate, we need low taxes. But the truth is that the investment in human capital, the preparation of the workforce, the ability to have great scientists and engineers and others discovering things in their laboratories is critical. Relatively high-tax states with relatively high investment in human capital can do very, very well, as states like Massachusetts and California historically have demonstrated. A low-tax state with low investment in human capital might get a new Toyota manufacturing plant, but the really high-end enterprises that have multiplier effects and engage people's intellects will still be difficult to land.

California understood this when the Master Plan for Higher Education was developed under the leadership of Pat Brown and Clark Kerr. The plan provides for universal access, the extremely high quality that you find at the University of California, a tiering effect, and substantial investment in the infrastructure and operating cost of the university. And that commitment is up in the air today. California is in great danger of becoming a relatively high-tax, relatively low-human capital investment state, a formula that will not protect the great investment that has been made in the University of California. To some extent, we are living off the investments that started in the 1960s and the 1970s

and off the vision of that generation of leaders. Today, with talk of consumption goods and the privatization of higher education and an unwillingness to address the capital and operating needs of the University of California, I have the sense that the university is viewed less and less as a public good.

Earlier this year I spoke at a conference; my theme was that "Knowledge is the oil of the twenty-first century." The conference took place at King Abdullah University, Saudi Arabia's new \$10 billion research institution. The Saudis believe the key to their future is emulating the American example, which is mostly the California example, of investing in world-class research universities. Will their experiment work? I don't

Today, with talk of consumption goods and the privatization of higher education and an unwillingness to address the capital and operating needs of the University of California, I have the sense that the university is viewed less and less as a public good.

know. Ten billion dollars is a lot of money, but the Saudis still have to recruit the necessary researchers, technicians, and other staff. When I met with the Saudi oil minister, he told me, "Mark, I agree with you that knowledge is the oil of the twenty-first century, but, all things considered, it's better to have oil and knowledge." (I thought, well, I can't really argue with that. Wealth does have a way of helping you over the bumps you encounter while waiting for your knowledge to kick in!)

The Saudis – and others in South and East Asia – are trying to emulate a type of investment in public research universities that is more characteristic of the California of the 1960s and 1970s than of California, or anywhere else in the United States, in the twen-

ty-first century. This is the great irony of countries – from Saudi Arabia to South Korea to Singapore to, increasingly, China – attempting to emulate the American example of investing in world-class public higher education: The example to which they are looking is eroding in the very place it originated.

This erosion is indisputably evident in California. If you compare the amount of money Bob Birgeneau and the other University of California chancellors had in 1990 to spend on each of their students with the amount they have today – taking into account inflation and the increases in enrollment that have occurred over that nearly twenty-year period – you find that Bob and the other chancellors have 40 percent less money. When you have 40 percent less money, how do you pay staff higher wages? For that matter, how do you compete for the best professors? Build expensive laboratories? Deal with retirement plan issues? How do you deal with earthquake damage? In 2007, the state cut its funding of the University of California by \$113 million, to \$3 billion. State money is crucial because it provides the funding for such core areas as the humanities and social sciences, areas that generally do not have supplementary income streams – the physician practice plans, national laboratories, and substantial research grants that help fund the hard sciences portion of the budget. In addition to the state's \$113 million cut, the University of California had to absorb another \$100 million in costs for things that are going up in price, either because of inflation, higher enrollment, increased maintenance on buildings, or any of a number of other difficult to control expenses.

In my view, the model for support of public universities in America is broken. While exceptions can be found – North Carolina has had an extraordinary history – they generally only underscore what is wrong with the system: for example, Virginia and Michigan, which look to nonresident students paying very high tuition and fees as a source of revenue. The future in California – with its budget deficit running to the tens of billions of dollars and its political system seemingly having great traumas over generating the compromise needed to deal with such a huge shortfall – does not appear to offer any relief for public higher education. Nor do I

anticipate a quick turnaround in the economy and thus a quick resolution of the University of California's funding woes. Even if some things do go our way, the University of California would still likely be looking at multiple years before budget cuts were reversed.

In my view, the model for support of public universities in America is broken.

The question then becomes "What do you do if the model is broken?" One of things we try to do is educate Californians – and, frankly, I'm more interested in Californians in general than in individual legislators – as to why the University of California is important even if they do not have a child at this institution or a family member who works there. The University of California is important to all Californians because of the quality of medical care it delivers; because of the research it conducts in such key areas as alternative energy, climate change, and new materials; because of its support for and involvement in the cultural life of the state; because it is a public good. And so we should try to do a better job, reverse the diminution of the bright star of public universities.

Second, we may need to rethink the federal role in higher education. Historically the federal role has comprised two tracks. The first is indirect funding of universities through direct grants to students; for example, Pell Grants and, before that, GI Grants. The idea behind the grants – which really amount to a voucher system – is that the money goes with the student rather than directly to the university. The student is admitted to eligible universities, chooses one, and plunks down a piece of paper that is the equivalent of a check from Uncle Sam. The second track is federally funded research. After World War II the United States witnessed a revolution in the financing of research as universities became the nation's primary research labs for all sorts of purposes.

I invite the federal government to consider taking on a new role in the funding of higher education: investment in the physical infrastructure of public universities. If America is going to build bridges – which are undoubtedly important – or levees – also important – or highways or other things, then why not also build classroom buildings? Why not build scientific laboratories, engineering buildings, and so forth? Doing so would provide an immediate economic stimulus, employing electricians and bricklayers and plumbers, as well as architects and engineers, glaziers and so on. Such an investment would also have intermediate and long-term payoffs. The University of California faces the predicament of not having the operating funds today to service the debt that it needs to service in order to take care of the facilities it has and the facilities it needs. Not only

I invite the federal government to consider taking on a new role in the funding of higher education: investment in the physical infrastructure of public universities.

do public universities seem like a logical place for federal investment, but that investment can occur without getting the federal government so deeply involved in university business that it is telling universities whom to admit, what courses to offer, whom to hire, and the like.

The third thing we can do is to achieve business efficiencies. So far at the University of California we have cut over 500 positions in the office of the president, saving about \$60 million, and we are looking for more ways to cut. We now have accountability systems so we can answer the questions "What sort of year did you have? Are your students doing well? Do your faculty win awards? How is the research enterprise going?" More can be done in this area too. At bottom, however, universities are labor-intensive enterprises, and labor in this country does not come

cheap. I remember my daughter took me to Old Navy one year. She felt I wasn't cool; I thought I was. She said I needed new clothes. So I ended up buying some shirts at \$6 and \$7 apiece. Shortly thereafter, on my way to see a member of Congress, I had my annual shoeshine and was shocked to realize it cost more than the shirts I had bought. The reason, of course, was that the job of making my shirt had gone overseas. The job of shining my shoes is less easily exportable – as are most jobs in medical care and education, two of our most pressing economic issues in terms of cost. As such, we will never achieve the educational equivalent of the \$6, foreign-made shirt. And, given the successes we have achieved with public higher education in this country, we should not want to.

One of the great challenges for higher education is going to be reexamining the model that has produced so much success. I believe only the faculty can do this. Ten, twenty, thirty years from now, what will the model be? Will it involve more technology? What other innovations can we use? How can we preserve quality while responding to a very difficult financial climate? Higher education is not, after all, like the paper factory in Minnesota that once employed 1,000 people and now, because of technology, has eight employees running the entire factory. Technology in higher education has not provided that sort of substitutionary leverage. By and large, our learning takes place in classes with really fine teachers interacting with students, reading papers, and all the rest of it. The question is how can we preserve the best of that model while still moving forward?



Christopher F. Edley, Jr.

Christopher F. Edley, Jr. is The Honorable William H. Orrick Jr. Distinguished Chair and Dean of UC Berkeley School of Law. He has been a Fellow of the American Academy of Arts and Sciences since 2007.

Whether I am wearing my hat as an academic bureaucrat or my hat as a policy wonk, the basic challenge facing public higher education – specifically the public research university – seems to be getting the public to believe that this enterprise matters. In meeting that challenge we will need to tackle four obstacles that stand in the way: aspiration, legitimacy, affordability, and elitism.

The basic challenge facing public higher education – specifically the public research university – seems to be getting the public to believe that this enterprise matters.

Aspiration

Clark Kerr, the twelfth president of the University of California, once quipped that the central role of a university administrator was “providing parking for faculty, sex for students, and athletics for alumni,” which neatly, if facetiously, captures the misplaced aspirations of so many with a stake in higher public education. Kerr, of course, presided over the original California Master Plan for Higher Education, which in its elegant and

compelling way once expressed our grand, collective aspirations for the place of public higher education in the life of this state.

What has happened to those aspirations? Consider that during the last thirty years only one campus has been added to the University of California system – at Merced – and only one campus has been added to California State University – at Monterey. During the same period, however, California added twenty-two new prisons. Over the last thirty years, the total enrollment in California higher education has grown by 22 percent, but in just the last fifteen years California’s prison population has grown by 73 percent.

The notion of a universal entitlement to education has roots reaching back to Plato, who, in the *Republic*, talked about broad education but for the narrow purpose of training philosopher kings and elites. The Talmud teaches that in the middle of the first century C.E., Joshua ben Gamla, the high priest of Judea, established compulsory religious education for children in every village. The idea stuck – although poor Joshua kept his job for only a year or so. Today we take for granted that compulsory education will be provided to pre-K children through students age 16 – 18, depending upon the state.

The question for our future is, what is the appropriate aspiration? Given the changes in our economy, is it not time to think about universality and entitlement not just for thirteen years (pre-K through grade 12) but for at least fifteen years? Shouldn’t the aspiration toward which we try to move the broader public be the grander one of ensuring that everyone have a postsecondary education or training that leads to a degree or certificate with value in the marketplace? And that high school should prepare you for that post-secondary experience? That early childhood learning and elementary and secondary education should support children in achieving their full potential? That equity is critical? That there should be no gerrymandering or color-coding of opportunity? Our aspiration should not just be, “Please save our university’s budget,” but should also encompass the broader enterprise of explaining that we have reached the stage in our advanced society, our advanced economy, in which this broader aspiration of universality and attainment must be defined and pursued.

Shouldn’t the aspiration toward which we try to move the broader public be the grander one of ensuring that everyone have a postsecondary education or training that leads to a degree or certificate with value in the marketplace?

An analogy can be drawn to what we are now experiencing in healthcare. Medicare and Medicaid were established in 1965 so that the elderly and the very poor were entitled to basic healthcare. Although we have witnessed endless battles over the scope of coverage, the cost, and the complex regulatory environment for Medicare and Medicaid, we have arrived at the cusp of a moment when universal access to healthcare may be established at last in the United States. How we got from 1965 to this moment may be instructive as we define the aspiration for higher education in the generation ahead.

Legitimacy

The challenge of legitimacy is one of inclusion – or the lack thereof: the under-representation of poor and minority students at our top institutions of higher education. Only 3 percent of the students at the top 150 American colleges and universities come from the bottom quartile of the income distribution. Three percent! And only 10 percent come from the bottom *half* of the income distribution. If you were to walk the campus of one of these 150 institutions, you would be twenty-five times more likely to meet someone from the top income quartile than someone from the bottom income quartile. Higher education cannot have legitimacy as an engine of opportunity if it is exclusionary, or even perceived as being exclusionary.

Nationwide, 15 percent of community college students are Latino, and 13 percent are black. In California, however, Latinos account for 28 percent of community college students, and blacks for 8 percent. Something in the operation of the higher education system, including the pipeline to it, is sorting minority students out of the better postsecondary opportunities. Furthermore, the community college system – the postsecondary opportunity in which most blacks and Latinos who pursue postsecondary education find themselves – is generally acknowledged to be broken. Broken in the sense that the vast majority of students leave community college without having achieved even a certificate, much less an associate’s degree or transfer to a four-year institution. If majorities of the black and Latino students nationwide in postsecondary education are in community colleges and community colleges are not working, what does that say about who will be in the middle class fifteen years from now? The very legitimacy of higher education depends upon whether it is inclusive.

Higher education cannot have legitimacy as an engine of opportunity if it is exclusionary, or even perceived as being exclusionary.

Affordability

The question of legitimacy cannot be disentangled from the question of affordability. My boss, Berkeley Chancellor Robert Birgeneau, addresses quite well how this issue looks to the student. But what about affordability from the standpoint of government? Think about it this way: You’re the government. You’re going to purchase this service – higher education – for the people. How much should you be willing to pay? What should the cost be? The higher education market is far from perfect; it bears little relationship to the neoclassical microeconomic paradigm (no matter what the antitrust division at the Department of Justice might like to believe). The system of subsidies, tax expenditures, and so forth is like a badly dis-

torted image of a traditional market – as it should be, in my view. But the investing public, acting collectively through government, is still left with the question, Should we purchase a Chevy or a Cadillac? A Mazda or a Maserati? A hybrid or a Hummer? The knee-jerk response among higher education leaders is, “Well, the diversity of our institutions is one of the great strengths of the American system.” They are correct, but that response implies the need for a diversity of financing strategies for that product. Otherwise, the affordability problem will persist.

Elitism

The Berkeleys of higher education have a special problem. When the Supreme Court heard oral arguments in the University of Michigan affirmative action cases in 2003, Justices Scalia and Thomas said, more or less, “You claim that diversity is a compelling interest for your university, but you also tell us that by being selective, by being elite, it makes it difficult for you to get the diversity that you think is so important. Well, why do you have to be so selective? Why do you have to be so elite? Just make a choice. You know, if diversity is so important, just focus on being diverse; don’t focus on being so elite. Leave the elite business to the private sector.”

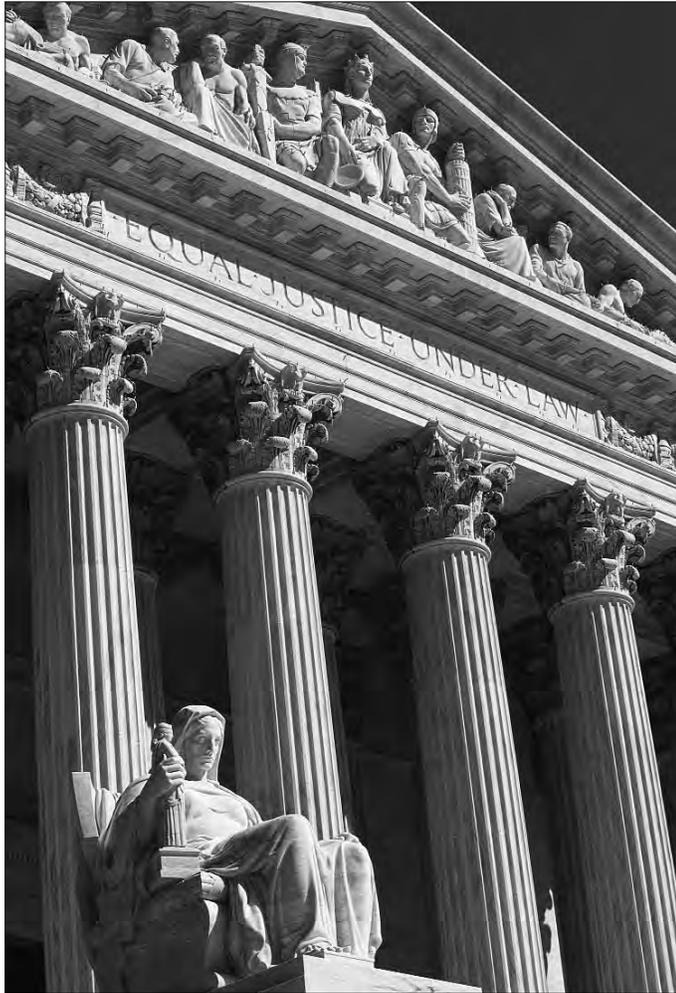
For many folks in elite higher education, this surely seemed like a preposterous proposition, but the issues it raises deserve consideration. The fact is, few public institutions compete with the elite private colleges and universities. Few states have made the decision to invest in a Berkeley, a UCLA, a UC San Francisco. That a polity should choose as a matter of public investment to try to compete with Harvard, MIT, and Stanford is not obvious. After all, most states have chosen not to do so. Thus, those of us who wish to proclaim and advance the proposition that elite public higher education has a role to play in the broader system of public higher education face a special challenge. This case can be made, but it is not an obvious case, and we must attend to it with great care, paying special attention to the related challenges of affordability, legitimacy, and aspiration.

Those of us who wish to proclaim and advance the proposition that elite public higher education has a role to play in the broader system of public higher education face a special challenge.

I never wanted to be an academic administrator – it’s a ridiculous job. When your alternative is being a professor and doing whatever you want . . . So when Berkeley first came after me, I said “No” several times. But then I finally had lunch with the search committee. Their second question – after “Why do you want to be dean?” to which I replied, “I don’t think I do.” – was, “What do you think is distinctive about the mission of an elite public law school?” That was a great question, one I had never thought about. While a Harvard professor I never wanted to be a dean – why would I want to spend my time polishing the flatware? But the question asked of me by the Berkeley search committee made me start thinking about whether there should be something distinctive. Otherwise, why bother? What would be the point of an elite public university whose only distinctive feature is its “eliteness?” The future of our institutions cannot be secure without a compelling answer to that simple question. ■

© 2009 by Robert J. Birgeneau, Mark G. Yudof, and Christopher F. Edley, Jr., respectively

Academy Meetings



Judicial Independence

Sandra Day O'Connor, Linda Greenhouse, Judith Resnik, Bert Brandenburg, and Viet D. Dinh

Welcome and Introduction by Richard L. Revesz, Martin Lipton, and John Sexton

This panel discussion was given at the 1931st Stated Meeting, held in collaboration with New York University School of Law and Georgetown University Law Center on November 6, 2008, at Tishman Auditorium, New York University School of Law.

U.S. Supreme Court in Washington, D.C. (1935)
Photograph © Dennis Degnan/Corbis.



Richard L. Revesz

Richard L. Revesz is Dean and Lawrence King Professor of Law at New York University School of Law. He has been a Fellow of the American Academy of Arts and Sciences since 2007.

Welcome

It is a great pleasure to welcome you to this wonderful event, which we are cosponsoring with the American Academy of Arts and Sciences and the Georgetown University Law Center. I am very grateful to my colleagues, Alex Aleinikoff, Dean of the Georgetown Law School; Meryl Chertoff, Director of the Sandra Day O'Connor Project on the State of the Judiciary at Georgetown; and Leslie Berlowitz, Chief Executive Officer of the American Academy, for coming together tonight to create this terrific event.

It is a great honor to welcome Justice Sandra Day O'Connor back to the law school. It seems that whenever something very good

happens at the law school, Justice O'Connor is here. I'll give you only two examples in the interest of hearing from Justice O'Connor herself. On September 28, 2001, the law school celebrated the groundbreaking for Furman Hall, our wonderful academic building that now houses half our classrooms, our clinical programs, our lawyering programs, and many important administrative offices. That was an important day and Justice O'Connor was here. It meant an enormous amount to us, and she spoke passionately and persuasively about the important role of lawyers and legal education in the new world that we would have to construct after the 9/11 disaster.

My second example: Our Institute for Judicial Administration has played a very important role in the training of judges in this country, both at the federal and state levels, and has, I think, on average trained about two-thirds of new federal district-court judges. In October 2006, the Institute was named the Dwight Opperman Institute for Judicial Administration in honor of Dwight Opperman, a trustee of the law school who had been involved with the Institute since its inception in the 1950s. Justice O'Connor was here again and talked about the importance of judicial independence, a topic that we'll come back to today.

It is fitting that since retiring from the Supreme Court, Justice O'Connor has devoted a significant amount of time and energy to promoting the cause of judicial independence, which she has persuasively argued is increasingly under attack.

It is now my privilege to introduce the Chairman of the Board of Trustees of the University, Martin Lipton. Marty graduated from NYU School of Law, and the history of the transformation of the law school during a period of about 50 years is tied very closely to the roles that Marty played in making that happen. He and his other founding partners at the law firm of Wachtell, Lipton, Rosen & Katz, all of them alumni of our law school, started one of the great institutions of American corporate law. Marty, from the beginning, was involved in creating the structure that would make it possible for the law school to become a leading academic institution. He eventually became Chair of the Board of Trustees of the law school and then was elevated to his current position as Chair of the University's Board. Thank you, Marty, for being here with us today, as you are on so many other special occasions in the life of the law school; we're extraordinarily grateful to you.



Martin Lipton

Martin Lipton is a Founding Partner of Wachtell, Lipton, Rosen & Katz and is Chair of the Board of Trustees of New York University. He has been a Fellow of the American Academy of Arts and Sciences since 2000.

Welcome

On behalf of the University and of the American Academy, I'm delighted to add my welcome to all of our distinguished speakers and guests. The American Academy has been exploring issues facing the courts for a number of years. Using its unparalleled ability to convene some of the keenest minds in the nation for careful reflection and non-partisan independent study, the Academy has advanced our understanding of the judicial system during a time of change and challenge.

The topic of judicial independence is not only critically important, it is also quite complicated. And to help us better understand the issues and appreciate what is at stake, we are about to have the pleasure of hearing from an extraordinary group of legal scholars and practitioners. Everyone in this room understands that a fair and impartial judiciary is a cornerstone of our system of government. Today, there are critical challenges to the independence of our courts. They come in the form of increasingly partisan judicial confirmation processes, calls for the impeachment of federal judges when activists disagree with judicial decisions, and unprecedented Congressional intrusion into

judicial decision-making. To help educate the public about judicial independence, Justice O'Connor established the Sandra Day O'Connor Project on the State of the Judiciary, which is housed at Georgetown University Law Center. It is my honor to serve on the Project Steering Committee, and I especially want to acknowledge Justice O'Connor and to thank her for her very important work in this area of judicial independence.

Now it's my pleasure to introduce another Fellow of the Academy, John Sexton. John clerked with Chief Justice Warren Burger and is a former Dean of the NYU School of Law. He is the Benjamin Butler Professor of Law and the fifteenth President of New York University.



John Sexton

John Sexton is fifteenth President of New York University and the Benjamin Butler Professor of Law. He has been a Fellow of the American Academy of Arts and Sciences since 2001.

Introduction

The formal life of Justice O'Connor is well known to all of us: a graduate of Stanford and its law school, editor of its law review, a county attorney, a civilian attorney in the Quartermaster Corps, and then an assistant attorney general in Arizona. For six years she was in the Arizona State Senate, becoming the majority leader and the first woman in the country to hold such a high legislative position. Later she became a superior court

judge, then a judge for the Arizona Court of Appeals. She had served in all three branches of government well before I first heard her name in October term 1980, when I was clerking for Warren Burger. In my class on the Supreme Court and religion, with freshmen here at NYU, I described the day that all 32 of us who were clerking at the Court that year were called down to the east room of the Court. In came Justice Stewart to explain to us that that would be his last term. I remember as the weeks unfolded hearing Chief Justice Burger speak in glowing terms of this woman from Arizona.

My class here and the concomitant class I'm teaching on Sundays in Abu Dhabi on the same subject, Religion and Politics Through the Eyes of the Supreme Court, know that I view the 25 years between 1981 and Justice O'Connor's retirement as "The O'Connor Years" at the Court, certainly in the area of the intersection of religion and politics in society. In many ways, Justice O'Connor shaped the court during those years. She shaped this law school, seen by many as the place that gestated a more ecumenical and expansive view of the law. We called it here the Global Law School Initiative, but the idea, in fact, was Justice O'Connor's. It was an idea that was born when she spoke here in the early 1990s at a faculty lunch, and it was an idea that caught my attention as a product of the ecumenical movement from a very earlier time in my life. It was an idea that, as it began to incubate, Justice O'Connor was always here to support.

The very first conference held at NYU's magnificent villa in Florence, Italy, in 1994, was a conference that Justice O'Connor organized with us for justices of four Supreme Courts – four Constitutional Courts, more appropriately: the Constitutional Courts of the United States, Germany, Italy, and the then newly established Russian Constitutional Court. As we, those twelve justices and about eight NYU professors, sat in La Pietra, the Russian Constitutional Court wrestled with its own *Marbury v. Madison*: the constitutionality of the invasion of Chechnya and whether Yeltsin had acted constitutionally. It was wonderful to hear the twelve justices at the conference wrestle with the issue of judicial independence in that context as opposed to the context in which we will discuss it tonight.

In many ways, Justice O'Connor has done the most important work in her life invisibly, person by person. To those of us who have been privileged to come to know her and her magnificent love affair with her husband, she is a model of personal "I thou love" for every married couple; she certainly was for our family. And for others who don't get to know her as well, or as intimately, she still is a model person by person. I'll close with a story to illustrate.

My wife Lisa, our daughter Katie, and our son Jed were with me for that conference in Florence. Jed was the gofer. Lisa sprained her ankle and had to come home, so Katie, then seven, was a host. She, this little girl, stood next to me as the vans with the justices came up the long, tree-lined road that brought them to the main villa. I said, "Now, when the justices get out, you just curtsy and say 'Buon giorno; welcome to La Pietra.'" Little Katie said and did just that as Justice O'Connor got out of the van. In her own magnificent way, Justice O'Connor embraced this little girl. Justices Ginsburg and Breyer were there too, and Justice Ginsburg spent a lot of time with Katie over the three days. But it seemed Justice O'Connor's hand was always in Katie's hand.

When Katie came home, she brought with her Justice O'Connor's cardboard name card from the conference. She put it on her desk, and when she got to the third or fourth grade and had to pick a person from all of history to be and to present a biography, she chose Justice O'Connor. A friend came over and saw this card on Katie's desk and asked her about it. Katie, now about nine, said, "Oh, Justice O'Connor, she's a friend of mine. She's invited me to come down to Washington, and we spent a lot of time together. And there was this other Justice, Justice Ginsburg, and she was very nice, too." Finally she said, "I didn't spend a lot of time with Justice Breyer, so I can't tell you what he's like." In that way, Sandra Day O'Connor, person by person, made it possible for people, the young Katies of the world, to think that anything is possible for them. And Katie still lives with the tremendous confidence that this great woman instilled.

It is my great, great privilege to introduce to you Justice Sandra Day O'Connor.



Sandra Day O'Connor

Sandra Day O'Connor served as an Associate Justice of the U.S. Supreme Court from 1981 until her retirement in 2006. She has been a Fellow of the American Academy of Arts and Sciences since 2007.

That was quite an introduction. I hope many of you have had the privilege of meeting Katie. She's pretty grown-up now, but what a wonderful girl she is and what a wonderful youngster she was.

Thank you so much, President Sexton, for your introduction. John Sexton's work as an educator, both here at NYU and through all of his other activities, like the Urban Debate League, has set a very high bar for individual commitment to civics education. I want to thank Dean Revesz and the law school for hosting this event. I remember Dean Revesz when he was a law clerk for Justice Thurgood Marshall; he looked a little younger in those days, I think.

John Sexton mentioned some of the events that have been held here. For several years, members of our Court met with members of Russia's Constitutional Court, and we got to the stage where we really could communicate with some of them pretty well. I remember lots of meetings. Now that has stopped, and we are becoming strangers with the Russian Federation. It's a tougher relationship, and whether they would entertain the possibility of restoring some of those meetings, I don't know; but I think it's worth exploring. We certainly had some good meetings here.

Thanks so much to the American Academy of Arts and Sciences, a distinguished group. You probably know that John Adams helped

found the Academy, and at the time that he did that, he was also trying to write a constitution for the state of Massachusetts. It has some pretty forceful language about the importance of judicial independence. The Massachusetts Constitution, thanks to John Adams, says, "It is essential to the preservation of the rights of every individual to be tried by judges as free, impartial, and independent as the lot of humanity will admit." So what did John Adams have in mind when he referenced an independent judiciary more than two centuries ago, back when the notion of a judiciary with power to secure and protect certain fundamental rights was a pretty radical idea? Judicial independence as a concept doesn't lend itself to very precise definition, and maybe the easiest way to understand it is to look at settings where it did not exist.

Judicial independence as a concept doesn't lend itself to very precise definition, and maybe the easiest way to understand it is to look at settings where it did not exist.

I grew up in the Southwest, born in El Paso, and went to school there. In the late 1800s, Judge Roy Bean ran his courthouse out of a saloon in west Texas, not too far from the Lazy B Ranch. Everyone in Roy Bean's court, from defendants to jurors to lawyers, was expected to buy drinks during each one of his frequent recesses. If you didn't buy a drink, the judge would hold you in contempt of court and you would be fined the cost of a drink. The saloon-turned-courthouse had a big sign in front of it that read, "Law West of the Pecos." And just above that sign was another one that read, "Ice cold beer." I would have hoped, at the very least, that the law would have gotten top billing on the marquee, but it didn't: he was selling ice cold beer and law, in that order. In one typical case, Judge Bean sentenced a young man to hang, only to discover later that the man had over \$400 in a bank account. When Judge Bean learned that, he sensed that there might be some profit in leniency and

said, "By gobs, we've made a mistake. This man does not deserve to hang."

In one sense you could say that Judge Bean was independent. He did whatever he liked, and often he was guided purely by monetary concerns. But that's not what I mean when I talk about judicial independence, and I don't think it's what John Adams had in mind either. I mean somebody, a judge, who's constrained by what the law says and requires, and a judge who's independent from external influences. Of course, a judiciary that's subject to strong external influences is not just a thing of the distant past. We've seen evidence of that all around the globe. And while our federal judges in this country receive appointments for good behavior, a significant percentage of our state-court judges are elected for a term of years, and they are elected in partisan campaigns quite often – campaigns that have become increasingly expensive, unwieldy, and nasty. Such destructive campaigns, I think, erode the public's perception of the judiciary because it's difficult to believe that judges can remain neutral when they so often have to think about the popularity of their opinions and who it was that donated to their campaigns. You hear horror stories of lawyers going to trial in Texas, which is a state that has elections like I described, and the first thing they do is to find out how much the lawyers on the other side have already given to the judge. If they can find that out, then they have to match it or exceed it, or they don't go to trial.

What kind of a system is that, and why do we want to tolerate that kind of thing in our country? I don't know. It isn't difficult to see how corrupting that money, which is injected into these campaigns, can become. After being elected to the Illinois Supreme Court in 2004, after a judicial election in which the candidates spent more than \$9 million combined, Justice Lloyd Karmeier asked, "How can people have faith in the system when such obscene amounts of money are used to influence the outcomes of the elections?" And he was the one who won the race. You can only imagine what the losing candidate might have said afterward – probably nothing we would want to repeat in public.

A significant percentage of our state-court judges are elected for a term of years, and they are elected in partisan campaigns that have become increasingly expensive, unwieldy, and nasty. Such destructive campaigns erode the public's perception of the judiciary because it's difficult to believe that judges can remain neutral when they so often have to think about the popularity of their opinions and who it was that donated to their campaigns.

Or consider the Massey Coal case from West Virginia, where the justice who cast the deciding vote to overturn a \$50 million verdict against Massey Coal Company had received more than \$3 million in campaign contributions from the company's owner while the appeal was pending in the court. The U.S. Supreme Court is currently looking, I believe, at a cert petition in that case that raises the question of whether at some point the due process clause requires a judge to recuse himself or herself when the perception of bias is so strong. I don't think that a litigant giving a \$3 million contribution to a judicial candidate's campaign is what John Adams had in mind when he envisioned judges who were as impartial and independent as the will of humanity would admit.

We can do better than that in this country, and thanks to some of you who are in the social sciences, there's a growing body of empirical research that demonstrates how these campaign contributions and judges' fear of reprisal for making unpopular decisions do, in fact, have an effect on judicial

decision-making. I encourage those of you in the social sciences to continue collecting and reviewing the empirical data that demonstrate the effects that campaigns like that have on the judiciary.

The judiciary's authority and legitimacy rest really on public trust and the agreement of the public in general to abide by rulings of the courts. We can't afford to have a judicial system that is perceived as being corrupt, biased, or otherwise unethical. Judges, after all, don't have any real means of enforcing most of their rulings: our gavels aren't that big, and we can't swing them that hard. Our courts rely on the other branches of government and the public to follow and acquiesce in the rulings made by the courts, and it's somewhat amazing how the other branches of government normally through the years have abided by and enforced court rulings, whether it was President Eisenhower who sent the 101st Airborne to Little Rock, Arkansas, to ensure that the schools were integrated after *Brown v. Board of Education* and *Cooper v. Aaron*, or whether it was President Nixon, who sealed his own fate and turned over incriminating tapes and documents in response to the Supreme Court's decision in *United States v. Nixon*. While we have been fortunate to have a judicial system that is generally respected, it should not be taken for granted.

Statutes and constitutions don't protect judicial independence, people do. And while we are not at the stage where protestors might overrun the U.S. Supreme Court building like they did in Zimbabwe not too long ago, the time to address the concerns I have described is now, before those concerns become so large we can't solve them. I hope we can help educate all Americans in this country on what we mean by judicial independence and, particularly, explain why it matters – because it does. I hope that in time we can persuade some of the states that still hold partisan elections to develop a somewhat better forum of judicial selection, similar to that which the esteemed framers of our Constitution developed when they met in Philadelphia so long ago.



Linda Greenhouse

Linda Greenhouse is the Knight Distinguished Journalist in Residence and Joseph M. Goldstein Senior Fellow in Law at Yale Law School. For nearly 30 years she covered the U.S. Supreme Court for "The New York Times." She has been a Fellow of the American Academy of Arts and Sciences since 1994 and serves as a member of the Academy's Council.

It was my pleasure, along with Meryl Chertoff, to put together the Fall 2008 issue of *Dædalus*, focused completely on the topic of judicial independence. As Justice O'Connor said, this is an educational effort; it's an outreach effort. It's to get people talking and to have a sophisticated conversation about what sounds on the surface like a very simple issue. Of course everybody's for judicial independence; but as we probe deeper, it's a complicated and challenging subject.

The American Academy started a project on the independence of the judiciary back in 2002. Originally called Congress and the Courts, the project grew out of a perception on the part of many people that the relationship between the Supreme Court and Congress had run off the rails. The Court was striking down a series of federal civil rights statutes on the grounds that Congress lacked the constitutional authority to enact them; it was a freighted situation. So the Academy formed a committee to look at how it could serve its historic role, in this context, as a neutral arbiter to examine the many dimensions of the relationship between Congress and the Court. There was a series of private, closed-door meetings among the various stakeholders – Supreme Court justices, key players on the Hill – and the Academy facili-

tated a valuable conversation that resulted in insightful discussions about this subject. There was also a series of lectures and panel discussions that focused on other topics related to the judiciaries: career paths of judges, judges' compensation and benefits, and the confirmation process.

The project developed and so did the relationship between Congress and the federal judiciary. The relationship, in fact, turned around, and just as the Court had challenged Congress earlier, Congress began to challenge control of the judicial branch, including limitations on the ability of federal judges to travel and efforts to prohibit federal judges from citing foreign law, an effort of which, I would assume, Justice O'Connor took a rather dim view.

The American Academy started a project on the independence of the judiciary back in 2002. Originally called Congress and the Courts, the project grew out of a perception on the part of many people that the relationship between the Supreme Court and Congress had run off the rails.

All of these issues benefit from public conversation and scholarly inquiry, and that's what brings us together this evening. This meeting occurs, as I mentioned, in conjunction with the publication of the Fall 2008 issue of *Dædalus*, the quarterly journal of the American Academy, on this theme. It contains essays by each of our speakers, as well as a number of eminent scholars, practitioners, and judges.

The issue of *Dædalus* draws from two complementary and ongoing efforts to examine judicial independence today, to define it in its historic context, assess its current function, and address the perception that it is

currently under attack. The American Academy of Arts and Sciences, under the auspices of its project on The Independence of the Judiciary, has held several meetings that have brought together scholars, public officials, and state and federal judges. Essays in the issue by Senator Charles Schumer, Judge J. Harvie Wilkinson III, Chief Justice Ronald M. George of California, Chief Justice Margaret H. Marshall of Massachusetts, and Professors Judith Resnik and Robert Post are drawn from those sessions.

The Court was striking down a series of federal civil rights statutes on the grounds that Congress lacked the constitutional authority to enact them.

The Sandra Day O'Connor Project on the State of the Judiciary at Georgetown University Law Center held conferences in 2006, 2007, and 2008 that drew the attendance of six sitting Supreme Court justices and hundreds of scholars, business and political leaders, and representatives of the nonprofit sector. The essays in the volume by Justice O'Connor and Justice Breyer are drawn from the first two of those conferences, as are those by Chief Justice Ruth V. McGregor of Arizona, Professor Kathleen Hall Jamieson and Bruce W. Hardy, Professor Viet Dinh, Professor Stephen Burbank, Professor Bert Brandenburg, Professor Roy Schotland, Professor Vicki Jackson, and Professor Charles Geyh.

The result is a collection of diverse perspectives from those who study the question of judicial independence as scholars and those who live it as judges, a contribution to a conversation as old as the republic and as current as today's news. That is the background of what brings us together.



Judith Resnik

Judith Resnik is the Arthur Liman Professor of Law at Yale Law School. She has been a Fellow of the American Academy of Arts and Sciences since 2001. Her comments draw from an essay published in "Dædalus," Fall 2008, on "Interdependent federal judiciaries: puzzling about why & how to value the independence of which judges," and from a forthcoming book, "Representing Justice: The Rise and Decline of Adjudication as Seen from Renaissance Iconography to Twenty-First Century Courts" (co-authored with Dennis E. Curtis and to be published by Yale University Press in 2010).



The degree to which we take for granted the concept of judicial independence makes it worth looking, briefly, at the history of judges, going back hundreds of years. Adjudication is an ancient practice, long predating democracies. Medieval and Renaissance rulers put on spectacles of justice in which judges took center stage. But while sovereign powers relied on judges, it was not because judges were independent actors.

One way to catch a glimpse of these traditions is through looking at the imagery put deliberately into town halls, Europe's first civic buildings, where court sessions were held. Hence, I invite you to look at a few such paintings. The first image comes from the diptych of 1498 called *The Justice (Judgment) of Cambyses*, a painting by Gerard David that can today be found in the Groening Museum. But it once hung in the town hall of Bruges in what is now Belgium. The left panel of the diptych, *Arrest of the Corrupt Judge*, shows at the far back a tiny vignette of a man in a red robe (a judge) taking a bribe (a bag of money). In the foreground, one can see that judge taken from the seat of judgment; he is being arrested. In the *Flaying of the Corrupt Judge*, which is the right panel of the diptych, the judge is being flayed alive.

The reproductions do not do justice (if I may borrow that word) to the actual paintings, which are larger than life and gruesome in their brightly colored details – even hundreds of years later. The story's denouement can be found in the background of the *Flaying*, where another small vignette is provided.

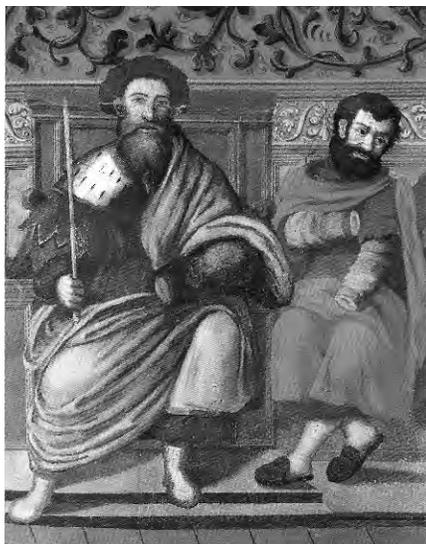
***Arrest of the Corrupt Judge*, left panel of the diptych *The Justice (Judgment) of Cambyses*, Gerard David, 1498, Musea Brugge, Belgium. Copyright: Musea Brugge, Groeningemuseum. Image reproduced with the permission of the copyright holder.**



Flaying of the Corrupt Judge, right panel of the diptych The Justice (Judgment) of Cambyses.



Les Juges aux mains coupées, Cesar Giglio, circa 1604, Salle du Conseil (Council Chamber), Town Hall of Geneva, Switzerland. Photograph reproduced with the permission of Le Centre d'Iconographie Genevoise. Thanks to Ursula Baume-Cousam, Cäsar Manz, and Livio Fornara for help in obtaining permission to reprint.



Detail, Les Juges aux mains coupées.

The son of the corrupt judge, now the new judge, is forced to sit on his father's skin. I have used a spectacular example from Bruges but this scene is not unique to that city's town hall. Rather, paintings of it were in many town halls in cities around Europe.

Move forward a hundred years plus to Geneva, Switzerland, to 1604 to the huge mural *Les Juges aux mains coupées*, by Cesar Giglio, which was displayed in the Salle du Conseil (Council Chamber) of the town hall. A detail of the mural shows judges with their hands cut off, along with text from *Exodus 23:8*: "Thou shalt not accept gifts for a present blinds the prudent and distorts the words of the just."

About 50 years later, in 1655, architect Jacob van Campen's magnificent Town Hall (now called the Royal Palace) opened in Amsterdam. Inside, one room is called the Tribunal (*Vierschaar*), where death sentences were pronounced. Public spectators and defendants alike saw elaborate carvings there, including *The Judgment of Brutus*, by the sculptor Artus Quellinus. The Roman envoy Brutus ordered his own sons to death for treason. Another carving features *The Blinding of Zaleucus*. Zaleucus was a judge whose son violated the laws of the state, a crime that carried the punishment of gouging out one's eyes. Instead of taking out both of his son's eyes, Zaleucus took out one of his own as well.

Works such as these (again, commonplace in civic buildings) help me make a first point: the judicial role then was conceived to be dependent, not independent. These exemplary allegories instructed judges to serve as loyal servants of the state and showed, furthermore, that enforcing the state's law came at personal pain. Misbehave and you would be flayed alive or lose your limbs; be loyal to the state even if it means sending your own children to death or to dismemberment.

Why were these images set out? Rulers created rituals and spectacles of power aimed at providing instruction to the public watching from the streets or inside these state buildings. Public proceedings were aimed at underscoring the authority to make and enforce laws. But as Michel Foucault has taught us, those who produce rituals and spectacles cannot control the consequences of what is seen. The people who watched



Exterior of the Town Hall (Royal Palace) of Amsterdam, Architect: Jacob van Campen, 1648–1655, Amsterdam, the Netherlands. Photograph reproduced with the permission of the Amsterdam City Archives.



Interior of the Tribunal (*Vierschaar*) on the ground floor of the Town Hall (Royal Palace) of Amsterdam, the Netherlands. Photograph reproduced with the permission of the Amsterdam City Archives.

moved from being passive spectators to becoming more active, more watchful observers – to understanding themselves as having some power to sit in judgment of those imposing judgment. Over the course of centuries, as they saw these rituals of power and as republican and democratic precepts grew, they began to make claims *on* the state.

The seventeenth, eighteenth, and nineteenth centuries saw two parallel and related developments pertinent to our discussion. One was the growth of the idea of judges as impartial and specially situated employees of govern-

ments. The second was the obligation to render judgment in public. Rites, R-I-T-E-S, became rights, R-I-G-H-T-S, of public access to courts as judges moved from servants of rulers to independent actors authorized to sit in judgment of the state itself.

To explain some of this, I need to switch from artwork to texts and cross the Atlantic to the United States. One example comes from the laws of West New Jersey in the 1670s. As that document reads: “That in all publick courts of justice for tryals of causes . . . any persons of the Province may freely come into

and attend the said courts, and hear and be present . . . at all and any such trials . . . that justice may not be done in a corner nor in any covert manner.” A century later, this commitment was reiterated in 1777 in the Constitution of Vermont that read: “All courts shall be open, and justice shall be impartially administered, without corruption or unnecessary delay.”

State constitutions also lead the way on judicial independence; Massachusetts provided for tenure for its judges. That point became central in 1789 to Article III of the U.S. Constitution, the icon of the federal system, which enshrined this new conception of judges, protected from being fired (life tenure) and with salaries not to be diminished. (Our current judges remind us that what is missing is the lack of even cost-of-living increases.)

Now let’s move to the twentieth century. The European Convention for the Protection of Human Rights and Fundamental Freedoms from 1950 and the International Covenant on Civil and Political Rights of 1966 both avow that independent judges and open courts are necessities. In 1996, the new constitution for South Africa made the same commitments.

A fast summary of three points from the past 500 years is in order. First, the role of the judge was once to be subservient. Second, public rituals were used to instill this



The Judgment of Brutus [or *Brutus*], Artus Quellinus, circa 1655, the west wall of the Tribunal. Photograph copyright: Royal Palace Foundation of Amsterdam. Thanks to Professor Eymert-Jan Goossens for help in obtaining this image and permission for its reproduction.



The Blinding of Zaleucus [or *Zaleucus*], Artus Quellinus, circa 1655, the west wall of the Tribunal. Photograph copyright: Royal Palace Foundation of Amsterdam.

Academy Meetings

idea in both judges and public spectators. Third, over time public practices became a springboard for rights, as participants laid claim to procedural fairness, to democratic precepts, and as persons employed by the state grew to understand themselves as able to sit, independently, in judgment, even sometimes of the state itself. These ideas are reflected in constitutional texts that, time and again, link open courts and independent judging. As Jeremy Bentham explained in the mid-1800s, publicity was “the very soul of justice.” The judge, while presiding at a trial, was “on trial” – watched and assessed by an audience. From the baseline of political ideas in Renaissance Europe, that is a pretty radical endowment of authority in “we the people.”

With the enhancement of democratic norms during the twentieth century, demands for adjudication have soared. Only within the last 150 years have all of us in this room become full “juridical persons,” recognized as rights holders, able to sue and be sued, to testify in court, to vote, to be members of all professions, and to sit in judgment as jurors and judges. Democracy has endowed us all with this new stature and new rights, enabling new opportunities to bring claims to court. One way to capture this point is to look at the growth in life-tenured federal judges. In 1901, as we see in Chart 1, authorized life-tenured judgeships in the federal system numbered just over 100 around the entire United States. By 2001, that number had grown to more than 850.

But even that increase was insufficient to meet the needs. Judges, lawyers, Congress, and the courts, working cooperatively, invented new kinds of judges for the federal system authorized through a variety of statutes. Two groups, magistrate and bankruptcy judges, do not have life tenure or guaranteed salaries; instead, they are creatures of statutes and given fixed and renewable terms. First chartered in 1968 and 1984 respectively, their numbers also have grown such that by 2001, together they too were about 850, and thus a cohort of a size comparable to the trial level life-tenured judges (see Chart 2).

All of these judges are a vital part of activities in every federal courthouse around the United States. Taking as one measure the times when witnesses testify orally in pro-

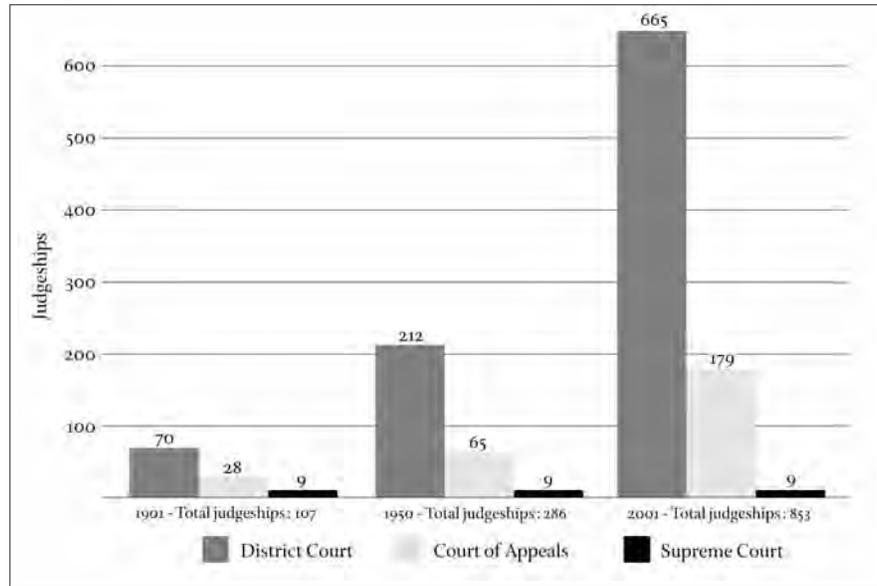


Chart 1. Article III Authorized Judgeships: District, Circuit, and Supreme Courts: 1901, 1950, 2001

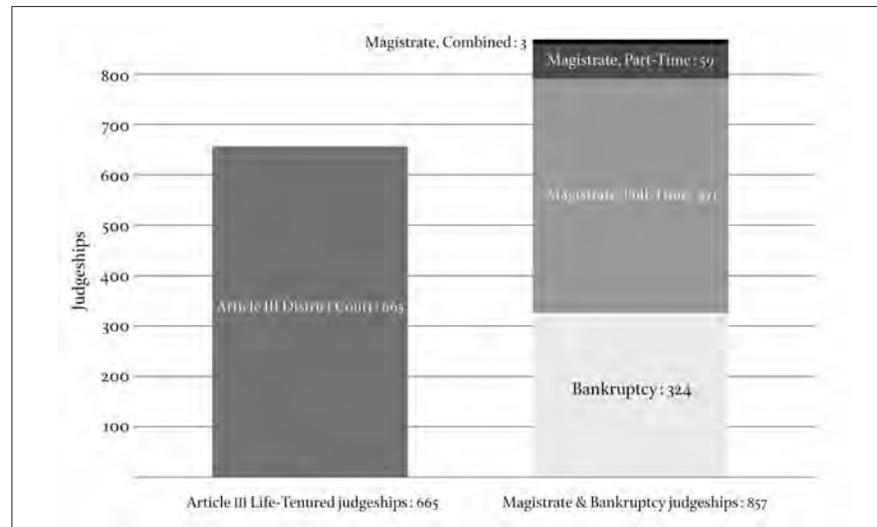


Chart 2. Authorized Trial-Level Federal Judgeships in Article III Courts (nationwide, 2001)

ceedings before Article III, magistrate, or bankruptcy judges, a good estimate is that about 100,000 such proceedings occur yearly throughout the United States.

In contrast, consider the volume in federal administrative adjudication. From available data on proceedings in four federal agencies – Immigration and Naturalization Services, the Social Security Administration, the Board of Veterans Appeals, and the Equal Employment Opportunity Commission – we estimate that more than 700,000 evidentiary hearings occur yearly. Who are the judges for those proceedings? Not life-tenured

judges nor magistrate and bankruptcy judges who work in federal courthouses. Instead, some are “administrative law judges” (ALJs) chartered under the Administrative Procedure Act and others may be hearing officers who can be general employees of a particular agency. Their number (more than 4,700 as of 2001) far outweighs the 1,600 plus, which represents the combined set of magistrate, bankruptcy, and Article III judges (see Chart 3).

At this, the beginning of the twenty-first century, we in the United States have many documents making textual commitments to

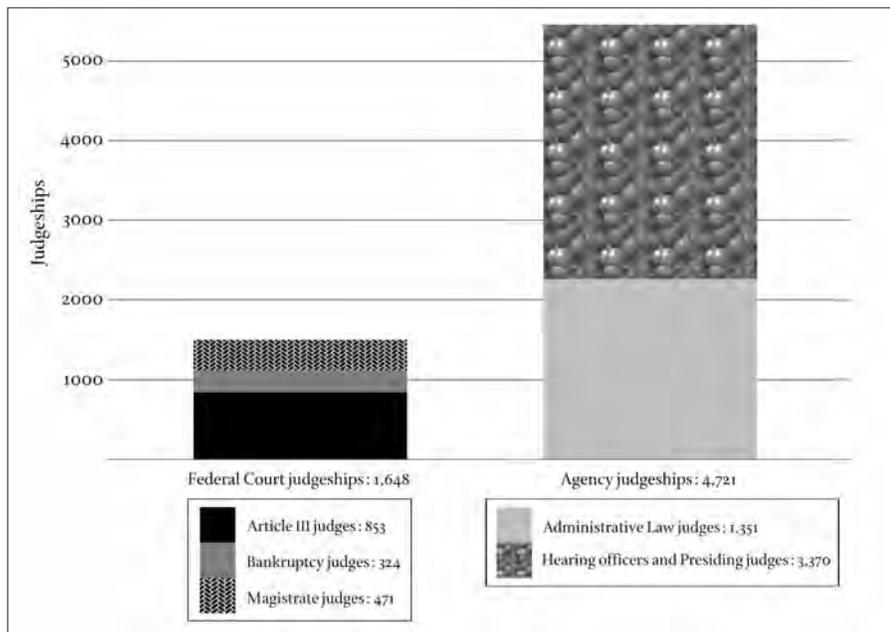


Chart 3. Numbers of Authorized Judgeships in Federal Court Houses and in Agencies (as of 2001)

independent and impartial judging and to open and public courts. Yet hundreds of thousands of federal agency proceedings do not occur in large public buildings, but in office buildings that are neither inviting to street traffic nor easily located even by those in search of attending. Moreover, we have had examples of “judges” (such as those who staff the immigration courts) reassigned when their bosses in the Department of Justice appeared not to like some of the decisions that they were making.

In shifting business away from life-tenured judges to administrative judges, Congress did not provide and the Supreme Court has not (yet) insisted that the rights we associate with judges – open trials, public access, robust independence – go all the way down the judicial food chain to lower echelon judges working in these lower echelon administrative courts. And we can see that this lack of protection matters. Judges are no longer flayed alive but they have been reassigned or fired.

Further, focusing only on the risks to judges coming from the executive or legislative branch misses an important development during the twentieth century. “Repeat player litigants” – from the Department of Justice to corporations and interest groups – focus on courts and on how to affect selection processes. Some of them contribute enormous sums to campaigns when there are

judicial elections. In the case of judicial appointments, some groups try very hard to influence those decisions as well. Several organizations are famously involved – the National Council of Manufacturers, the Cham-

Our law ought to reflect that judges can't be reassigned or fired, nor should we support provisions that permit them to hear witnesses and render judgments behind closed doors or to outsource and devolve their work to closed settings.

ber of Commerce, the Federalist Society, and the American Trial Lawyers. Thus, we need to understand that a variety of different associations, NGOs, and the like could be either friends or foes of judicial independence.

Another shift over the twentieth century has come from the media whose powers have been amplified through technological developments. Media have a huge impact on our knowledge about courts; many judges and lawyers complain about how various media

pay no attention or too much attention to courts. Some issues (sex offenders, for example) are singled out and become major vehicles of education about “the courts.”

Much more needs to be said but it is time to conclude. To do so, I want to pick up a theme introduced by Justice O’Connor. Texts like Article III of the U.S. Constitution, state constitutions, the South African Constitution, or the International Covenant on Civil and Political Rights are terrifically important, yet none is sufficient to create judicial independence. The challenge is building a culture of commitment to independent judges, and then spreading it from our most visible federal and state judges to those other judges working in less visible, but incredibly important settings – where, in fact, the bulk of the adjudicatory procedures in the United States takes place.

My own view is that both courts and legislators should insist on public processes as part of the structural protections for all these kinds of judges. Our law ought to reflect that judges can’t be reassigned or fired, nor should we support provisions that permit them to hear witnesses and render judgments behind closed doors or to outsource and devolve their work to closed settings. Of course, privacy concerns may be brought to bear but we should reject a general presumption that the public be excluded.

We need to nurture the public dimensions of adjudication because they are part and parcel of judicial independence. Judges have (appropriately) substantial powers, disciplined and legitimated through their obligations to do a great deal before the public eye and to explain their judgments. Indeed, adjudication is itself a democratic practice shaping our understanding of government. Participants are required to treat each other with dignity and respect, and members of the public, as an audience, can be engaged observers, sometimes moved to seek to change laws or procedures given what they have seen.

In sum, and as I argued in the *Daedalus* volume that this symposium celebrates, we have many judiciaries. By pluralizing the concept, we can take all of “our” judges into account. We need them to be independent because we are very dependent upon them.



Bert Brandenburg

Bert Brandenburg is Executive Director of the Justice at Stake Campaign. He was director of public affairs and chief spokesperson for the Department of Justice under Attorney General Janet Reno.

What I would like to do is give you a quick guided tour (and fill out a little bit of what Justice O'Connor was beginning to talk about) of threats to our state courts in particular. They, of course, are our workhouses, for all the glamour that the federal courts and rock stars like Supreme Court

There is now a new politics of judicial elections featuring money, ads, and questionnaires. The people who are bringing this about want to make courts accountable to interest groups and partisans instead of to the law and the Constitution.

justices get. State courts handle something like 98 percent of our legal proceedings in America, and more than 85 percent of our state judges in America have to face an election of one kind or another, either a competitive election against an opponent or a retention race in which a judge can be either kept or fired. And these judicial elections, which used to be relatively tame, are under growing pressure. There is now a new politics of judicial elections featuring money,

ads, and questionnaires. The people who are bringing this about want to make courts accountable to interest groups and partisans instead of the law and the Constitution. Justice O'Connor has described them as becoming political prize fights, and I think that is very apt.

Since 1999, state supreme court justices, for example, have raised in excess of \$150 million, often from the very people who appear before them in court. Fifteen states have smashed their spending records. TV ads are threatening public confidence in impartial courts. Questionnaires that judges receive on the campaign trail on hot button issues, like abortion and same-sex marriage, essentially seek to intimidate judges into complying with political demands: check-the-box justice, as it were – Are you with us or are you against us? Voter turnout in judicial races is often very low, and, therefore, voters are easily swayed by pressure and partisanship. For example, two years ago in Dallas County, Texas, 19 Republican judges were turned out simply because they had an R by their name and it happened to be more of a Democratic Party year.

Public confidence is ebbing. Three in four Americans believe that these campaign contributions influence judges' decisions; 80 percent of business executives agree. Even scarier to me is that nearly half of state judges agreed with that statement – that campaign contributions are affecting decisions in the courtroom. In addition to the fear of what this does to justice and the judges' decisions, it has a palpable effect on the quality of candidates who are willing to run if races are going to be this way.

So what happened in 2008? I would say it's been another tough year. In states that elect their supreme court, we saw 23 seats contested in 13 states, and the final pre-election disclosures (a figure certain to go up as we get in more reports) showed that the candidates had raised in excess of \$29 million. That's almost identical to the figure raised at the same point in 2006. Estimated spending on TV ads, which are becoming the way you now run for state supreme court, totaled \$17 million, a little bit more than 2006 (that is, by the way, thanks to almost \$5 million that was spent on state supreme court ads in just one week on the run-up to the 2008 election).

The most expensive election occurred in Alabama, where the two opponents together raised a total of at least \$3.8 million; this figure, too, will probably climb. A group based in Virginia – not in Alabama – wanted to influence that election so it put in another \$800,000 of its own on behalf of one of the candidates, who I believe won in a squeaker. So, according to what we are hearing, that influence may well have been decisive.

Voter turnout in judicial races is often very low, and, therefore, voters are easily swayed by pressure and partisanship.

As I mentioned, \$17 million was spent on TV ads in this year's campaigns, some of which we can see now. *[Editor's Note: Brandenburg played several TV ads for state judicial races. The text of those ads is included below.]*

[From Wisconsin]

Meet Mike Gableman. He wanted to be a judge, but he had a few problems. Burnett County needed a judge, but Gableman lived 290 miles away. An independent panel recommended two finalists, but he didn't make the list. He even missed the application deadline. But weeks before the selection, Gableman hosted a fundraiser for Governor Scott McCallum and gave him \$1,250. Guess who McCallum picked? Gableman. Tell Mike Gableman we need higher ethical standards for our judges.

[From Wisconsin]

Unbelievable. Shadowy special interests supporting Lewis Butler are attacking Judge Michael Gableman. It's not true. Judge, district attorney, Michael Gableman has committed his life to locking up criminals to keep families safe, putting child molesters behind bars for over a hundred years. Lewis Butler worked to put criminals on the street, like Rubin Lee Mitchell, who raped an 11-year-old girl with learning disabilities. Butler found a loophole. Mitchell went on to molest another child. Can Wisconsin families feel safe with Lewis Butler on the Supreme Court?

[From Alabama]

Here, outside Washington, D.C., there's a bank account with half a million dollars from the likes of the gas and oil industry. That money is paying for the ad you see here. Should we have judges like Greg Shaw? It sounds nice, but the half million dollars paying for it doesn't come from Alabama. So when you see the ad, ask yourself, "What do the likes of the gas and oil industry want from our court?"

[From Michigan]

Newspapers call Diane Hathaway unqualified for the Supreme Court. Remember the low sentence Hathaway gave a sex predator that targeted a minor? There's more. Hathaway gave probation to a man who was arrested in camouflage paint while carrying a loaded AK-47. His web page praised terrorists and declared his own personal jihad. Probation for a terrorist sympathizer? We're at war with terrorists. Diane Hathaway, out of touch.

[From Michigan]

One story's a fairy tale, the other's a nightmare. The fairy tale, Sleeping Beauty. The nightmare, the sleeping judge, Cliff Taylor. Judge Taylor fell asleep several times in the middle of our argument. How could he judge based on the facts when he was asleep? Taylor was voted the worst judge on the state supreme court and fellow judges called for an investigation of Taylor for misconduct and abuse of power. The sleeping judge, Cliff Taylor; he needs a wakeup call.

[From West Virginia]

On the French Riviera, where the rich and famous play, Spike and Don spent a very pleasant day. While together, the time they were spending, a matter of millions in court was pending. Now, when Massey first won their appeal, it was Spike's vote that sealed the deal. Justice is blind, but you can see Spike showed bad judgment in hearing this plea. Spike has recused, but what will it take for the justice himself to admit his mistake? You decide how this story ends. Is justice for all or just between friends?

In politics, information is the lifeblood of what a voter needs to make an informed choice. But in terms of educating the public, given how low-profile these races are, and given how little information people have when they go to vote, if these ads are the mainstay of the diet, they're the equivalent of what French fries are to nutrition in terms of the ability to make an informed choice. We saw examples this year of special-interest support itself becoming a core issue in judicial elections. Chief Justice Taylor, described as the "sleeping judge," lost his election, which came as a surprise. Part of his defeat was attributed to a different set of ads attacking him for being too close to business interests. I would add as well that I've heard credibly that the allegation that he fell asleep in the courtroom may well be a lie. (The ad

What we see increasingly is that the courts are vulnerable to whatever the political wind of the year is.

was a reenactment.) And if that is indeed the case, we may have someone who was essentially ousted because of what somebody could make up and put on a television ad. The chief justice in Mississippi lost his seat this year for being tied to business interests as well, and the justice in West Virginia who you saw in the last ad also lost in the primary because he was linked to a particular business executive he vacationed with in the French Riviera. These photos came out and his career was over.

What we see increasingly is that the courts are vulnerable to whatever the political wind of the year is. What happened in Dallas County, Texas, two years ago just happened again in Harris County, which is where Houston is. Twenty-two out of 26 experienced, Republican circuit-court judges were swept off the bench because of a straight ticket Democratic vote. We are also seeing signs that the runaway spending that we track mostly at the state supreme court level is continuing to trickle down to more local judicial races. We've heard one report that in Los Angeles, for example, combined spend-

ing on two of the five superior-court races there exceeded \$500,000 for circuit-court seats.

One other interesting trend worth noting is that the voters in a few counties around the United States had a chance to vote on a different way of selecting judges. Merit selection and retention systems – a screening committee up front and then retention elections on the back end – which many states have, are often seen as a desirable alternative to the Wild West of contested elections. But they're very hard to enact from a political standpoint. They cut against the populist grain: America does like to elect its judges. Significantly, perhaps in reaction to what's been going on over the last decade, we saw several counties this year embrace merit selection, in one case rejecting an effort to do away with it, in other cases actually enacting it in very conservative counties in Missouri and Alabama.

What was also significant this year, compared with two years ago, was what was *not* on the ballot. There were no statewide referenda aimed at weakening the courts or compromising them as fair and impartial arbiters. There was a proposal two years ago in South Dakota called Jail for Judges, which essentially would have done away with judicial immunity, destroying the ability of any judge to be able to do his or her job and not be sued for making a decision. It was defeated decisively two years ago, and we were pleased to see it has not come back, because the public rejected it so decisively.

Looking ahead to the next cycle, two years from now, there will be more meltdown contests. Candidates from 16 states are scheduled to contest 35 supreme court seats; in 10 states there will be multiple races, with several justices up at the same time. We usually see this as a signal that interest groups will get more value for their dollar if they jump in. There is, however, growing interest in measures to address the problem. I mentioned merit selection; several states are looking at moving there. In addition, any state that elects judges can consider public financing of their judicial races so that judges don't have to dial for dollars from the people who are going to appear before them. There's also growing interest in recusal as a possible

solution. Nonpartisan voter guides can help people get the information they need to make the kind of nutritious choice I mentioned before. And campaign conduct committees can help temper some of the campaign conduct that judges feel increasingly pressured to engage in, or that interest groups inflict on some of these races.

I will close by echoing what's becoming a theme here in terms of the importance of independent courts. Courts can only be impartial if they are sufficiently independent. The American people, just as the framers of the Constitution, want judges to be independent and accountable. This is always messy and complicated because, as Justice O'Connor described, everyone has different definitions of independence; Roy Bean had his own. There are different definitions of accountability at work, too. We know we want judges to be accountable, but to whom are they accountable? The risk is that they won't be accountable to the law and the Constitution; that the pressures building up on them will make them accountable instead to partisans, interest groups, and special-interest pressure. I don't expect the Academy necessarily to take up this issue at its 1932nd meeting. I hope, though, it won't be another 2,000 meetings before you come back to this, because it's absolutely true, as has already been said, that the life of the courts depends upon strong support and people standing by them, even if they disagree with the courts' decisions. This country has had a rather good run in that regard. However, as we have seen overseas, without vigilance that support can erode.



Viet D. Dinh

Viet D. Dinh is Professor of Law and Codirector of the Asian Law and Policy Studies Program at Georgetown University Law Center.

I will end our discussion by returning to what Justice O'Connor started with, namely the essence of judicial independence and why it is so important in our constitutional structure. The definition of the rule of law in our country, that we are a government of laws and not of men, has often been repeated since *Marbury v. Madison*. Justice Marshall

The essence of the role of judicial review and the judiciary is to ensure that ours is a government of laws and not of men.

borrowed the definition from the Massachusetts Constitution. There's a much lengthier derivation from ancient times, but one can see that that is the essence of the role of judicial review and the judiciary: to ensure that ours is a government of laws and not of men. When one looks at the phrase, one sees immediately why we need to protect the independence of judges: So that they are not subject to the external pressures of men and women and the rest of our population. And so that our Constitution and the law are the ultimate safeguards of our liberty, not just the whims and passions of any particular movement or temporal majority – what Madison called tyranny of the majority. That's what the Constitution is there to protect.

However, one only needs to repeat the phrase again to see the corresponding danger with judicial independence. That is, we want our judges to be guardians of the law, but what if they act outside the law? Then we become a government of men again – not the popular, elected men, but rather the men and women who inhabit the judicial role. That's what complicates the discussion, a discussion we've had since the beginning of the Republic. Public criticism of judges has endured over many centuries, starting with the presidency of George Washington and coming to even this last Congress. Many painful examples in the last decade or so tend to suggest that ours is a new phenomenon of attacks on judges, yet one only has to look to a few pages of history to see that this phenomenon has a long vintage. And despite all that, we can be optimistic because, after all, our republic thrives and our judiciary survives. But our job to do today, and I hope enduringly, is to help our judges make sure that we are indeed a government of laws and not of men.

Since one sees the double edge of judicial independence, one cannot exclude public criticism of judges altogether. Rather, one wants to channel constructive criticism into improving the work of judges and thereby making more robust the form of independence that we want to protect – that is, independence from external factors, but faithfulness to the Constitution and the role of judges. Chief Justice William Howard Taft put it this way: “Nothing tends more to render judges careful in their decisions and anxiously solicitous to do exact justice than the consciousness that every act of theirs is to be subject to the intellectual and intelligent scrutiny of their fellow men and to their candid criticism.” The question, then, is how do we determine what is valid criticism and what are invalid threats to judicial independence? I'll explore this by asking three questions: How are judges criticized? Why are they criticized? And by whom are they criticized?

First, the how. I hope it is commonplace, or at least generally agreed, that verbal assaults, personal attacks, ad hominem invectives are out of bounds. We can criticize, but at the same time one has to recognize that simple but effective communication of valid criticism is constructive. Once you take out the

illegitimate forms of criticism – which, unfortunately, make up the majority of the criticism that we see today – the real issue then becomes the *why* of people’s criticism of judges, not necessarily the *how*. I think that if we accomplish nothing more, if we eliminate from the public discourse those out-of-bounds forms of communication we have gone a long way. But the intellectual conversation continues.

What is a valid criticism? I think in this regard one has to consider for what exactly we are criticizing judges. Are we criticizing judges simply for being wrong in a particular case? Is that valid in a way that should begin a general public discourse? Think, for

The kind of criticism to which judges respond and the real, immediate threat to judicial independence comes not from the mass media or from the general population, but rather from political and legal elites because they know how to criticize judges where judges hurt.

example, of Judge Baier’s famous decision with respect to the Fourth Amendment search and seizure that was of such celebrated controversy a decade-and-a-half ago. I think that kind of criticism is not valid for the type of public discourse in which democracy should engage. That’s exactly what the appellate process is for, in order to ensure that mistakes, if made and upon recognition that they were made, will be corrected in due course by the litigants and other judges, or in Judge Baier’s case, by the judge himself once he recognizes the error in law.

What about if a decision is not only wrong with respect to a particular case, but so wrong that one would consider it to be out of jurisprudential bounds – that is, so wrong

that it bespeaks an incorrect judicial framework? Even then I do not think it is valid to launch a public campaign on that type of error because that’s exactly why the political checks on the judiciary are there – the nomination and confirmation processes and all of the other types of checks that are in our Constitution. One can indeed have a valid debate about the jurisprudential framework; mine happens to be that text, history, and structure should be the sole criteria for decisions related to judicial decision-making. Others – many of my colleagues in the academy – disagree with that, looking for more expansive sources of interpretation. That is a valid intellectual debate; that is not cause for personal attacks upon judges.

When, then, is criticism of the judiciary and judges valid? For what reasons? I think at some point judicial decision-making can be so far out of bounds (this is a rarity) that it calls into question the judge’s fealty to his judicial oath – in essence that he has failed the judicial role and the exacting standards of judging. That kind of action, which threatens the structure of our government and undermines the limited role of the judge (so that we ensure that we are a government of laws, not of men), deserves criticism. When judges act outside of their role and respond not to their internal intellect and their fealty to the law, but rather to external pressures of whatever type – monetary, political, or even personal policy preferences – in those rare cases, criticism is not only valid, but is demanded of the political process and of an engaged democratic polity – which leads to the question of criticism by whom.

Unfortunately, many missteps come from criticism by the mass media and the general population. I think you can tell from Bert’s representative ads that legal concepts, the question of the judicial role, and the jurisprudential framework of a judge are not concepts that are easily communicated through mass medium and through general, popular political activism. Rather, results are communicated, and the population simply focuses on what I consider to be illegitimate reasons for criticizing a judge or a decision – for example, simply because it is wrong or you disagree with the result. That type of mobilization carries with it a significant danger of thwarting the judicial role, not be-

cause judges would change their ways – I think judges, lawyers, and scholars recognize that those forms of criticism are illegitimate – but because over time, if repeated and if repeated effectively, those illegitimate forms of criticism erode public confidence in the judicial role and, more insidiously, affect the way judging works because it’s no longer independent of the general political process.

More directly, however, the kind of criticism to which judges respond and the real, immediate threat to judicial independence comes not from the mass media or from the general population, but rather from political and legal elites because they know how to criticize judges where judges hurt. They know how to make arguments and couch them in terms of judicial activism, in terms of the lack of fealty to the judicial role, or in terms of failure to follow the Constitution. We elites (I do not mean that pejoratively) know how to criticize judges in ways that are designed to be effective, we hope, in forcing them to change their behavior. It is that type of criticism that brings the greatest danger to judicial independence, to the actual independence of the judges and how they decide cases, because it comes with that kind of elite criticism by scholars, lawyers, senators, and presidents and is an implicit threat that the judge may not be elevated to the next judicial position if they so desire, or in the extreme, may be censured or impeached. I think that type of elite criticism has a much greater effect on the everyday behavior of judges simply because it hits judges where they hurt most.

In our failure to activate these reforms lies the greatest danger, both in terms of actual threats to judicial independence and also residual threats to the legitimacy and respect that the judiciary rightly should hold in our constitutional Republic.

Sandra Day O'Connor

My perspective over the years on judicial elections is that, at the federal level, we have a process that works fairly well: the President nominates the federal judge, and the Senate gets to conduct what inquiry it wants to conduct. In the case of Supreme Court justices, it turns out to be quite a show. We see it on national television, and there are days of questions that go on. But that's an exceptional court and an exceptional situation. Most federal judges at the district-court level, and even at the appellate-court level, are not subjected to the same degree of questioning.

The judicial branch is a critically important branch, and we want to have all of our courts staffed by judges who are decent and honorable. The question is how are we going to get it.

I am more concerned with what is happening in the various states. As I told you at the outset, the framers of the Constitution met and tried to figure out a better form of government, and they did: I have to say I think we have been very blessed in this country with what they designed. They did not envision the election of judges; judges were appointed. And every one of the colonies, later the states, followed a similar pattern. They provided for appointment of judges at the state level with some kind of confirmation process in the legislature or other scheme as they devised it. It wasn't until President Andrew Jackson came on the scene that states began to move to a system of electing state judges. Jackson had some populist tendencies, I think, and he tried to spread them across the country.

We have learned through the years that perhaps there's a better way to select state-court judges, and that is to return to an appointive system, probably headed by the governor, who gets suggestions for nominations from a chosen committee. States that have turned to that kind of system have tended to set up a statewide commission, comprised of a number of citizens of that state and sometimes including lawyers (sometimes not), that receives applications from people who would like to be a judge. The commission reviews applications, interviews the applicants, considers carefully the qualifications, and then provides a list of people that the commission thinks are qualified for appointment should the governor choose to make an appointment. That's a pretty good system. Most systems like this involve setting up periodic elections, which ensure that judges at the state level all serve for a term of years. (No state provides for lifetime appointment of judges.) At the end of a term, many of the states that allow appointment of state judges then let the judges' names go on the ballot to give voters a chance to determine whether or not they want to retain a judge.

As a voter you need to have a little information about the judge, and some states have done something that I think is quite helpful, gathering information year in and year out in the courtrooms from all of the people who were in contact with the judge. Every juror, every litigant, every witness, every person in the courtroom is invited to fill out a form and leave it with the bailiff at the court, noting the things that the person wants to note about the judge. Was the judge polite? Courteous? Did the judge appear to know the law and communicate it well? Were there problems and, if so, what? These materials are collected over a period of time, and then at the time of a retention election an election office tabulates all of this. They also include evidence of disciplinary proceedings, if any, that might have been brought against the judge. This seems to work pretty well because the voters then have some basis on which to make a fair judgment. I think we'd be better served if more of our states would use a similar system.

I hope that the American Academy of Arts and Sciences will maintain some kind of interest in this issue, because it matters. The judicial branch is a critically important branch, and we want to have all of our courts staffed by judges who are decent and honorable. The question is how are we going to get it, and I thank you for listening and being part of finding the answer to that question. ■

© 2009 by Richard L. Revesz, Martin Lipton, John Sexton, Sandra Day O'Connor, Linda Greenhouse, Judith Resnik, Bert Brandenburg, and Viet D. Dinh, respectively

Academy Meetings



The Invisible Constitution and the Rule of Law

Laurence H. Tribe, Frank H. Easterbrook, and Geoffrey R. Stone
Diane P. Wood, Moderator

This panel discussion was given at the 1932nd Stated Meeting, held in collaboration with the Chicago Humanities Festival on November 8, 2008, at Northwestern University School of Law.



Diane P. Wood

Diane P. Wood has been a Judge of the U.S. Court of Appeals for the Seventh Circuit since 1995. A former professor of international legal studies, Associate Dean at the University of Chicago Law School, and Deputy Assistant Attorney General in the Antitrust Division of the U.S. Department of Justice, she is now a Senior Lecturer in Law at the University of Chicago Law School. She has been a Fellow of the American Academy since 2004.

The theme of this year's Chicago Humanities Festival is "thinking big," and we have planned an interesting panel discussion on the big idea of the rule of law. I thought that I would begin with a word about the rule of law. In recent years, there has been a much more searching discussion about this concept than ever before. What does it really mean? Some people think it has both a substantive and a procedural component. From a substantive standpoint, a society that respects the rule of law is one in which open and transparent laws are applied impartially and equally to everyone. From a procedural standpoint, the rule of law requires what Americans tend to call due process; that is to say, the right to the opportunity to be heard before an impartial decision maker. You can find definitions in many places, but the ideas remain constant: no one is above the law; all citizens have certain obligations and certain rights. Our panel will begin by considering where the rule of law fits within our broader constitutional structure.

Laurence Tribe addressed this question, as well as many others, in his recently released book, *The Invisible Constitution*. He is the Carl M. Loeb University Professor at Harvard Law School, where he has taught since 1968. Before joining Harvard's faculty he served as law clerk to Justice Matthew Tobriner at the California Supreme Court and to Associate Justice Potter Stewart at the United States Supreme Court. He also directed the Technology Assessment Panel at the National Academy of Sciences. His scholarly works are far too numerous to list, but they include, in addition to the book he will be discussing today, such publications as *Abortion: The Clash of Absolutes* and *God Save This Honorable Court: How the Choice of Supreme Court Justices Shapes Our History*. Professor Tribe also has had a distinguished career as an advocate before the Supreme Court; he has contributed frequently to congressional hearings; and he has served as a consultant to the drafters of many constitutions around the world.

Academy Meetings

Following Professor Tribe will be Chief Judge Frank Easterbrook of the United States Court of Appeals for the Seventh Circuit. Chief Judge Easterbrook began his distinguished legal career as a law clerk to Judge Levin Campbell of the United States Court of Appeals for the First Circuit. He then joined

A society that respects the rule of law is one in which open and transparent laws are applied impartially and equally to everyone.

the Solicitor General's Office, where he served first as an Assistant to the Solicitor General and later as Deputy Solicitor General of the United States. In 1979 he became a member of the faculty of the University of Chicago Law School, where he was named the Lee and Brena Freeman Professor of Law, and where, like me, he continues to teach today as a Senior Lecturer in Law. He, too, has a lengthy and wide-ranging list of publications and has written extensively in the fields of antitrust and corporate law, coauthoring *The Economic Structure of Corporate Law* with Professor Daniel Fischel, and *Securities Regulation*. From 1982 – 1991 he was an editor of the *Journal of Law and Economics*.

Finally we turn to Geoffrey Stone, the Edward H. Levi Distinguished Service Professor at the University of Chicago Law School, where he has been a member of the faculty since 1973. Over the years, Professor Stone has served as both Dean of the Law School and Provost of the University. Before coming to the Law School, he clerked for Judge J. Skelly Wright of the United States Court of Appeals for the District of Columbia Circuit, and then for Associate Justice William J. Brennan, Jr. of the United States Supreme Court. Professor Stone also has many books to his credit; he has focused primarily on constitutional law and the First Amendment. Most recently, he has authored *Top Secret: When Our Government Keeps Us in the Dark*; *War and Liberty: An America Dilemma*; and the award-winning *Perilous Times: Free Speech in Wartime from the Sedition Act of 1798 to the War on Terrorism*.

Returning to Professor Tribe, in the preface to *The Invisible Constitution*, he states that much of what we understand as part of the Constitution does not appear in so many words in its text. In fact, he compares it to the Dark Matter that holds the universe together. So it is my privilege to turn the floor over to Professor Tribe so that he can explain to you exactly what he means by that and how it relates to the rule of law.



Laurence H. Tribe

Laurence H. Tribe is the Carl M. Loeb University Professor at Harvard Law School. He has been a Fellow of the American Academy since 1980.

It is a privilege and a pleasure to talk with you about my book and about how some of its themes relate to the rule of law. A number of friends have asked me how long I have been working on this book. I would love to have said “Oh, just a few months,” but the truth is about forty years. In the meantime, I have published a treatise on the American Constitution as well as other books and articles, helped write a number of other constitutions, and argued a number of cases, but this book has been on my mind from the time I began clerking for Justice Stewart at the Supreme Court.

Katz v. The United States, the case involving electronic eavesdropping on someone in a telephone booth, which was decided in 1967, triggered it all for me. The government's argument stressed that the telephone booth was transparent, so anyone could have seen what the individual involved was saying. Someone could have read his lips. Since he wasn't seeking privacy, electronic eavesdrop-

ping on his conversation did not invade anything. Moreover, the law had previously established that, in order to have a search or seizure within the meaning of the text of the Fourth Amendment, you must have a physical invasion of a constitutionally protected place. In overruling those decisions requiring physical invasion, the Court stated that what Mr. Katz was trying to exclude when he went into that transparent telephone booth was not the unwanted eye but the uninvited ear and that it was a violation of his justifiable expectations of privacy that made this a search and seizure.

The problem the Court confronted was how to decide what expectations of privacy are justifiable. If it is a descriptive rather than a normative matter, you could have the government putting up billboards everywhere saying “Big Brother is listening, watch out.” There was only a single line in the opinion – I tried to persuade Justice Stewart and the Court to expand this discussion – that hinted that you don't find these justifiable expectations of privacy in the Fourth Amendment but rather in something that surrounds it, indeed in the First Amendment. The Court said that in a society that has come to rely on the ubiquitous role of electronic communications, through the telephone in this case, freedom of expression would be unduly shrunk if people knew that Big Brother might overhear anything they said on the telephone. That is what made the expectation of privacy in this case justifiable. So it was a matter of connecting the dots between the Fourth Amendment and its protection of people, places, effects, and houses, and the First Amendment and its protection of freedom of expression.

I hadn't really generalized that into a method – I was only 25 at the time. I have been working on it for a while since, but what I have come to think is that much of what is in the Constitution can be best understood only by connecting the dots between provisions like the First Amendment and the Fourth Amendment, looking at the lines between them, connecting those lines, in turn, with the provisions protecting liberty generally, forming the resulting triangle, and looking at the geometric structure of the Constitution. I call that the Geometric Method of Constitutional Construction.

There is also something that I have come to call the Geological Method. That is, if you ask why the Fourth Amendment protects justifiable expectations of privacy in some places more than others, for example in a home, you are inevitably drawn to conclude that it is because the Constitution presupposes an important value in the autonomy of what goes on within the home – of course, not absolutely. One could beat someone up inside the home and thereby trigger a powerful public interest, but unless there is some special sanctity to the substance of what people do consensually in private within their homes, it makes relatively little sense to have the procedural protections of the Fourth Amendment. One digs beneath the textual protection of persons and homes against unreasonable search and seizure by what I have come to call the geological method that looks at the underlying presuppositions and foundations of what is in the written rule of law.

Now, the choice between, on the one hand, the geometric method, the geologic method, and several others that I describe in the book and, on the other hand, a more constrained linguistic approach in which one looks at the plain meaning of the rules in black and white as written in the Constitution is not left entirely to the imagination because part of the text is a provision telling us that the text is not all there is. The Ninth Amendment says that the enumeration of certain rights in the Constitution shall not be construed to exclude the existence of other rights reserved to the people. Here is an important reminder that what you see on the face of the written document is by no means all there is. It is a way of saying there is more here than meets the eye. Even if that language were not there, I argue that any finite document purporting in a purposive way to chart a course for a nation through imposing certain rules and constraints and constituting certain institutions is inherently incomplete. I draw an analogy to Gödel's Incompleteness Theorem in the field of mathematical philosophy, in which – to reduce an incredibly brilliant and complicated issue to something very straightforward and simple – it turns out that any axiomatic system that is rich enough to include even the elementary operations of arithmetic must include true theorems that are not provable by the meth-

ods of the system. In other words, the system cannot fully describe all that is true within it, and I think no finite document can fully describe within its terms everything that one would need to know about its meaning.

Much of what is in the Constitution can be best understood only by connecting the dots between provisions like the First Amendment and the Fourth Amendment, looking at the lines between them, connecting those lines, in turn, with the provisions protecting liberty generally, forming the resulting triangle, and looking at the geometric structure of the Constitution.

There are at least two sets of constitutional principles that in this sense are necessarily invisible. First there are what I would call meta-principles: principles about how to read the rest of the document. The Ninth Amendment is the primary example in the Constitution itself. It says that the enumeration of certain rights shall not be construed in a certain way; it is a direction to you, as the reader, whether you happen to be a judge like Judge Wood or Judge Easterbrook, or a scholar like Geoffrey Stone or me, or an ordinary citizen, a member of Congress, or a member of the executive branch. Anyone who has taken an oath to uphold the Constitution is instructed about how to read it, and my first claim is that no set of instructions about how to read a document can be complete because if the Ninth Amendment says a certain thing, you might then ask, "Well, how are we to read that?" Judge Robert Bork, when he was nominated to the Supreme Court, didn't do himself much good with the Senate when he said, "Well, the Ninth Amendment is a mere ink blot. I can't read it. It's too indeterminate. It gives

me too much discretion," to which the response of the Senate Judiciary Committee was, "It's not up to you to erase from the Constitution something that you think is difficult to understand." It may sound laughable but the judge was brilliant and had a point. In some ways it was unfortunate that his views were caricatured, but I do think that he missed the point that everything in the Constitution, however hard to read, has to be taken seriously, even if it tells you that there is stuff out there in the Dark Matter that is not specified in the language of the document.

In addition to meta-principles, there are particular principles that most of us take to be constitutionally fundamental, such as the principle of one person, one vote. They certainly cannot be derived in any meaningful way from the language; rather, they implement underlying values of participatory democracy that the Constitution, as a whole, is thought to contain. The Equal Protection Clause, for example, is a rather unlikely home for the one person, one vote principle, especially when you apply it to the House of Representatives of the United States, where the principle of equi-populous districts certainly cannot be derived from the Fourteenth Amendment's equal protection clause since it applies only to the states, not to the federal government. Nor can it plausibly be derived from the Due Process Clause of the Fifth Amendment. Justice Hugo Black in *Wesberry v. Sanders* purported to derive it from the language essentially stating "the Congress shall represent the people." On that basis, you might say that there is a textual basis for the principle of one person, one vote, but you would be fooling yourself. There is nothing in that language, or plausibly inferable from it, that leads you to the rule of one person, one vote. The rule is legitimate solely because it is plausibly contained in the invisible Constitution.

Take another example: the Anti-Commandeering Principle that prevents Congress – even if it is acting within its substantive authority, for example, to regulate commerce among the states – from using that power to compel states to exercise their sovereign authority to pass or to enforce certain laws, as in the Brady Gun Control Law, which compelled local law enforcement officers to do

background checks for the federal government when people wanted to purchase guns. When the Supreme Court in a five-four decision said that this action violated the Anti-Commandeering Principle, it was quite candid about the fact that it couldn't locate that principle in the text. Rather, it was, as the Court put it, implicit in the tacit postulates of the Constitution. The liberals on the Court, who dissented from that decision and, in fact, accused the majority of making things up because there was nothing in the text that could justify the Anti-Commandeering Principle, were being hypocritical in advancing that accusation because there is similarly nothing in the text that justifies

The Ninth Amendment says that the enumeration of certain rights in the Constitution shall not be construed to exclude the existence of other rights reserved to the people. Here is an important reminder that what you see on the face of the written document is by no means all there is.

what amounts to an Anti-Commandeering Principle invoked by the liberals in the realm of personal life. The principle that there are limits on the ability of the government to take hold of your life and determine how you will lead it, what a woman may do with her body when she's pregnant, what we will do in terms of how we raise our children, is not stated in the Constitution, yet there tends to be very broad agreement that it is a principle implicit in our constitutional order.

When the liberals relied on that principle in decisions like *Griswold v. Connecticut*, involving the right to use birth control, or *Roe v. Wade*, involving the right of a woman to ter-

minate her pregnancy, the conservatives, no less hypocritically, said, "The Constitution doesn't mention abortion; it doesn't mention birth control." Of course it doesn't! It doesn't mention states' rights, either, or the Anti-Commandeering Principle.

The point of my book is to show that the invisible Constitution is an equal opportunity mystery. It is not simply something that liberals invoke when they want to protect reproductive freedom, or that conservatives invoke when they want to protect states' rights. It is an intrinsic feature of any constitution, and in particular one like ours, and a feature that we should be debating.

What are the fundamental core principles on which we as a nation agree? I think we actually agree that there are limits, not just those specified in the Constitution, on how far government can reach into the bedroom, into your personal life, into the body. The reason a decision like *Roe v. Wade* is so intractably difficult and controversial is not that the underlying right isn't written down; it is, rather, that the task of deciding how much protection to give to the unborn, when concern for the survival of the unborn clashes with the exercise of that underlying right, is fundamentally and profoundly imponderable. Some people maintain that, because the task is so difficult, it should not be performed by courts; we should have a different rule in each state; it should be up to the legislatures. But my book is not about the question of when courts should intervene. Even if we took courts out of the business altogether, we would have to remember that the Constitution speaks not only to the judiciary but also to the legislature. If you were a lawmaker asked to pass a law that said "Women cannot drink more than one glass of wine a week when they are pregnant because there is a fetus inside," you would have to ask yourself, even if you were not acting under the shadow of judicial intervention, whether such a law is consistent with the underlying postulates of our Constitution about the limits of government intrusion into personal liberty.

Now, many may object that, in sharp contrast to the ideals of the rule of law, this process of inferring structure is far too indeterminate. Well, it is also the case that the mean-

There are particular principles that most of us take to be constitutionally fundamental. They certainly cannot be derived in any meaningful way from the language; rather, they implement underlying values of participatory democracy that the Constitution, as a whole, is thought to contain.

ing of something like freedom of speech is desperately indeterminate. That is why the Court divides five to four in cases like those striking down laws punishing so-called "flag desecration," to take just one particularly controversial illustration. The text, in any event, commands the process of inferring something beyond the text, and that is my point about the Ninth Amendment.

Surely, among the most basic of the postulates not written down in the Constitution is our commitment to living under the rule of law. You will hear from Judge Easterbrook and perhaps others on the panel about the difficulties inherent in elaborating that concept. As Judge Wood has already pointed out, it usually refers to broadly applicable systems of predictable rules that are fairly uniformly applied. That is one idea. Second, there is the idea that the executive branch of the government is bound by the rule of law. That is an idea that is not necessarily implied by the first idea but can be traced largely to the *Magna Carta* in 1215. Third, both the executive branch and the legislature are bound by a principle of judicial review that was articulated most powerfully in *Marbury v. Madison*. It is the idea that one needs an independent judiciary to put teeth in the way the rule of law binds the government, although there are disputes about the degree to which judicial interpretations should be binding on the other branches. And the rule of law goes beyond these several dimensions.

I want to close by suggesting a more positive dimension of the rule of law. One of my favorite cartoons from *The New Yorker* magazine shows people who look like they're pilgrims on what could be the Mayflower. Gazing contemplatively at a distant shore, one of them says to the other, "Religious freedom is my immediate objective, but my long-term goal is to go into real estate." The cartoonist's "original intent" was probably to give a cynical inflection to the American dream and the Constitution's project of securing the blessings of liberty to ourselves and to our posterity. However, the hidden structure of the cartoon's caption, I think, lies deeper: it lies in its recognition that negative liberty ultimately requires a positive edifice of law, like the edifice of public law that creates an institution such as private property, and ultimately the edifice of public law that creates the possibility of meaningful freedom.

I explored that theme in 1989 with the help of a very brilliant law student in an article we wrote together called "The Curvature of Constitutional Space: What Lawyers Can Learn from Modern Physics." He was probably the most impressive law student I have ever had and certainly the best research assistant. You might have heard of him; his name is Barack Obama. When he takes the oath in January, it will be administered by another very brilliant former student of mine, John Roberts. I think the rule of law will be a bit safer.



Frank H. Easterbrook

Frank H. Easterbrook is the Chief Judge of the United States Court of Appeals for the Seventh Circuit and a Senior Lecturer at the University of Chicago Law School. He has been a Fellow of the American Academy since 1992.

The title of this meeting, "The Invisible Constitution and the Rule of Law," starts with the title of Professor Tribe's new book,¹ but the punch is in the "rule of law" portion. The usual meaning of this phrase is decision by rule announced in advance, and after an opportunity for a hearing on any material contested facts.² How can there be a rule of law if the Constitution has many invisible clauses, discernible only to judges, professors, and other members of the legal elite? Then there is no law knowable in advance. Isn't it time to acknowledge that the Emperor has no clothes? The question brings to mind the doggerel: "Yesterday upon the stair / I met a man who wasn't there. / He wasn't there again today. / Oh how I wish he'd go away."³

Despite the strangeness of phrases such as "invisible Constitution" or "unwritten Constitution," I agree with Professor Tribe that much of our Constitution is unwritten. Indeed, much of *any* writing is unwritten, because no text contains its own dictionary

¹ Laurence H. Tribe, *The Invisible Constitution* (Oxford; New York: Oxford University Press, 2008).

² See Antonin Scalia, "The Rule of Law as a Law of Rules," *University of Chicago Law Review* 56 (1989): 1175.

³ William Hughes Mearns, "Antigonish" (1899).

and other rules for decoding. Anyone who lectures you about the "plain meaning" of texts, including statutes and constitutions, is playing word games rather than engaging in thoughtful discourse.

It does not take a deep understanding of Wittgenstein and other linguistic philosophers to see that meaning lies in how words are heard by an interpretive community; no text is internally complete. For any modern interpreter of eighteenth-century texts, the problem of incompleteness is compounded by the fact that the interpretive community in which the words were recorded no longer exists. We don't think or hear words exactly like people in an agrarian community of 1787 did and thus cannot be confident that how

How can there be a rule of law if the Constitution has many invisible clauses, discernible only to judges, professors, and other members of the legal elite?

we hear words reflects their actual meaning. Still, we do know that, from the outset of our nation, the living interpretive community saw in the Constitution more than its words. They deduced from the supremacy of the Constitution over statutes that there must be judicial review (which is to say that a judge won't take on faith other persons' view that their deeds are valid) – and I add, as does Professor Tribe, that *every* governmental actor must ensure that the Constitution prevails over other competing sources of law.⁴ The original interpretive community deduced a system of intergovernmental immunities – states can't tax federal entities, nor can the federal government tell the states how to use their own powers. The entire understanding of political sovereignty lies in constitutional structure rather than in particular clauses.

⁴ Frank H. Easterbrook, "Presidential Review," *Case Western Reserve Law Review* 40 (1989–1990): 905.

But what follows from this? Surely not that if some important matters depend on structure rather than text, then judges today may impute new rules to the old text.⁵ One ought not to say “the Constitution contains the word ‘liberty,’ which is vague, so judges can do anything they want in its name.” For that approach would negate the main feature of the *written* Constitution: that new problems are to be resolved through the institutions of a representative democracy.

The phrase “Rule of Law” often goes with the phrase “A government of laws and not of men.” It is helpful to remember the origin of that phrase. It comes from Article 30 of the Massachusetts Constitution of 1780, which reads: “In the government of this Commonwealth, the legislative department shall never exercise the executive and judicial powers, or either of them: The executive shall never exercise the legislative and judicial powers, or either of them: The judicial shall never exercise the legislative and executive powers, or either of them: to the end it may be a government of laws and not of men.”

Ask yourself why federal judges have life tenure. It is not so that they can play the role of Guardians, à la Plato’s *Republic*. Plato hated democracy; our Constitution embraces democracy and holds representatives on short leashes. Senators, with six-year terms, have the longest; Representatives face the people every two years. After all, it was the problem of non-removable people making important decisions that led to the Revolution of 1776!

Tenure is a curious institution in a democracy. The Jacksonians tried to wipe out tenure even for the judiciary, and in some states they succeeded. Tenure’s justification is to enforce the Rule of Law – to protect people from the mob and to make political compromises more stable.⁶ Judges with tenure can enforce freedom of speech and the rights of enemy combatants, even when these are un-

⁵ People usually say that judges recognize “rights,” but every right for A is a limitation on B; it is better to say “new rules” rather than “new rights.”

⁶ See William M. Landes and Richard A. Posner, “The Independent Judiciary in an Interest-Group Perspective,” *Journal of Law and Economics* 18 (1975): 875.

popular with the majority. A judge can try someone accused of shooting at the President without fear of removal if the judge rules for the defendant – for fear of removal would make it impossible for the accused to have a fair trial.

But tenure, like the Force in *Star Wars*, has a dark side – and, as with the Force, the dark side is self-indulgence. Tenure frees a judge from today’s passions, the better to enforce the law – and paradoxically tenure also frees a judge from the law, the better to enforce his own view of wise policy. Judges sometimes

From the outset of our nation, the living interpretive community saw in the Constitution more than its words. They deduced from the supremacy of the Constitution over statutes that there must be judicial review and that every governmental actor must ensure that the Constitution prevails over other competing sources of law.

yield to this temptation. This leads to a belief that judges are politicians in robes, which in turn makes the selection process political, which leads to an increase in the risk that we will *get* politicians in robes, like it or not.

How do we keep tenure for the benefits it brings, yet retain a Rule of Law against the pull of tenure’s Dark Side? Equivalently, how do we ensure the benefit of tenure for the application of law to fact, while curtailing the tendency of tenure to change the meaning of substantive rules? (The pull of the Dark Side is often abetted by the academy and the editorial pages, which extol the supposed wisdom and dispassion of judges – but that is just a plea for Plato’s Guardians rather than an unruly democracy.

And, for what it is worth, I can assure you that judges have far too many cases to think deeply about any of them.⁷)

Before addressing the question of *how* the Dark Side of Tenure is best controlled, I want to say a few words about whether this has been a serious problem. The press and the Senate Judiciary Committee concentrate on a few social issues, such as abortion and capital punishment, and you read much about 5–4 decisions with “liberal” and “conservative” blocs. Newspapers have taken to identifying judges by the party that appointed them (“Easterbrook, a Reagan appointee”), just as they identify senators by party (“Durbin, D IL”). Scholarly studies show that a judge’s imputed ideology matters to his voting.

Judges, like others, see the world through the perspective of their lives and beliefs, and they have what Justice Holmes called their “can’t helps.” They may justly be censured when they fail to try to control the effects of their beliefs. But it is quite wrong to say that judges regularly fail in this effort at self-control.

The Supreme Court chooses fewer than 100 cases every year from a menu of more than 9,000 applications. The cases it hears are the most difficult that our legal system has to offer. Yet year in and year out it decides about 35 percent of them unanimously. That figure has been stable for almost 60 years,⁸ even though the size of the legal system as a whole has been growing, and the Court correspondingly has become more selective. (Sixty years ago the Court heard roughly 1 in 5 of those in which the litigants sought review; today it is 1 in 90.) That the Justices agree unanimously in a large fraction of the legal system’s *most* contentious cases shows that

⁷ Frank H. Easterbrook, “What’s So Special About Judges?” *University of Colorado Law Review* 61 (1990): 773.

⁸ See Frank H. Easterbrook, “Agreement Among the Justices: An Empirical Note,” *Supreme Court Review* 389 (1984); William M. Landes and Richard A. Posner, “Rational Judicial Behavior: A Statistical Study,” University of Chicago Working Paper, April 2008. (Landes and Posner give a figure of 30 percent by defining a decision as unanimous only if there is a single opinion joined by all Justices. The percentage rises if we count as unanimous decisions in which there are no dissenting votes, and any Justices who write separately accept the same general rationale as the principal opinion.)

they do very well indeed at elevating law over politics.⁹

Take this from another perspective. Ask, for each possible pair of Justices, how often they agree and how often they disagree. Most pairs agree about 75 – 80 percent of the time; Justices who the press depicts as identical (Scalia/Thomas, Ginsburg/Breyer) disagree in about 20 percent of cases.¹⁰ That must be driven by law, not ideology. And the highest rate of disagreement is only 41 percent (that's how often Justices Thomas and Ginsburg disagree). Because about half of all disagreement is law-driven, the portion attributable to different views of the world must be no more than half. Since we are looking at society's *most* contentious issues, that's pretty low. Judges do well at enforcing law rather than ideology, even when the temptation is greatest.

You read from the newspapers about 5 – 4 splits, which are roughly 20 percent of the docket, as if the very fact of division shows that politics must be at work. Not at all. Suppose Justice Scalia were cloned and the Court populated only with those clones. (If that makes you uncomfortable, mentally clone Justice Ginsburg instead.) You might think that this court would decide *all* cases 9 – 0, but you would be wrong. The fact that the Justices were very similar would change how courts of appeals rule, and which disputes would be worth taking. When selecting 1 of 90 cases for decision, an all-Scalia or all-Ginsburg court would find many issues that are hard *for Scalia* or *for Ginsburg*; and when ruling, this all-Scalia court would issue a lot of 5 – 4 decisions, with some 7 – 2 but still many 9 – 0. But the existence of 5 – 4 decisions would not show that ideology controls; it would show only that for any interpretive theory it is possible to find hard cases.

⁹ There has been much ado in the press about a supposed “pro-business tilt” of the Court in recent years. Yet most of these decisions are unanimous, as are many employment-discrimination cases that go against employers. Most of these decisions resolved conflicts among the circuits, yet the Justices agree more among themselves than the circuit judges do with each other.

¹⁰ These numbers come from tables maintained by the Supreme Court's Reporter of Decisions. Essentially identical figures can be found in the statistical section of the *Harvard Law Review's* November 2008 issue.

Now let's look beyond the Supreme Court. A careful study of all decisions by the U.S. Courts of Appeals, over many years, concludes that the political party of the President who appointed a judge (as a proxy for ideology) explains about 6 percent of all observed disagreement – and that there is rarely any disagreement to observe.¹¹ The other 94 percent of disagreement comes from ambiguity (in statutes and other sources of law), plus doubt about which side's version of events best approximates the truth. My sense of matters, after 24 years of judicial

Genuinely ideological disagreement among judges is rare. The Rule of Law is by far the most powerful factor in judicial decisions.

service, is in accord: Genuinely ideological disagreement among judges is rare. The Rule of Law is by far the most powerful factor in judicial decisions.

What do we make of the disagreement that remains? Some is irreducible; some can be curtailed by reminding judges that the price of tenure is tight control on the discretion that the actor possesses. If you can't fire the referee in a football game, you make absolutely sure that the rules are clear and controlled by someone other than the referee. The less a person is subject to control by the threat of removal, the more important it is to insist that the person use specific rather than general rules – for the more general a rule or standard, the greater the role that the Dark Side of Tenure can play.

One consequence is that judges must be very suspicious of claims that some rule has lain undiscovered for a long time and is only now being understood. An assertion that the people living at the time of a text's adoption did not really understand its meaning, but that we do, is almost certain to be false. For

as I have stressed, the meaning of a text lies not in the drafter's head but in the way a text is understood by an interpretive community. Claims of newly discovered meaning are *necessarily* admissions to changed meaning. (This is also why the interpretive approach known as imaginative reconstruction is unsuited to tenured deciders, even though it may be fine in a classroom. If we don't know how the old interpretive community understood the actual text, we assuredly can't know what it would have thought about a problem never put to it.)

Another consequence is that a judge must insist on a level of certainty that is adequate to any assertion of power to have the last word.¹² Recall why we have judicial review. It is because the Constitution is *law*, and superior to statutes. When the Constitution is not law but just an aspiration, when rules evolve, then judges must honor the Constitution's two means for handling ongoing disagreements: Political decisions by the national government, and respect for the fact that each state may choose a different solution. Robert Nozick argued in *Anarchy, State, and Utopia* that the best way to organize society when individual preferences differ is to allow many different solutions, as long as each solution's effects are felt only by those in the local jurisdiction. Judges must be exceptionally wary about enforcing what they see as a national consensus; that contradicts the federal system that represents the heart of our national organization.

¹¹ Frank L. Cross, *Decision Making in the U.S. Courts of Appeals* (Palo Alto, Calif.: Stanford University Press, 2007).

¹² See Frank H. Easterbrook, “Abstraction and Authority,” *University of Chicago Law Review* 59 (1992): 349. See also “Textualism and the Dead Hand,” *George Washington Law Review* 66 (1998): 1119.



Geoffrey R. Stone

Geoffrey R. Stone is Edward H. Levi Distinguished Service Professor at the University of Chicago Law School. He has been a Fellow of the American Academy since 1990.

One of the points that Professor Tribe makes in his book is that among the list of fundamental principles that are part of the invisible Constitution – that are not rooted specifically or expressly in the text – is the rule of law. As both Judge Wood and Professor Tribe indicated, the precise content of the idea of the rule of law is not perfectly well defined, although it calls forth values such as consistency, neutrality, evenhandedness, nonpartisanship, following the rules, adhering to general principles, and appealing to those general principles as a source of reason and guidance. There is a broad consensus that those are positive values. They are important to our legal system and to our constitutional order, and it would be hard to get an argument these days that the rule of law is a bad thing.

Now, I want to comment on some of Judge Easterbrook's statements about judges, their behavior and ideology, and life tenure, in terms of the rule of law. I agree with Judge Easterbrook that, for the most part, judges follow the rule of law. They seek to be evenhanded, neutral, and nonpartisan. They seek to follow general principles and precedents. As a result, the degree of agreement among judges, even judges appointed by presidents of different political parties, is pretty high. On the other hand, it is also true, as Judge Easterbrook noted, that there is a meaningful correlation between the party of the president who nominated a particular judge and the judge's votes. Judges appointed by Demo-

crats are more likely to disagree with judges appointed by Republicans than they are with judges appointed by Democrats. That alignment is consistently demonstrated. Moreover, looking at the entire array of cases understates this effect, because the effect is particularly evident when we examine ideological cases, especially in areas where controlling precedents are unclear. In those cases, in such areas as abortion, affirmative action, and religion, there is a well-documented correlation between judicial behavior and political affiliation.

But I do not find this troubling. The process of judging necessarily involves judgment, and when the precedents are unclear and there is no unambiguous statute to dictate the outcome, judges will bring to bear their own understandings of the proper role of courts and judges, the proper relationship

Among the list of fundamental principles that are part of the invisible Constitution – that are not rooted specifically or expressly in the text – is the rule of law.

among government institutions, and the proper way in which one goes about interpreting the Constitution. The differences among judges on these issues do, in fact, correlate with political affiliation in our society, and there is nothing illegitimate or insincere or disingenuous about the fact that those disagreements exist. They are an inevitable product of the fact that judgment involves something more than simply asking a computer a question. So, for the most part, I agree with Judge Easterbrook that this is not a serious problem in our judiciary, although it has been the subject of a great deal of scholarly inquiry in recent years.

I do disagree with Judge Easterbrook, however, on the question of life tenure. Certainly, he is right to note that there are dangers in the arrogance that can come with life tenure and in the notion that one is not accountable to anyone else for a decision. The temptation to act lawlessly if one is unac-

countable must be taken quite seriously. On the other hand, judges have life tenure for a reason, and it is a reason rooted deeply in the fundamental philosophy of the American constitutional order. Although our system is based in large part on the idea of democracy and "majoritarianism," it is also based on the recognition that majorities are not always wise or tolerant or respectful of difference or calm or level-headed. There are circumstances in which majorities predictably do bad things – things that are, in fact, incompatible with the larger values and aspirations of our society.

One of the truly magisterial achievements of the American Constitution, particularly as it has evolved over time, is the recognition that judges with life tenure are sufficiently unaccountable to prevailing majorities, and (hopefully) sufficiently dedicated to the rule of law, that they can provide an invaluable check on majoritarian abuse. In my view, then, judicial abuse of life tenure isn't a primary concern. The greater danger would be the absence of judicial review. In my view, without judicial review – and life tenure – judges would not have played the critical role they have played in helping to maintain an essential balance in our constitutional system.

I want to give a couple of illustrations of the rule of law, some positive, some negative, particularly in the judicial process, but also in the executive process. First, there is the Nixon tapes case, which arose out of the Watergate controversy. In that case, the Supreme Court held that the President was not above the law and that he therefore could be compelled to turn over tape recordings of his conversations, despite the claim of presidential immunity. What is striking about that decision is that it was endorsed by justices from both political parties, looking to principles of the rule of law, consistency, neutrality, and accountability that went beyond any partisan political interests. Even more impressive, though, was President Nixon's compliance with the Court's ruling. Despite the consequences to him and to his presidency, he acted in accord with the rule of law. Although he disagreed with the Supreme Court decision, he understood that it was his responsibility under the Constitution to act in conformity with it.

But adherence to the rule of law should not be taken for granted. For example, after *Brown v. the Board of Education*, many Southern states refused to comply with the rule of law, insisting in effect that *Brown v. Board of Education* was itself an abuse of judicial authority and a violation of the rule of law, a position Nixon could easily have taken, but chose not to take.

Another example of judges acting in conformity with the rule of law is the Paula Jones case, which involved President Clinton, a case, I should say, in which I was one of the lawyers who represented President Clinton in the Supreme Court. We lost nine to zero. I believe that subsequent events proved that we were right and that the Supreme Court was wrong, but the important fact is that, despite the political party of the presidents who appointed those nine justices, they all (erroneously) thought they understood the requirements of the rule of law and reached a decision regardless of their individual political preferences. Again, that is to the credit of the Court, and a good example of the justices acting in a way that furthered their commitment to principle and to the rule of law.

In a less inspiring illustration, involving the 2000 presidential election, I think it is fair to say that at every level – from the polling officials who held up ballots to look for hanging chads to the Florida Supreme Court, from the Florida legislature to the Supreme Court of the United States – there was very little confidence on the part of the American people that anyone involved in that dispute acted in accord with the rule of law. In the case of *Bush v. Gore*, the justices voted in a way that concurred perfectly with what most people understood to be their personal political preferences. There is good reason to believe that the rule of law was not, in fact, followed. But in defense of the Court, I want to say that at the time that decision was pending, among all of my legal colleagues, everyone I knew believed that the right decision in *Bush v. Gore* was the result that correlated with the election of his or her preferred candidate for president. This was really interesting, because it showed the power of distortion and bias when the law is ambiguous, when there is no controlling precedent, and, more importantly, when there is no opportunity for real reflection, which I think is essential to the rule of law.

Part of what made *Bush v. Gore* such a perilous case for the Court was that there was little time for the justices to deliberate. Ordinarily, judges don't have to decide cases instantly. They have time to think, to argue, to reason, and eventually, in their own good time, to reach a decision. *Bush v. Gore* was unusual in part because the time frame was dictated not by the Court, but by the constitutional demands of the election process. The justices had to decide the case extremely quickly, and they were therefore unable to overcome their biases. This is a good example of a case where I think the rule of law did

The precise content of the idea of the rule of law is not perfectly well defined, although it calls forth values such as consistency, neutrality, evenhandedness, non-partisanship, following the rules, adhering to general principles, and appealing to those general principles as a source of reason and guidance.

not work. That is not to suggest, by the way, that I think there was a necessarily right or wrong answer in *Bush v. Gore*; it is, rather, that I think the ideological dispositions of the justices determined their votes.

The final examples I want to give relate to some of the actions of the Bush administration over the past eight years. The rule of law involves not just courts; it also involves executive branch officials, as illustrated by Nixon's compliance in the tapes case. In my view, the Bush administration was repeatedly guilty of arrogance and defiance of the rule of law in ways that are deeply troubling. This is true not only in the sense that the Bush administration adopted unlawful policies – although there are, in my view, clear examples of that – but also in the sense that

it often propagated and attempted to implement those policies in secret – where secrecy was not dictated by the circumstances, was not consistent with the rule of law, and was intended to circumvent the rule of law and to avoid democratic accountability. The secrecy invoked by the Bush administration in its promulgation of the NSA electronic surveillance program, its use of secret prisons, and its approval of torture was not designed to protect national security. Rather, the intention was to insulate the executive branch from public scrutiny and to shield it from the checks and balances that the Constitution assigns to Congress and the Supreme Court in enforcing the rule of law. Indeed, when the Supreme Court finally had the opportunity to evaluate the constitutionality of many of these policies, in cases like *Hamdi*, *Rasul*, and *Hamdan*, its basic position in holding the actions of the Bush administration unconstitutional was not so much that the policies themselves were unconstitutional, but that they had been promulgated and implemented without regard for the rule of law. They were judgments where Congress should have played a role, and where the Court should have had an opportunity openly to evaluate the constitutionality of the government's programs.

Finally, I agree with Judge Easterbrook that the idea of the rule of law is vague, open-ended, lacks clear meaning in specific circumstances – and that this is not a problem. Our Constitution is about debate, deliberation, judgment, discourse, argument, and reason. These processes are fundamental to the American constitutional system, and they make us who we are.

Discussion

Laurence H. Tribe:

With respect to these nine to nothing decisions such as the one Professor Stone mentioned in which he believes the Court was unanimous but wrong, I can unfortunately think of a couple of decisions that I have *won* nine to nothing in which I have come to think the Court might well have been wrong. As Chief Judge Easterbrook pointed out, one can infer very little from either close division or unanimity; even a court of clones would often find something about which to dis-

agree. I want to make a comment about some of the things that Chief Judge Easterbrook mentioned about these “invisible clauses in the Constitution” supposedly discernable solely to the legal elite – that is clearly not what I had in mind, not the obscure, invisible clauses, but rather the dramatic ones.

Why do we agree upon principles that you need not be a member of any elite to recognize? Take the principle that the states may not secede from the Union; we do not need to read Wittgenstein for that! You won’t find it written in ink in the parchment of the Constitution; you’ll find it written in blood in a lot of places like the Gettysburg battlefield. The fact that many of these principles are not written down is simply the beginning of the end of wisdom.

Neither the invisible Constitution nor the idea of an evolving Constitution rests on the notion that some special elite privileged to be alive today understands what was meant better than those at the time did.

I think any assertion that the interpretive community in 1789 or in 1868 (to take the ratification dates of most of the Constitution and of the Civil War amendments) did not understand the meaning of something – but that we do – is almost certainly false. The view of most people who believe in what they call the “living Constitution” is rather that the meaning was elastic. For example, the authors of the Fourteenth Amendment, though they did not expect that it would be used to strike down racial segregation, meant that the subordination of one group by another through the legal system was wrong. They left open the question of what would constitute such subordination. In 1954, the Court said, “We understand that the social meaning of segregating people by law is the subordination of one race to another.” By that they were not saying, “We know what was meant by *Plessy v. Ferguson*

better than the folks back then did;” rather, they’re saying that the principle that was propagated is a principle which, by the very generality of the terms in which it was cast, was meant to have an evolving meaning. Neither the invisible Constitution nor the idea of an evolving Constitution rests on the notion that some special elite privileged to be alive today understands what was meant better than those at the time did.

Frank H. Easterbrook:

I always worry when Professor Tribe or other of my friends talk about the living Constitution or the evolving Constitution. If you are not evolving, you are no longer fit for duty. I think it is not only important to understand that legal principles continue to evolve – that is what democracy is for – but that it is also important not to overstate the role of courts in bringing about the security of people’s “life, liberty, and property,” as the Fifth Amendment has it. If you look around the world, what is really important is the rule of law principle – the idea that the government is conducted in a regular way, that it engages in hearings before putting you in prison, that there is an availability of review by someone with tenure to test the application of the law to you, but not necessarily the availability of a hearing to test the validity of the law. If you look at the legal systems of the United States, Canada, and France, the United States has a system of judicial review with which you are familiar. In Canada, there is a Supreme Court that will make constitutional decisions, but it can be overridden by Parliament; this is the Notwithstanding Clause of the Canadian Constitution. In France, the legal system cannot make constitutional decisions on any law once it had been adopted. And yet, if you go to Canada or France, you will find that they have fundamentally the same liberties as we do, not because of the details of constitutional structure but because these are all democratic countries and they all adhere to what I have defined as the basic features of the rule of law, including review of application by a tenured judiciary. Although there are particular features to America’s structured judicial review, when we look to the Western democracies I mentioned, we see a convergence of rights among them, even though the systems are fundamentally different.

Question

Do you agree with the premise that the most important or one of the most important tasks of a President is the appointment of Supreme Court justices?

Frank Easterbrook:

It seems like it would be one of the important things that a President does, and there is no question that if you imagine a Supreme Court consisting of nine Anthony Scalias versus nine William Brennans, American law and American society would look very different over an extended period. But I think it is actually one of the least important things a President does, for the reasons that should be evident from my comment. When you get

If you look around the world, what is really important is the rule of law principle – the idea that the government is conducted in a regular way, that it engages in hearings before putting you in prison.

a broad convergence in personal rights and liberties across countries with very different judicial structures, very different means of appointing justices, it is hard to locate that convergence in the identities of particular people on the Court. What is important is that anybody appointed to the Court be an adherent of the rule of law in the sense of procedural regularity, publicly announced rules, and accurate application of rules to the facts of a particular case. These are what the Western democracies have in common; it is not the details of who is on the Supreme Court.

Geoffrey R. Stone:

Let me dissent just a bit from that proposition. Take the recent decision by the Court in the case of *Boumediene et al. v. Bush* concerning the rights of Guantanamo Bay prisoners. The Court held that the writ of habeas cor-

pus cannot be suspended by Congress without some adequate substitute, in the absence of the very special conditions mentioned in the Constitution. A majority opinion authored by Justice Anthony Kennedy stated that it is impermissible to create a legal black hole within which no law applies, in which the rule of law cannot be enforced by habeas corpus. It was a five-four decision and the

The path of a nation that relies heavily on judicial review to protect certain basic freedoms is very different from the path that would be followed in another society.

dissents were vigorous. The one by Justice Anthony Scalia said that the majority in this decision is guilty of murder because a number of terrorists are going to go out and kill people as a result of this decision. Chief Justice Roberts wrote a more moderate opinion but joined the Scalia thinking. If Justice Stevens or any of the other justices in the majority were to leave, I submit it would make a very great difference whether the President was John McCain who said during the campaign that *Boumediene* was one of the worst decisions in the history of the Court, or Barack Obama who said it was one of the best decisions in the Court's history. Whether over the entire arc of history we would be worse off if we didn't have a system of strong judicial review is too large a question for any of us to answer. The path of a nation that relies heavily on judicial review to protect certain basic freedoms is very different from the path that would be followed in another society. To say that France and Canada manage with very different systems isn't to say that if you ripped judicial review out of our system, we would be just fine; it is to say that if you redid our history entirely, made us more French or more Canadian in many other respects, then maybe we wouldn't be worse off, but you have to be much more of a psychic and a historian than I am to evaluate the plausibility of that proposition. I think the burden lies on Chief Judge Easterbrook to defend it, if that is genuinely his view.

Frank H. Easterbrook:

I think *Boumediene* is one of the least relevant decisions in the history of the Supreme Court. I don't think anybody dies because of *Boumediene*, nor was the dispute in that case between the rule of law and a black hole. The actual dispute in that case was whether the Detainee Treatment Act of 2006 provided procedures that were adequate substitutes for the Great Writ. The Detainee Treatment Act provides for a plethora of hearings, followed eventually by review in the D.C. Circuit.

Question

I wonder if it isn't a little misleading to discuss this question of the rule of law along the statistical lines that Judge Easterbrook laid out in his discussion of how many times justices on the Supreme Court and judges on the appellate courts disagree. That perspective assumes that Democratic Presidents will always appoint similar-viewed justices and so will Republicans. It leaves out all the nuances of the political forces of the time that may lead to centrist or less centrist judges. In terms of Courts of Appeals statistics, it seems to me that most of our appeals judges do a very good job of following the directions of the Supreme Court, so when the Court takes a conservative turn, for example, Courts of Appeals across the country have taken a conservative turn, regardless of the particular backgrounds of their judges on those appeals. I wonder if you can comment on whether that is a correct observation.

Laurence H. Tribe:

I can comment briefly on the latter point because a professor who used to be at the University of Chicago Law School and is now happily a colleague of mine, Cass Sunstein, has done a comprehensive study of all Court of Appeals decisions since 2000 and reached the conclusion – rather distressing to him, to me, and to many others – that there is an enormous correlation between how judges on those courts vote and which political party they belong to in areas where the Supreme Court has left substantial room for disagreement. I certainly agree that there are nuances; it's not all captured by which party's members are nominated: Justice Stevens is the most liberal member of the

current Court and yet was appointed by a Republican, and there are big differences between Justices Scalia and Thomas, even though they both purportedly follow a somewhat similar methodology and were both appointed by Republican presidents.

Frank H. Easterbrook:

The political party of the appointing President is historically a very rough proxy for what a justice will do on the Court. Approximately 20 percent of the voting on the Court can be chalked up in one way or another to something that probably aligns with what many people call ideological. That is a significant percentage given the fact that these are all very difficult cases, but it is not surprising and not particularly regrettable. The idea that Courts of Appeals would construe statutes in generally liberal or conservative ways when the Supreme Court is generally liberal or conservative suggests that they are not following the rule of law, because there were many statutes that were enacted from liberal times. Title VII of the Civil Rights Act of 1964 is a genuinely liberal statute, but if the Court goes conservative it doesn't mean one should turn around and trim back on Title VII. That's not honest interpretation. The idea that a Court of Appeals should follow the trends of the Supreme Court rather than make their best estimate, on a particular statute, is, I think, not compatible with the rule of law.

Question

In light of the rule of law, can you explain the significance of the unitary executive period of constitutional justification and also the significance of signing statements?

Laurence H. Tribe:

In terms of signing statements, it's good for the President to give a signal to the country; it advances transparency for the President to say "I'm signing this, and it's ambiguous, and here's what I think it means," or "I'm signing it because on the whole it doesn't merit veto but I can think of three or four applications in which it would be unconstitutional." I would rather be warned about that in advance than to be confronted later, so the suggestion that signing statements

are evil and Congress should be able to get rid of them is fallacious. That's why Barack Obama declined to promise never to use signing statements when John McCain said "I'll never use a signing statement." The underlying idea that the President cannot be interfered with by Congress and, in fact, that the President is necessarily immune from legislative restriction when it comes to executing the law is itself a novel and problematic theory that has never gained general acceptance. Among its implications, if properly understood, is that John McCain was actually right when he said he could fire the head of the SEC, because the statute purporting to give independence to the head of the SEC is unconstitutional under the "unitary executive" theory. The reason is that the statute prevents the flow of power directly to the one President we have; the whole alphabet soup of independent agencies is a violation of the unitary executive theory.

Frank H. Easterbrook:

I agree completely with Professor Tribe about signing statements. Those people who objected to President Bush's signing statements objected to the substance of what he was asserting, not the fact that he was telling people what he believed. With respect to the unitary executive, it seems very important to distinguish claims made by some who use the phrase to assert that the President is above statutes. The Constitution does say that the President shall faithfully execute the law of the land. Some people who use the term "unitary executive" are referring to Article 2 of the Constitution: the President is the top of the organization, and you can't insulate him from the people lower down in that organization. Senator McCain could fire the head of the SEC not for any constitutional reason but because that's what the statute says. The statute says that any President can designate a new chairman of the SEC.

Geoffrey R. Stone:

One of the ambiguities in the controversy over signing statements is whether the purpose is merely to inform the public and the Congress that this is what the President thinks the law is, or whether it is an assertion of authority by the President to rewrite the intended and understood meaning of the

law and suggest that it now means something very different from what Congress intended. Did the President faithfully execute the law he signed into existence or bastardize its meaning at the same time he signed it? And then there's the question of whether a President who signs a statement binds his successor. The answer to that is clearly no, but it was part of the controversy.

Question

I would like to follow up on Professor Stone's reference to instances where an administration may have circumvented the rule of law. I know that Cass Sunstein has made certain statements about not criminalizing the public service, but I would like to get the panel's views on whether or not it would be important to prosecute instances of circumventing the rule of law by this administration in the new administration.

Geoffrey R. Stone:

My own view is that public officials should be held accountable for acting in conformity with the law, and if they, in fact, violate the law then there is reason to hold them accountable, either through impeachment or through criminal prosecution or otherwise. On the other hand, it is important to recognize that public officials are often acting in areas where there is a great deal of ambiguity about what the law requires, and, as a matter of general policy, we don't want to make public officials so intimidated about the consequences of their actions, particularly given the fact that a subsequent administration might accuse them of violating the law merely because they disagree with their policy. Although it is appropriate to hold public officials accountable, that authority should be exercised with a great deal of attention to the need to prevent public officials from becoming too wary about enforcing their responsibilities while they have power.

Frank H. Easterbrook:

I agree completely with Professor Stone. I can't discuss current circumstances but I can give you a brief story. It was discovered that the Postal Service was opening mail that was being sent to the Soviet Union and reading the contents. It had been directed to do so

by President Eisenhower at the time of the U-2 controversy and had continued on autopilot until 1975. Statutes had been passed both before Eisenhower's directive and later that made this, let's just say, problematic. The question for Attorney General Levi was whether to ask a grand jury to indict the people who were carrying out programs established by the President of the United States and assured by the Justice Department to be valid. It was a subject of agonizing debate for Levi, for his staff, for many members of the Justice Department. There was a widespread belief that the legal opinions validating this program were unreasonable but that it would be unjust to put these people in jail. Levi thought that no prosecution should be brought, but he chose to consult with Judge Griffin Bell, who President Carter designated as his incoming Attorney General. Bell agreed with Levi, and the Justice Department issued a public report stating its view on why the practice was illegal, why it couldn't continue, and why any future repetition of it would be criminally prosecuted. It seems to me that the Levi was wise in that respect, as in many others. ■

© 2009 by Diane P. Wood, Laurence H. Tribe, Frank H. Easterbrook, and Geoffrey R. Stone, respectively

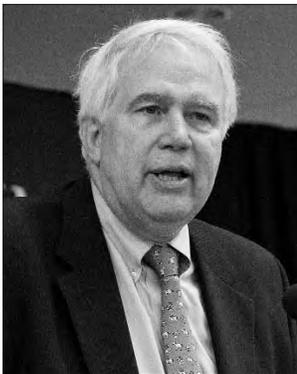
Academy Meetings

The Nuclear Future

Richard A. Meserve, Robert Rosner, Scott D. Sagan, and Steven E. Miller

This panel discussion was presented at the 1929th Stated Meeting, held at Harvard University on October 12, 2008. At this meeting, Richard Lester, Professor of Nuclear Science and Engineering at MIT, also spoke. His remarks will appear in a forthcoming publication.

Cooling Towers.
Photograph © W. Cody/Corbis



Richard A. Meserve

Richard A. Meserve is President of the Carnegie Institution for Science and former Chairman of the U.S. Nuclear Regulatory Commission. He has been a Fellow of the American Academy of Arts and Sciences since 1994 and serves as a member of the Academy's Council and Trust. He is a member of the Executive Committee of the Academy's Global Nuclear Future Initiative.

We are in a time of great change in the nuclear world, a period termed by some as a nuclear renaissance. The Nuclear Regulatory Commission has received applications for 26 new nuclear power plants, and more applications are expected. The reactors may not all be built, but the applications show the high degree of interest in new construction in the United States. There are also extensive construction programs either underway or planned in China, Japan, Korea, Russia, the United Kingdom, and elsewhere. But really the most interesting dimension of the renaissance is the large number of countries that do not currently have a nuclear power plant and have expressed an interest in building one. Senator Sam Nunn and I were in Vienna about 10 days ago at a meeting in which the Director General of the International Atomic Energy Agency (IAEA) mentioned that 50 countries that do not now

have a nuclear power plant have come to the IAEA to explore the possibility of constructing a plant. He assessed that 12 of those countries are very serious about proceeding. The interested countries include the United Arab Emirates, which is clearly going to go forward; Thailand; Vietnam; the Philippines; Nigeria; Poland; Belarus; and many others.

In one sense, this is a great opportunity. We need to find carbon-free sources of energy in order to respond to the grave challenge of climate change. Nuclear power now provides 16 percent of the world's electricity, and it would be a wonderful thing, from the perspective of climate change, if we were able to develop nuclear energy further. But that is not to deny that there are other challenges that must be confronted – among them, the need to build and operate these nuclear power plants safely. Countries with experience

with nuclear power have learned that it is necessary to have a whole infrastructure in order to achieve safe operations – an infrastructure that includes an educational system, technical capabilities, a competent and independent regulator, licensees who are focused on safety, and so forth. Some of the countries considering nuclear technology do not have such an infrastructure.

We need to find carbon-free sources of energy in order to respond to the grave challenge of climate change.

There is a waste challenge that must also be confronted. Spent fuel needs to be handled in an appropriate way so as to protect current and future generations from the long-lived radionuclides that are created by reactor operations. Adequate security must be achieved as well. More reactors in more places mean more target sets for terrorists.

Another consideration, and an important one, is the impact of nuclear development on proliferation. In this context, reactors themselves are not the problem. The problem is that, as more countries need nuclear fuel, there will be an inevitable demand for enrichment services. This means that the technology for enrichment could become more widespread. The same technology used to produce low-enriched fuel for nuclear reactors can be used to produce highly enriched uranium, a weapons-usable material. There also is the possibility that some of these countries may proceed with reprocessing – raising the possibility, if they use today's reprocessing technology, that they will produce separated streams of plutonium. Plutonium, of course, is also a weapons-usable material.

So we have a cluster of proliferation-related issues that must be confronted in a changed nuclear world. We have to approach these issues in the context of a frayed international nonproliferation regime. The North Koreans have already produced separated plutonium and it is proving very difficult to bring them back into the nonproliferation

regime. Iran is proceeding with enrichment, which gives it the technological capability to produce highly enriched uranium. And of course, we must view these changes in the overall context of a complete lack of progress in recent times on disarmament.

We thus are in a world with the possibility of great benefit and great importance of nuclear power because of climate change, but great challenges as well. We face the prospect, if we don't handle this well, of a world in which more countries have nuclear weapons – not a desirable state of affairs for anyone.

This is the context in which the Academy has launched its Global Nuclear Future Initiative, which has the basic purpose of exploring how to get the benefits of nuclear power while diminishing, to the extent possible, the corresponding risks. Approaching this problem appropriately necessarily involves people concerned about proliferation issues from the academic world and from the national laboratories. But to deal effectively with the problems, we need to bring in a much wider group of participants: the licensees and vendors of reactors; regulators; and, most importantly, people from the countries seeking to build nuclear power plants. It is important to have a discussion with the people we seek to influence at a very early stage. The Academy has the unique capability to convene people across a broad spectrum of disciplines and from all over the world, to get all of the stakeholders to approach these problems together, and to try to find a path to a safer world. Our panel this morning will set the backdrop for this new Initiative.



Robert Rosner

Robert Rosner is President of UChicago Argonne, LLC; Director of Argonne National Laboratory; and William E. Wrather Distinguished Service Professor at the University of Chicago. He has been a Fellow of the American Academy of Arts and Sciences since 2001. He is a member of the Executive Committee of the Academy's Global Nuclear Future Initiative.

It is clear that nuclear energy is getting a second wind on a worldwide basis, albeit the notion of a nuclear renaissance, at least as applied to the United States, remains far from realization. I think it is also fair to observe that the United States is playing an increasingly limited role as new countries are turning to nuclear energy for the first time. Now the obvious question: why is this so?

The notion of a nuclear renaissance, at least as applied to the United States, remains far from realization.

The international situation does vary from country to country, and it is a combination of four main drivers: 1) increasing energy and water demands, driven in large part by increased expectations for living standards in the developing world; 2) economics, or insurance against future price exposure driven by strained energy supply, fossil fuel price fluctuations in deregulated markets, and, of course, the cost impacts of climate considerations; 3) security of the energy supply; and 4) global climate change and worrying about how to increase carbon-free

base power. The terms of the discussion on a possible nuclear renaissance here in the United States are really very different from what they are abroad, so that is something that we are going to have to keep in mind. For example, it is certainly true that within the United States the issue of climate and global climate change is a main driver for rethinking the nuclear future, but that is not necessarily the case abroad.

What are the obstacles retarding growth? There is the issue of financing. The cost of a new nuclear plant today is a fair fraction of the total market capitalization of the companies that are likely to want to build them. For a company basically to bet its future – which is what it really amounts to – on a new nuclear plant is, of course, very problematic. There is the issue of human capital. We need to revive the discipline of nuclear engineering, both for designing and building new plants and for operating them safely and efficiently. Also related to human capital are the stringent quality demands for construction of new nuclear plants as well as the supporting infrastructure. This is a lesson that AREVA has been learning in Finland, that it is not enough to go in and take an existing construction trades workforce, accustomed to building apartment complexes or other kinds of power plants, and expect them to work effectively building new nuclear plants. AREVA has in part overrun its construction budget for the first of the Finnish plants precisely for this reason.

There is the issue of infrastructure and supply chain. The industrial infrastructure, not only in the United States but worldwide, is really quite limited and cannot presently support a renaissance, including, for example, the ability to make large reactor vessel forgings for the plants themselves. Furthermore, new countries that are looking at nuclear power plants often do not have the supporting infrastructure, including the electric grid, to sustain plants in this sort of gigawatt range. The other issues are spent fuel, nuclear waste disposition, nuclear licensing, and public acceptance. Public acceptance is not talked about much elsewhere, but I think it will be the main issue for the United States. The issue of international safety standards will depend on the countries that are interested in a nuclear renaissance providing the

human infrastructure to operate plants in a safe way and to deal with the disposition of the spent fuel afterward. There are the issues of the Nuclear Nonproliferation Treaty (NPT), too.

The national lab directors, about two years ago, organized themselves into the National Lab Directors Council, of which I serve as chair. Ten of these labs (there are 17 labs total in the Department of Energy system) participate in one way or another in nuclear power considerations. The Council has recently written a white paper addressed to the Secretary of Energy on the use of nuclear

The essential ingredients of any regime that takes reviving nuclear power in the United States as its goal include rebuilding the nuclear enterprise by rebuilding the manufacturing base and the necessary science and technology infrastructure, and training the next generation of scientists and engineers to carry out the research and development.

power that discussed what we view as the essential ingredients of any regime that takes reviving nuclear power in the United States as its goal. These include rebuilding the nuclear enterprise by rebuilding the manufacturing base and the necessary science and technology infrastructure, and training the next generation of scientists and engineers to carry out the research and development. It is one thing to try and replicate the French and the Japanese; it is another to think in truly revolutionary ways. Our foreign competitors have a huge investment in present infrastructure, the infrastructure necessary to support Generation III reactors, including the reprocessing. It would not be smart

for us to simply chase after them – we need to go around them and invest in a completely revolutionary technology. We do need investments on the research and development front here in the United States for Generation IV reactors, advanced safeguard technologies, and advanced nuclear fuel cycles.

There is also the issue of international engagement. It has been shocking to me personally to see the extent to which we have lost the edge in engaging internationally. Part of that, of course, is the fact that we have lost the technological lead, and in that respect, there is some question of whether people will pay effective attention to us if we are not perceived as technically competent.

Main drivers in the near term include the near-term expansion and life extension of plants, financial support for new orders, and cost-effective technical improvements for existing plants; an interim solution – interim storage – for used nuclear fuel; and, finally, a much more robust nonproliferation regime, which is a technical as well as political issue.

These considerations are largely well-known and understood by people within the technical and policy communities. But I think it is also unfortunately true that implemented public energy policies today, both here and abroad, have been largely at odds with these considerations; it is one of the tragedies that we are facing. Given the urgency imposed by climate change, by strong increases in energy demand worldwide, and by concerns related to energy security, I think it is high time that public policy and our technical understanding of the nuclear energy challenge align. I think this is indeed the intent of our meeting and our discussion.



Scott D. Sagan

Scott D. Sagan is Professor of Political Science and Codirector of the Center for International Security and Cooperation at Stanford University. He has been a Fellow of the American Academy of Arts and Sciences since 2008 and serves as Coleader of the Academy's Global Nuclear Future Initiative.

I will be speaking this morning about two serious problems: nuclear terrorism and illicit exports of nuclear materials or technology. These are serious problems today and will be, I believe, even more daunting in the future if new states develop power plants, uranium enrichment, or plutonium reprocessing facilities – new states that lack strong regulatory systems, security cultures, and have serious internal terrorist problems.

The danger of nuclear terrorism will be with us for a long time and we must reduce the risks to as low a level as possible. We need to remember that Al-Qaeda is not the only terrorist organization that has sought nuclear weapons; nor is it likely to be the last. We know that Osama Bin Laden issued a fatwa claiming that it was moral under Islamic principles to target innocent civilians and he called for the acquisition of nuclear weapons. We know that Pakistani nuclear scientists met with Bin Laden in Afghanistan prior to the 9/11 attacks. But not everyone remembers that other terrorist organizations in the past had similar ambitions. European left-wing radical terrorists reportedly attacked a U.S. military base in Germany in the 1970s, trying to steal nuclear weapons from our stockpile. The Aum Shinrikyo penetrated the Russian military, getting Russian soldiers to join their organization, and seeking access to nuclear weapons because they believed that an apocalypse would create a world in

which only true believers in their organization could survive and reach a higher plateau of moral standing. The founder of Aum Shinrikyo was not able to get nuclear weapons so he developed biological weapons, using anthrax unsuccessfully. He finally had to settle for the sarin chemical attacks in the Tokyo subway in 1995.

My central point here is that we should recognize that nuclear terrorism is not just an Al-Qaeda problem. We should assume that other terrorist organizations in the future will seek to steal materials to make nuclear weapons, and we must therefore maintain the highest standards of security for facilities worldwide. Increased security should be a top priority for any facility that produces or uses highly enriched uranium (HEU), since it is easier to make a primitive nuclear device from HEU than from other weapons-grade materials. But all plants and related facilities will have to have improved security in the future.

The second point I want to make is that we already have seen problems of illicit export of materials, with, for example, the A.Q. Khan network out of Pakistan. We know that officials at the Khan Research Laboratory (KRL), led by A.Q. Khan, developed a network of international actors who made an offer to Iraq (after the invasion of Kuwait but before the Desert Storm War of 1991) to give Saddam Hussein both a bomb design and centrifuge technology. Saddam Hussein actually turned down that offer, thinking that it was a CIA plant. But Libya did accept A.Q. Khan's offers for centrifuges and a bomb design. We found both in materials discovered in Libya in 2003. The bomb design found in Libya was of a relatively primitive model based on a Chinese weapon, but disturbing evidence now exists that more advanced designs have been found on some of the computers of European members of the A.Q. Khan network. We know that centrifuges were given to North Korea (we don't know whether the bomb designs also were passed on), and we know that centrifuges were given to Iran, but, again, we don't know the details about the bomb design.

What there is still great debate about is how to assess the cause of this. Was this negligence on the part of the Pakistani government, or was it complicity? Reasonable people, I think,

can disagree on what the balance is between these two options. But I want to make two points here. One, in a rare moment of candor, then-President Pervez Musharraf said he knew about A.Q. Khan passing things on; indeed, in his memoirs Musharraf writes:

I received a report that some North Korean nuclear experts had arrived at KRL [Khan Research Laboratory] and were being given secret briefings. I took it seriously. The head of our ISI [intelligence service] and I called A.Q. Khan in for questioning, and he immediately denied the charges. No further reports received, and we remained apprehensive.

Nuclear terrorism and illicit exports of nuclear materials or technology are serious problems today and will be, I believe, even more daunting in the future if new states develop power plants, uranium enrichment, or plutonium reprocessing facilities.

Is this complicity or is this negligence? I argue that, at a minimum, there was such an acceptance of corruption in Pakistan, that it could be called institutional complicity. When the Pakistani government does not react when a senior laboratory official becomes a millionaire and buys many properties at home and abroad, this goes beyond negligence. When the President simply accepts the word of A.Q. Khan, instead of his own intelligence reports, that goes beyond negligence. Indeed, in Islamabad a number of years ago I was given a brochure that the KRL scientists used to give to people selling dual-capable equipment that they said was perfectly fine, perfectly legitimate for civilian use. But on the brochure's cover, in the background, there is a missile with A.Q. Khan standing in front of it. A.Q. Khan's illicit sales activities were not a well hidden secret in Pakistan, and indeed A.Q. Khan advertised that he was getting away with quite a bit.

When I talked to members of the Strategic Plans Division in Rawalpindi, Pakistan, a number of them said, “Well, we’re solving this problem. We are adding more security guards on our forces.” And yet one of the problems with the A.Q. Khan force was that the security guards were corrupt. They were paid off; they had a so-called insider threat. Most people assume if you add more security guards, even if each one of them is only partially reliable, you automatically will become more secure. But, as I demonstrated in my article “The Problem of Redundancy Problem” from the journal *Risk Analysis*, if you assume that at least one of them is the insider who could cause a problem, adding more security guards may actually result in less security.

I will conclude by noting that we need more than better defenses, and we need more than better guards: we need better thinking and institutions to deal with physical security and reduce the risk of illicit exports. In September 2008, former Senator Sam Nunn and Director General Mohamed El Baradei of the IAEA announced the formation of WINS, the World Institute for Nuclear Security, for corporations to share best practices. The IAEA has a severely underfunded but important effort to try to create standards around the world, and the American Academy is starting a study of alternative ways of measuring or assessing security globally in terms of physical security and the risk of illicit exports. Because increased security is ultimately about developing new ideas, sharing knowledge, and creating better institutions, and not just a matter of more guards and fences, we need the kind of work that the American Academy has started though its Nuclear Future Initiative.



Steven E. Miller

Steven E. Miller is Director of the International Security Program at the Belfer Center for Science and International Affairs at the Harvard Kennedy School. He has been a Fellow of the American Academy of Arts and Sciences since 2006 and serves as Coleader of the Academy’s Global Nuclear Future Initiative as well as a member of the Academy’s Committee on International Security Studies.

What you have heard from my colleagues on this panel is that we are heading into a new nuclear world, one that is going to involve more nuclear technology and more nuclear power that will spread more widely across more countries and regions, including many where it has never been present before. New actors and players will be relevant to our thinking about the safe, constructive use of nuclear power. In the context of this evolution, new kinds of problems will arise, or at least new priority will be given to problems that were regarded as lesser in the past, like nuclear terrorism and the problem of illicit nuclear supply.

Are we adequately equipped to manage effectively this new nuclear universe into which we are heading? The main international regulatory mechanism is something that is loosely called the NPT regime, which is a set of rules and institutions that have grown up over four or five decades, centered on the Nonproliferation Treaty, heavily reliant on the International Atomic Energy Agency, and with a lot of supplementary rules and institutions like the Nuclear Suppliers Group. How good is that regime in the face of the kinds of challenges that we anticipate coming down the pike?

If we look at the recent past, it is hard to avoid a somewhat gloomy answer. It has been a bad decade for the NPT system. If you go back almost exactly 10 years, the Indian and Pakistani nuclear explosions undermined the belief that a strong norm against nuclear acquisition had been established. It had been a long time since anyone had openly acquired nuclear weapons, and the thought was that this had become almost taboo. Suddenly this idea was punctured, and since then, of course, North Korea has also openly acquired nuclear weapons.

Are we adequately equipped to manage effectively this new nuclear universe into which we are heading?

We have also had, over the past 10 years and more, a series of three protracted nonproliferation crises, none of which has been successfully addressed. One was Iraq. The final result was war, which did reduce the proliferation risk, but at a price that was enormous and in a way that no one would regard as a desirable management technique for coping with nonproliferation challenges. We have had nearly 20 years of crisis with the North Koreans over their nuclear aspirations, and we are still in the midst of that melodrama. The outcome is uncertain, but the result so far is that North Korea is now a nuclear-armed state. It has tested a nuclear weapon and has withdrawn from the NPT – the first state ever to do so – creating, in my opinion, a whole series of unfortunate precedents. And we are still midstream in an ongoing Iranian crisis, in which Iran has been persistent in pursuing enrichment technologies that, whatever its intentions, will give Iran the technical capability to produce weapons material in the future if they choose to do so. Each of these examples is a tangled tale; but the underlying point is that the cumulative effect of the system’s failure to resolve successfully any of these major challenges to the regime calls into question the adequacy of the nonproliferation system in coping with the most important tests. It is really the determined proliferators that we have to deal with if the regime is going to be effective.

We have also seen over the past decade the almost complete collapse of the multilateral arms control process. All of the ancillary agreements that were meant to buttress the NPT regime, like the Comprehensive Test Ban Treaty or the Fissile Material Cut-off Treaty, have been either stuck or stalled, thwarted or stymied, so there is no real progress, motion, or action on any of them. We also witnessed in 2005 the complete failure of the NPT Review Conference, an international gathering of NPT members that convenes every five years and often provides the opportunity to address constructively problems of global concern. But due to the collision between, especially, the United States and others, but more generally be-

We have had, over the past 10 years and more, a series of three protracted nonproliferation crises, none of which has been successfully addressed.

tween the West and the rest, we failed in 2005 to reach an agreement even for an agenda for the conference, much less any kind of constructive result. To all these woes it is necessary to add the startling revelations about the A.Q. Khan network, which was a fundamental challenge to the regime because it involved a sub-state actor that was willfully and intentionally seeking to subvert and circumvent the international constraints on nuclear technology around which the NPT regime is built.

These were a series of body blows to the regime. It hasn't failed or collapsed, but the regime is struggling to cope adequately with the current tests in front of it. Now we look to the future and imagine a world in which there are many more nuclear power reactors and much more widely spread sensitive nuclear technology and ask, is the current system – barely adequate, even inadequate in

some eyes, today – going to cope effectively down the road with a much bigger challenge?

The general lesson is that the NPT regime is built on two contradictions. First, it is meant to prohibit nuclear weapons for almost all signatories while legally codifying the nuclear weapons status of a handful of nuclear powers. The solution in the Treaty was Article VI, in which the nuclear five promised to work in good faith toward nuclear disarmament. There is ample evidence to suggest that large segments of the NPT community are growing frustrated with what they perceive as the failure of the nuclear weapon states to live up to their Article VI obligations. The Article VI controversy has been troublesome in the past but may be even more difficult to manage in the future as disgruntlement mounts and patience wanes.

Second, the NPT is meant to prevent nuclear proliferation while promoting the spread of nuclear technology. The magic wand to make that possible is Article III of the NPT, which calls for safeguards, inspections, and transparency. You are entitled, as a non-weapon-state signatory to the Treaty, to the full panoply of nuclear technology, so long as it is under safeguards and supervised by the IAEA system. What I fear we may be seeing is the slow-motion death of the safeguards regime, because it doesn't cope with covert programs. It wasn't intended or designed for that, but covert programs are a big part of what we are worried about. In the context of dual-use technologies – very much the realm of the Iran crisis – judgments about intentions are absolutely decisive, but safeguards give no definitive insight on Iranian intentions. We can only tell what their technological capacities are, and in conditions of suspicion and hostility, even technically adequate inspections may be politically insufficient. In the current crisis over the past four or five years, Iran has been the most heavily inspected party in the history of the IAEA system. Its declared facilities have been under comprehensive, full-scope safeguards, and I venture to say neither the United States government nor most other governments have been wholly reassured by that fact.

The Academy's Global Nuclear Future Initiative asks what can we do to strengthen the regime, to make it more effective, and to give it greater capacity to cope with the new nuclear world into which we are heading. That is the debate to which we are hoping to contribute. ■

© 2009 by Richard A. Meserve, Robert Rosner, Scott D. Sagan, and Steven E. Miller, respectively

Academy Meetings



Condensation Cloud of a Nuclear Blast. Photograph © Hulton-Deutsch Collection/Corbis

A World Free of Nuclear Weapons

Sidney D. Drell, William J. Perry, Sam Nunn, and George P. Shultz

These remarks were given on the occasion of the awarding of the Rumford Prize to Sidney D. Drell, William J. Perry, Sam Nunn, George P. Shultz, and Henry A. Kissinger (in absentia) at the 1929th Stated Meeting, held at Harvard University on October 12, 2008.



Sidney D. Drell

Sidney D. Drell is Senior Fellow at the Hoover Institution at Stanford University and Professor of Theoretical Physics Emeritus and Deputy Director Emeritus at the Stanford Linear Accelerator Center. He has been a Fellow of the American Academy of Arts and Sciences since 1971.

Thank you very much for this award. To me, an academic scientist, this award from the distinguished American Academy is a great honor indeed. Benjamin Thompson – Count Rumford – established this prize to recognize contributions to advancing our understanding of nature, and with particular emphasis on understanding light and heat, which, in the words of the Academy, can be very broadly interpreted. Early in my career as a theoretical physicist, my primary goal was to make such contributions; but over time I realized that I could not escape the reality that progress in nuclear science made back in the 1920s and 1930s had led to terrifying new dangers to the very survival of our civilization on a global scale. I am speaking of nuclear weapons, of course, capable of unimaginable destructiveness. Increasingly, I found my scientific work drawn to the chal-

lenge to prevent a nightmare of that sort from occurring. This opened a second track in my career and led to my forming working bonds and friendships with political scientists and government leaders, such as my fellow honorees here today. I want to recognize the importance of the American Academy and its committee on International Security and, in particular, the leadership of my good and longtime friend Paul Doty in helping me form such bonds.

Today I am being honored for contributing to an effort not to advance our understanding of heat and light, but to get rid of the means of creating here on earth explosions that produce such monstrous quantities of heat and light and other forms of energy that they could destroy us all. Since this initiative presents technical as well as political chal-

Academy Meetings

enges, and Count Rumford was a physicist who was also interested very much in gunpowder and in various forms of armaments in general, I guess it is reasonable to conclude that awarding this prize this way fits appropriately in the guidelines as the Count set them down to the Academy.

The only way I know to get rid of the means of creating devastatingly destructive explosions that pose a threat to our civilization is to dismantle and destroy all nuclear weapons. Realizing the vision of a world free of nuclear weapons is precisely the goal of our program. It is the vision that President Ronald Reagan and General Secretary Mikhail Gorbachev brought to their remarkable summit in Reykjavik, Iceland, in 1986. Although they

The only way I know to get rid of the means of creating devastatingly destructive explosions that pose a threat to our civilization is to dismantle and destroy all nuclear weapons.

failed to close the deal – recall that in 1986 the Berlin Wall still stood and we were still in the midst of the cold war – Gorbachev and Reagan did start down the path of reducing the sizes of these bloated nuclear arsenals. However, without a vision of a world free of nuclear weapons, the nations of the world have not pursued, with the intensity and the boldness that the times require, the measures that could reduce nuclear dangers that we face. No doubt, rekindling or realizing the vision will be a very difficult goal to achieve. It will require nothing less than a new deal between states that have nuclear weapons and those who, for now at least, have volunteered to forgo them. Progress will require cooperation on a global scale between nations with very different economic and strategic aspirations as well as forms of governance. We recognize this in our program and have proposed a series of steps that we consider both practical and necessary for the United States to take, together with other nations in the world, to begin the journey

and convince skeptics that our vision is not a flight of fancy, but a practical goal. We have been encouraged by strong and broad international support.

There are also, of course, some who have protested that our initiative is not only futile, but even unwise and dangerous, a distraction from a policy of nuclear deterrence. After all, the United States and the former Soviet Union relied on nuclear deterrence to navigate successfully through the perilous years of the cold war. Against what seemed to me to be insurmountable odds, not one of the many thousands of existing nuclear weapons was detonated in military combat, although there were numerous opportunities to do so. But it would be dangerously wrong to draw comfort from that achievement. Relying on nuclear weapons for deterrence is becoming increasingly hazardous and decreasingly effective in a world with an accelerating spread of nuclear know-how, weapons, and material. Today we are teetering on the edge of a new and more perilous nuclear era, facing a growing danger that nuclear weapons, the most devastating instrument of annihilation ever invented, may fall into the hands of those who do not shrink from mass murder on an unprecedented scale. With the spread of advanced technology and renewed international interest in nuclear technology for civil power generation, the threat of such a catastrophe looms more and more likely.

What will it take to prevent such a catastrophe? First, a sense of urgency that was lacking when two bold leaders, Reagan and Gorbachev, at Reykjavik posed the challenge to escape the trap of nuclear deterrence. It is lacking still today. And second, strong leadership, with the United States at the helm but with partners, to create and inspire that sense of urgency. This means forging an effective international effort to implement a set of practical steps to prevent the proliferation of nuclear weapons. My fellow honorees, 35 other endorsers, and I proposed such a set of steps in a *Wall Street Journal* op-ed of January 2008, “Toward a Nuclear-Free World.” And just as rekindling the vision of Reykjavik will be essential for these steps to be broadly accepted as fair and urgent, the steps themselves are essential to achieve that vision of a world free of nuclear weapons. There is a lot of work to do. Thank you again for this honor.



William J. Perry

William J. Perry is the Michael and Barbara Berberian Professor at Stanford University, with a joint appointment at the School of Engineering and the Institute of International Studies. He is a Senior Fellow at the Hoover Institution, a Senior Fellow at the Freeman Spogli Institute for International Studies, and Codirector of the Preventive Defense Project, Institute for International Studies. He has been a Fellow of the American Academy of Arts and Sciences since 1989.

For the last few years, working to reduce nuclear danger has taken up most of my time; indeed, it has become a top priority in my life because I believe that the gravest danger facing the world today is a terror group detonating a nuclear bomb in one of our cities, and that this danger is not remote. It is also because my experiences during the cold war have conditioned me to be especially sensitive about the dangers of nuclear weapons. To make this point, I will share one experience from the most dangerous period of the cold war, when I was the Under Secretary of Defense for Research and Engineering.

During the summer of 1978, I was awoken at three o'clock in the morning by a phone call from the watch officer at the North American Air Defense Command. As I sleepily picked up the telephone, the general got right to the point. His computers were indicating 200 ICBMs on their way from the Soviet Union to the United States. I immediately woke up. That was a false alarm, but the general had only 15 minutes to reach that judgment. He called me in the hopes that I could help him determine what had gone wrong so that he would have a good explanation when he briefed the President the next morning.

That call, of course, is engraved in my memory; but it is only one of three false alarms that occurred during my tenure in office, and I do not know how many more might have occurred in the Soviet Union. So the risk of a nuclear catastrophe was never academic to me.

Ironically, during that same period I was responsible for the development of our country's nuclear weapons. In my tenure, I supervised the development of the B-2 bomber, the MX missile, the Trident submarine, the Trident missile, the air-launched cruise missile, the ground-launched cruise missile, and the sea-launched cruise missile. While I saw clearly the risk in building this deadly nuclear arsenal, I believed at the time it was necessary to take those risks in the face of the threats of the cold war. But after the cold war ended, I believed that it was no longer necessary to take those terrible risks, and that we should begin to dismantle this deadly cold war legacy.

My first opportunity to act on this belief came in 1994, when I was invited by President Clinton to become the Secretary of Defense. As the Secretary, my first priority was to begin to dismantle the cold war nuclear arsenal. The greatest immediate danger was that the nuclear weapons in Ukraine, Kazakhstan, and Belarus would fall into the hands of terrorists. The tools that I had available to deal with this were the START Treaty, in which Secretary George Shultz had played a key role; the Nunn-Lugar program, in which Senator Sam Nunn had played a key role; and the cooperation of Russia. My major concern was the nuclear arsenal in the Ukraine. When the Soviet Union collapsed, Ukraine inherited all of the nuclear weapons then on its soil. At the time, they had more nuclear weapons than the United Kingdom, France, and China combined. Worse, they were going through a period of social, economic, and political turbulence. Fortunately, the Ukrainian government made a courageous and enlightened decision to give up their nuclear weapons, and using the Nunn-Lugar program, we assisted them in the dismantlement process. With permission of the Ukrainian president, I personally supervised the dismantlement of their nuclear weapons, visiting four times their primary ICBM base at Pervomaysk, which at the time had 700 nuclear warheads, all aimed at targets in the United States.

On the first visit, I went to the control center and observed a practice countdown, and after that unnerving experience, I then observed the removal of the first batch of warheads. On my second visit, I observed the removal of the first batch of missiles, and on my third I joined the Ukrainian and Russian defense ministers in pressing the buttons that blew up one of the silos. Then, in the summer of 1996, I returned to Pervomaysk for my final visit. I went with the Ukrainian and Russian ministers to the site where the silos had previously been, and together we planted sunflowers at that site.

The gravest danger facing the world today is a terror group detonating a nuclear bomb in one of our cities – and this danger is not remote.

During my term in office, we dismantled about 10,000 nuclear warheads in the United States and in the former Soviet Union, and we helped three nations go from being nuclear powers to non-nuclear powers. This was the first time since the dawn of the nuclear age that proliferation had been reversed, and I thought we were well on the way to containing the deadly nuclear arsenal of the cold war. Since then, though, the efforts to reduce the nuclear danger have stalled, and even reversed. Both Russia and China are now developing new nuclear warheads. The START Treaty expires in 2009, and there have been no further treaties to dismantle nuclear weapons. The United States has not yet ratified the Comprehensive Test Ban Treaty, signed more than 12 years ago. India and Pakistan have gone nuclear. A.Q. Khan has covertly sold Pakistan's nuclear technology to an unknown number of nations. North Korea has built a small quantity of nuclear weapons and tested one of them. Iran is developing the capability to produce nuclear fuel, which, if completed, would give it the option of building nuclear weapons within a few months. If Iran and North Korea proceed on their present path, there is a real danger of a veritable cascade of nuclear proliferation.

All of this is happening in parallel with the emergence of catastrophic terrorism: 9/11 made real to the United States, indeed the world, just how catastrophic terrorism could be. But a nuclear bomb detonated in one of our cities would dwarf 9/11 in its catastrophic effects. It is impossible to overstate the human, social, economic, and political catastrophes that would result from such a detonation, and it must be the priority of all nations to work seriously to prevent that outcome. The nuclear powers have a special responsibility in that regard, and I believe that the United States must lead the way. One important way for our new president to demonstrate American leadership is by embracing the goals of our nuclear security project.

Since the initiation of this project last January, I believe that we have turned a corner in dealing with the nuclear danger. More than a century ago, Victor Hugo wrote, "More powerful than the threat of mighty armies is an idea whose time has come." I believe that working to eliminate this deadly nuclear legacy is an idea whose time has finally come, but I also believe that it will take decades to achieve the final goals of the project. Thus we must train a new generation of security specialists to carry on the task as we retire from the scene. All of the members of our nuclear security project are in their 70s and 80s, and friends ask us why we are still working on security projects. I work every day at Stanford with young security specialists, and I will happily pass the baton to them when I retire from the scene. But I'm not ready to do that just yet. Indeed, when asked why I am still teaching, why I am still taking red-eyes to Washington, and why I do not retire to some pleasant grove, I reply with words inspired by Robert Frost:

The woods are lovely, dark, and deep.
But I have promises to keep,
And miles to go before I sleep,
And miles to go before I sleep.



Sam Nunn

Sam Nunn is Cochairman and Chief Executive Officer of the Nuclear Threat Initiative, Distinguished Professor at the Sam Nunn School of International Affairs at the Georgia Institute of Technology, and Chairman of the Board of the Center for Strategic and International Studies. He has been a Fellow of the American Academy of Arts and Sciences since 1997.

I am deeply grateful to be here today and to receive this wonderful honor from the Academy. When you look at the history of the Academy and its contributions to the expansion and enhancement of knowledge, it is truly awesome and humbling. And when I think of receiving the Rumford Prize alongside George Shultz, Bill Perry, and Sid Drell, three of our nation's most effective and brilliant leaders, somehow I am reminded of the *Camelot* character by the name of Mordred, of whom Lady Guinevere once observed, "The only thing I can say for him is that he is bound to marry well, because everybody is above him." I am honored to be an apprentice in this group of, what shall I say, mature leaders.

Secretary Dean Atchison – George Shultz will identify with this, I'm sure – was once asked to define foreign policy. He thought a moment and replied, "Foreign policy is one damn thing after another." I realized at a relatively young age that nuclear weapons were not just another thing, but that indeed they held hostage the future of mankind. I was a 24-year-old lawyer for the House Armed Services Committee on a three-week Air Force trip to Europe when the Cuban Missile Crisis broke out. During that period, while the world held its breath, our delegation met at Ramstein Air Force Base in Ger-

many with the head of U.S. Air Force, Europe. The general explained that in the event of war, he had only a couple of minutes to launch all of what were known as quick-reaction aircraft, or they would be destroyed. These planes and forward bases were the first targets for the Soviets because they would deliver the first nuclear weapons to strike the Soviet Union, or at least that is what the Soviet Union anticipated. The fact that the fate of mankind rested on the shoulders of only a few people on each side who had only a few moments, as Bill Perry described, to decide whether to launch nuclear weapons made a lasting impression on me. I pledged to myself then that if I ever had a chance to work on the problem, I was going to tackle it.

I believe that the greatest danger we face is the possibility of a catastrophic nuclear attack by a terrorist group that does not have a return address and therefore is unlikely to be deterred.

Today the cold war is over, but we face new nuclear dangers. I believe that the greatest danger we face – Bill just said this, and I agree with him completely – is the possibility of a catastrophic nuclear attack by a terrorist group that does not have a return address and therefore is unlikely to be deterred. As those of us being honored today have pointed out, the accelerating spread of nuclear weapons, nuclear materials, and nuclear know-how has brought us to a nuclear tipping point. Indeed, we are in a race between cooperation and catastrophe.

I frequently ask myself two questions: the day after a nuclear attack on one of the cities of the world, what would we wish we had done to prevent it? And why aren't we doing it now? In our *Wall Street Journal* article, we call for building a solid consensus for reversing reliance on nuclear weapons globally, as a vital contribution to preventing their proliferation and ultimately ending their threat to the world. We are all keenly aware that the quest for a world free of nuclear weapons is fraught with many practi-

cal challenges. We have taken aim at those challenges by laying out a number of steps, which I believe are doable even though they are very difficult. We cannot reduce the nuclear threat without taking these steps. We cannot take these steps without the cooperation of other nations. We cannot get the cooperation of other nations without the shared vision of ending these weapons and their threat to the world.

Many people's reaction to the vision of a world without nuclear weapons comes in two parts. On the one hand, most people say, "Boy, that would be great"; on the other, "We simply can't get there from here." But there is hope. In the 1990s, under Bill Perry's capable leadership as the Secretary of Defense, we made a deal to buy highly enriched uranium from Russian warheads that were aimed at the United States, blend it down, make it into nuclear fuel, and use it in our power plants. Today, after a number of years working on that program, we have made tremendous progress. If you think about it, approximately 20 percent of the electricity in the United States is supplied by nuclear power; 50 percent of the nuclear fuel that goes into that nuclear power is supplied by highly enriched uranium that has been blended into low-enriched uranium and made into nuclear fuel that 20 or 25 years ago was in warheads aimed at the United States. So when you look at the lights in this room or any other room in America, theoretically 10 percent of those light bulbs are fueled by material that was in the form of weapons aimed at America in the 1970s and the 1980s. Swords to plowshares: we have hope.

When I think about the goal of a world free of nuclear weapons, to me it is like a very tall mountain. It is tempting and easy to say we can't get there from here. It is true that today our troubled world cannot even see the top of the mountain. But we can see that we are heading down, not up; we can see that we must turn around, that we must take paths leading to higher ground, and that we must get others to move with us. I am profoundly grateful to the Academy for telling the world through this Prize how urgent it is for the survival of humanity that we stop our descent and find paths up the mountain toward a world free of nuclear weapons.



George P. Shultz

George P. Shultz is Thomas W. and Susan B. Ford Distinguished Fellow at the Hoover Institution at Stanford University. He is Chairman of the JP-Morgan Chase International Council, Chairman of the Energy Task Force at the Hoover Institution, and Chairman of the MIT Energy Initiative External Advisory Board. He has been a Fellow of the American Academy of Arts and Sciences since 1970.

I share with my colleagues gratitude to the Academy for this award; it is a great honor. But as Sam just said, it is also a way of calling attention to the urgency of our program. And in that respect, I welcome and applaud the Academy's continuing interest, demonstrated through its own programs focused on international security and the global nuclear future.

By this time in the program, what more is there to say? Well, I have thought of two things. First, I am struck by the contrast between the reactions of people to what happened at Reykjavik and to the initiative that we have launched. I want to talk about that and ask, why the difference in reaction? Second, I would like to discuss some of the implications of moving ahead for the status of our diplomatic capability, and the way it should be conducted.

In Reykjavik we were in a tiny room in Höfði House. At one end of the table sat President Ronald Reagan; at the other, General Secretary Mikhail Gorbachev. I had the privilege of sitting beside President Reagan, and my counterpart, Soviet Minister of Foreign Affairs Eduard Shevardnadze, sat beside General Secretary Gorbachev. There we were for two full days, talking about a huge range of issues, but with the main emphasis on an ef-

fort to reduce the number of nuclear weapons that each side held. In the course of the discussion, Reagan and Gorbachev found themselves agreeing on the desirability of eliminating nuclear weapons altogether.

There were no leaks from the Reykjavik meeting because we were quite open about everything that happened. When I got back to Washington, Margaret Thatcher had arrived. She summoned me to the British Ambassador's residence, and I learned about a verb in the British language. Remember that Margaret used to carry a hard handbag all the time. Well, in the British language, there is a verb "to be handbagged." And I really got handbagged. She said, "George, how could you sit there and allow the President to agree to eliminating nuclear weapons?" I said, "Margaret, he's the President!" "Yes, but you're supposed to be the one with his feet on the ground, keeping things stable." "But, Margaret, I agreed with him." Her reaction was more dramatic than most, but it was the general reaction in Washington: that this was a crazy idea.

I believe we are not nearly as well-prepared as we should be to conduct, steadily and with people of high standing, the kind of imaginative global diplomacy we need.

Now, 20 years or so later, the reaction to our op-ed in the *Wall Street Journal* is entirely different. Yes, there are some people who don't like the idea; but, interestingly, most people think that the steps we outline in that article will move us toward a safer world. The positive reaction has been astonishing. By this time, something like three-quarters of the former secretaries of state and defense and national security advisors have publicly come on board, and we have had all sorts of indications from people in other countries of their interest. It has been quite heartening.

So I ask myself, why the difference in the reaction? First, during the height of the cold war, people were convinced, even though we

had all of the close calls that Bill Perry outlined so dramatically, that deterrence – the ability to wipe each other out – kept the peace. It was pretty tenuous. Ronald Reagan considered it immoral to think that we defend ourselves that way, but people thought that it worked. The *Wall Street Journal* piece, as I see it, jolted people. Since the end of the cold war, people had gone to sleep on this issue, and they now saw what had been happening. As Sam puts it, we are going down the mountain, toward a situation of great danger. People suddenly perceived that, and now they are interested.

I think also – and this is a lesson for moving ahead – people were struck by the series of steps that were outlined in the article: they saw the task not just as a great idea, but as something that might actually be achieved because there was a roadmap of things that could be done and that were seen as doable. I think, too, there may be an instinctive reaction, at least by people who work on the subject, to improve our stance as we think ahead to the Nonproliferation Treaty review and other such efforts. In a way, saying *non-proliferation* puts you in a defensive stance: you are trying to defend against something to stop it. I think what we perhaps have achieved, or are in the process of achieving if we can go forward with this, fits that old saying, "the best defense is a good offense." This puts us on the offensive; we are for something. Within that framework, you can talk about nonproliferation in a much more convincing way. At any rate, I can't help but notice the difference in reaction between Reykjavik and now, and it is very heart-warming.

We have published a book that reprints the full transcript of the conversation at Reykjavik between Reagan and Gorbachev (and a few words by me and Shevardnadze, but the two leaders totally dominated the discussion). A wonderful scholar at Stanford, David Holloway, dug around in the Hoover archives and found, amazingly, the instructions the Politburo gave to Gorbachev, including all of his red lines, as he went to Reykjavik. That document is also reprinted in the book. I read it and said, "Boy, do I wish I'd had that document before the summit."

My second topic is: what about implications for the future, as far as our diplomacy is con-

cerned? There are lots of things that need to be done, but what about our diplomacy? First, I would say that I believe we are ill-equipped; we are not nearly as well-prepared as we should be to conduct, steadily and with people of high standing, the kind of imaginative global diplomacy we need. The Secretary of State or the Secretary of Defense can't do everything. You need really able people, and they need a support group that is strong. We need a bigger Foreign Service. We need to try to get some of those wonderfully skilled people, who are retiring at alarming levels just when they are at the height of their powers, to come back.

I don't think you really can get anywhere in negotiating on this issue without working alongside high-powered scientific people. It has to be a joint enterprise, which has to be built right into our diplomacy.

And we need to make it inviting for political appointees to come in. When I was in office, I had the likes of Paul Nitze, John Whitehead, Mike Armacost, Roz Ridgway, Chet Crocker, and Max Kampelman. You need to have big people like that. You can send them to a head of government anywhere and they are listened to, not just because they are representing the United States, but because they are Paul Nitze. Those heads of state know that when a representative like that comes home, everybody is going to listen to what he has to say, so it is worth talking to him. We have to strengthen ourselves dramatically compared with where we are right now.

I don't think you really can get anywhere in negotiating on this issue without working alongside high-powered scientific people. It has to be a joint enterprise, which has to be built right into our diplomacy. I don't mean by that that we should aspire to attract lots of high-powered, top-notch scientists to

take full-time jobs in government; that's probably out of the question. But in my experience, if you have an important mission and ask scientists to come and work at it part-time or give it a burst of attention, they are anxious and willing to do it. We have to identify the Sid Drells of this world. There aren't very many Sid Drells, but there are lots of people who can be extremely helpful. There is no point in sending a person who doesn't have deep scientific training out to negotiate on these issues, because the intrinsic content of the issues requires someone who understands them from the inside out. That's another attribute of our diplomacy that needs to be developed very strongly. It is an interesting, somewhat ironic development that the most eloquent spokesman for improving our diplomatic capability right now turns out to be the Secretary of Defense, Bob Gates, who talks about this all the time. He realizes how important it is.

These are some impressions on reactions to Reykjavik, then and now, and some thoughts about the kind of effort we must make to improve our diplomatic capability in order to support a president if he decides to go forward with this. It is wonderful to see that both presidential candidates have, to some extent, endorsed this program. I hope whoever loses will support the winner in going forward. It is sometimes said to us as authors of the *Wall Street Journal* piece, "Isn't it nice that this initiative is bipartisan?" And we all say, "Really, it's not bipartisan, it's nonpartisan." This is not a Republicans-versus-Democrats subject. It is a subject to be debated among Americans on its merits, and it should go forward on those merits. That's the way we work at it.

Once again, thank you for the honor, and thank you for the opportunity to talk to this distinguished group and to listen once again to my colleagues. I always learn from any association with these gentlemen. ■

© 2009 by Sidney D. Drell, William J. Perry, Sam Nunn, and George P. Shultz, respectively

Reflections

Three Moles

Paul A. Samuelson



Paul A. Samuelson

Paul A. Samuelson, a Fellow of the American Academy since 1942, is Institute Professor of Economics Emeritus at the Massachusetts Institute of Technology. He was awarded a Noble Prize in Economics in 1970.

After Easter 1945, within the World War II research labs, conviction grew that Hitler's defeat was just around the corner. Understandably, hopes for a return to peacetime academic life began to emerge. Canny guys within the Office of Strategic Services and intelligence units knew that Germany, after its Stalingrad defeat, could not hope to win the war. In the Pacific, after the Battle of Midway, Allied code breakers had made certain that Japan, too, could not win its war. But Main-Street Yanks and Brits, almost up to the last gunshots, could still fear the worst. (As a dramatic example, Joseph Schumpeter, my Austrian Harvard mentor, isolated in Cambridge, Massachusetts, from December 7, 1941 to August 1945, when the nuclear bombs fell on Japan, could still believe until very late that Hitler was winning the war.)

In that 1945 springtime, as one of the few mathematical social scientists in the Radiation Laboratory at the Massachusetts Institute of Technology (MIT), I was sounded out for the job of writing the history of the Los Alamos nuclear bomb project – a paradoxical offer since officially I couldn't know that there was such a project. But no matter: wild horses could not have drawn me to that, or any, history job. Postwar macroeconomic challenges were already keeping me awake at night.

However, a second challenge arose that I felt I could not, in good conscience, refuse. Vannevar Bush, former Vice President of my own MIT, had become Roosevelt's virtual czar for science. To map out the government's peacetime organizations for science, based on lessons learned during World War II itself, Bush was formulating the basic document that became *Science: The Endless Frontier*. Advising Bush was a stellar committee of representative eminent scientists, including I. I. Rabi from Columbia and elsewhere; Oliver Buckley, head of the prestigious Bell Labs; and *wunderkind* Edwin Land, a Harvard dropout who pioneered Polaroid, where organic chemist Bob Woodward had just synthesized quinine.

A member of and secretary to Bush's committee was my MIT colleague, Rupert MacLaurin, son of Richard MacLaurin, the former President of MIT who in 1916 converted what had been Boston Tech into the modern Massachusetts Institute of Technology. Rupert, a dynamic go-getter who earned the first Harvard Business School PhD in economics (and who was the first to ski over the Andes), knew that as a non-scientist he would need to recruit a knowledgeable staff of helpers. Three of us were picked as scribes to the secretariat and, thus, indirectly to Bush's scientific advisors and potentially to Bush himself.

John (Jack) Edsall, a biochemist at Harvard, was the oldest of us three. Next came Robert (Rob) Morison, physiologist, M.D., and head of biology for the powerful Rockefeller Foundation. (Rob and his brother, my MIT colleague Elting Morison, were cousins of Harvard historian Samuel Eliot Morison.) I, not yet thirty, was the most junior, but I was the one most conversant with the mathematical branches of the social sciences.

Throughout it was made clear to one and all that we three were to be solely helpers in drafting and in arranging and recording interviews of myriad viewpoints. We finished our part of the job within a couple of months, I think, but the three of us learned a lot that went beyond what we knew about the Ivy League or the Big Ten. There was much to learn about labs at AT&T, IBM, Mayo, Westinghouse, Brookings, or United Shoe Machines. We learned that at President Robert Hutchins's University of Chicago, my undergraduate alma mater, never were equal percentage pay raises ever given. In terms of 1945 dollars, a tenured woman full professor in classics might have a \$3,900 salary, while a physicist-chemist might have a \$70,000 salary, a vast difference traced, partially, to how much of a chemist's consulting earnings accrued to the university itself.

On Bush's advisory committee there was a diversity of opinions: cautious, conservative, activist. (Bush himself never met personally with his committee's deliberators.) For brevity's sake, I'll focus on the main split in scientists' views and in academic administrators' views.

Many persons, maybe most, were impressed with how much had been accomplished during the war in governmental scientific agencies: early radar at the National Bureau of Standards; operations research at MIT and the Air Force; underwater sound research at

Harvard; research in the Radiation Laboratory at MIT; physics research in labs at Chicago, Columbia, and UC Berkeley; and the Los Alamos project. There was cryptography research, too, but this was hush-hush.

By contrast, a minority on the committee with strong libertarian views feared these accomplishments, lest the camel of government take over the whole tent. Two reputable presidents of great universities (who can be nameless) favored dividing whatever billions the federal government would allocate to science in strict proportion to state and county populations. Equal-sized geographical counties in, say, Massachusetts and rural South Dakota should have the same dollars to “spend on science.” Otherwise, they alleged, certain pushy New York City scholars with sharp elbows would end up with the lion’s share of federal grants. (Remember that notions of political correctness change a lot every half century, and I have softened their language.)

At another extreme, a committee member like Edwin Land favored U.S. merit grants to support university dropouts, like Land himself had been and what Bill Gates was later to be.

As the only living survivor of our trio, how should I describe the rather eclectic middle-of-the-road policies we three came to hope for? The best policies of what the Edsall-Morison-Samuelson trio actually hoped for did come to be realized – fortunately realized – by what *Science: The Endless Frontier* recommended, including, prominently, Pentagon support for technical innovations; National Institutes of Health (NIH) for broad medical research; National Science Foundation for soft-money grants to applicants in physics, biology, and in the more metric branches of such social sciences as psychology, mathematical statistics, and econometrics; and NASA. It should be stressed, however, that the three of us were

in no sense movers and shakers: Yankee Vannevar Bush was not one to be swayed by ribbon clerks’ syllogisms or dreams. Causation went the other way; we scribes adjusted toward what might become feasible.

Our own views, in retrospect, were less than perfect. We were a bit fearsome that non-university laboratories might grow stale and non-innovative in the absence of university teachers and students; NIH and RAND think tanks proved us to have been overly skeptical.

A reader may say the nation got much that was needed because it was all an obvious “lay-down hand.” Yes, maybe. But let me mention that my longtime Harvard friend, Willard Van Orman Quine, arguably one of the three greatest logicians of the twentieth century, wrote in *Daedalus* in 1974 that, to paraphrase, all those dollars of federal aid to science and scholarship had (net!) a *negative* effect on the advancement of science! Go figure. Though both MacLaurin and I were whelped in Schumpeter’s entrepreneurial innovation workshop at Harvard, we underestimated the burgeoning of Silicon Valley and venture-capital innovational productivity centers.

Deductive logic cannot prove or disprove policy propositions. Speaking for myself, I am glad that I was drafted for a couple of months for duties on this new frontier, where my specialized training and aptitudes could be useful. As I sum up in memory those months devoted to postwar scientific institutions, I must suspect that my per-hour contribution to the good society was accidentally near to my lifetime maximal dogooding.

Maybe through my many writings and advising to Congress, the Federal Reserve, presidents, and voters over the years I have been a useful citizen. Those end-of-war weeks with Jack and Rob delayed only a little my writing *Foundations of Economic Analysis* (1947), a sem-

inal treatise that changed economics and won a Nobel Prize for me. Nor, fortunately, did they abort my planned career program to alter postwar introductory textbooks. After half-a-century and a score of revisions, Samuelson’s *ECONOMICS* still survives as one of the best sellers (now especially to a million Chinese readers).

Summing up, ideologies do play a role in evolving scientific development. I dare to hope that a science with both a libertarian Milton Friedman and an eclectic centrist Paul Samuelson is all the better for its diversity. ■

© 2009 by Paul A. Samuelson

Noteworthy

As of press time, several Fellows of the Academy have been invited to serve in senior roles in President Barack Obama's administration:

Ashton Carter (Kennedy School of Government, Harvard University): Under Secretary of Defense for Acquisition, Technology and Logistics, Department of Defense

Steven Chu (University of California, Berkeley; Lawrence Berkeley National Laboratory): Secretary of Energy

Richard C. Holbrooke (Perseus, LLC): Special Envoy to Afghanistan and Pakistan

John Holdren (Woods Hole Research Center; Kennedy School of Government, Harvard University): Assistant to the President for Science and Technology, Director of the White House Office of Science and Technology Policy, and Cochair of the President's Council of Advisors on Science and Technology

Elena Kagan (Harvard Law School): Solicitor General

Alan B. Krueger (Princeton University): Assistant Secretary of Treasury, Economic Policy

Eric Lander (Broad Institute; Massachusetts Institute of Technology; Harvard University): Cochair of the President's Council of Advisors on Science and Technology

Jane Lubchenco (Oregon State University): Administrator of the National Oceanic and Atmospheric Administration.

Daniel Meltzer (Harvard Law School): Principal Deputy Counsel to the President

George Mitchell (DLA Piper): Special Envoy to the Middle East

Christina Romer (University of California, Berkeley): Chairperson of the Council of Economic Advisers

Anne-Marie Slaughter (Princeton University): Director of the Office of Policy Planning, Department of State

Lawrence Summers (Harvard University): Director of the National Economic Council

Cass Sunstein (Harvard Law School): Administrator of the Office of Information and Regulatory Affairs

Harold Varmus (Memorial Sloan-Kettering Cancer Center): Cochair of the President's Council of Advisors on Science and Technology

Paul Volcker (New York City): Chair of the President's Economic Recovery Advisory Board

Select Prizes and Awards

Nobel Prizes, 2008

Physics

Yoichiro Nambu (University of Chicago)

Chemistry

Martin Chalfie (Columbia University)

Roger Y. Tsien (University of California, San Diego)

National Medal of Science, 2007

Mostafa El-Sayed (Georgia Institute of Technology)

Leonard Kleinrock (University of California, Los Angeles)

Robert Lefkowitz (Duke University)

Bert W. O'Malley (Baylor College of Medicine)

Charles P. Slichter (University of Illinois at Urbana-Champaign)

Andrew J. Viterbi (University of Southern California)

National Medal of Technology and Innovation, 2007

Paul Baran (Novo Ventures, Inc.)

Other Awards

James S. Ackerman (Harvard University) was awarded the Golden Lion for Lifetime Achievement by La Biennale di Venezia.

Robert Axelrod (University of Michigan) is among the recipients of the Wilbur Lucius Cross Medal.

Cornelia Bargmann (Rockefeller University) is the recipient of the 2009 Richard Lounsbery Award from the National Academy of Sciences.

Charles L. Bennett (Johns Hopkins University) was awarded the 2009 Comstock Prize in Physics by the National Academy of Sciences.

Leo L. Beranek (Boston, MA) was awarded the 2008 Vladimir Karapetoff Award by Eta Kappa Nu.

Mina J. Bissell (Lawrence Berkeley National Laboratory) was awarded the Medal of Honor for Basic Research by the American Cancer Society.

Peter Robert Lamont Brown (Princeton University) was awarded the 2008 Kluge Prize for Lifelong Achievement in the Study of Humanity. He shared the prize with Romila Thapar (Jawaharlal Nehru University in New Delhi).

Theodore Lawrence Brown (University of Illinois at Urbana-Champaign) has been awarded the 2008 Harry and Carol Mosher Award of the American Chemical Society.

Thomas C. Bruice (University of California, Santa Barbara) was awarded the 2008 Linus Pauling Medal of the American Chemical Society.

Luis Caffarelli (University of Texas at Austin) received the 2009 Leroy P. Steele Prize for Lifetime Achievement from the American Mathematical Society.

Susan Carey (Harvard University) was awarded the 2009 David E. Rumelhart Prize.

Morton M. Denn (The City College of New York) is the recipient of the 2008 Founders Award of the American Institute of Chemical Engineers.

John E. Dowling (Harvard University) received the Paul Kayser International Award in Retina Research from the International Society for Eye Research.

Leon Eisenberg (Harvard University) was presented with the inaugural Ibor Award from the World Psychiatric Association.

Mostafa El-Sayed (Georgia Institute of Technology) was awarded the Ahmed Zewail Prize in Molecular Sciences.

Stanley Falkow (Stanford University) is the recipient of the 2008 Lasker-Koshland Special Achievement Award in Medical Science.

Martin Feldstein (Harvard University) is the recipient of the 2008 Butler Award, given by the New York Association for Business Economics.

Andrea Ghez (University of California, Los Angeles) was named a 2008 MacArthur Fellow.

Herbert Gleiter (Institut für Nanotechnologie) is the recipient of the 2008 Von Hippel Award of the Materials Research Society.

Richard J. Goldstone (Constitutional Court of South Africa) is the recipient of the MacArthur Award for International Justice, given by the John D. and Catherine T. MacArthur Foundation.

Robert Greenstein (Center on Budget and Policy Priorities) is the recipient of the Heinz Award in Public Policy.

Lars Peter Hansen (University of Chicago) is the recipient of the 2008 CME Group-MSRI Prize in Innovative Quantitative Applications.

Russell Hemley (Carnegie Institution for Science) is the recipient of the 2009 Bridgman Award, given by the International Association for the Advancement of High Pressure Science and Technology.

Noteworthy

John G. Hildebrand (University of Arizona) was elected a 2008 Fellow of the Entomological Society of America.

Susan Band Horwitz (Albert Einstein College of Medicine of Yeshiva University) was awarded the Medal of Honor for Clinical Research by the American Cancer Society.

David M. Kennedy (Stanford University) is among the recipients of the Wilbur Lucius Cross Medal.

Edward M. Kennedy (United States Senate) was awarded the Medal of Honor for Cancer Control by the American Cancer Society.

Laura L. Kiessling (University of Wisconsin-Madison) is among the recipients of the Wilbur Lucius Cross Medal.

Neal Lane (Rice University) was awarded the Public Welfare Medal of the National Academy of Sciences.

George Lucas (Lucasfilm Ltd.) is the recipient of the Art Directors Guild's Outstanding Contribution to Cinematic Imagery Award.

Peter Matthiessen (Sagaponack, NY) won the National Book Award for fiction for *The Shadow Country*.

Richard A. Meserve (Carnegie Institution for Science) is the recipient of the 2008 Philip Hauge Abelson Award of the American Association for the Advancement of Science.

Margaret Murnane (University of Colorado at Boulder) has been named a National Security Science and Engineering Faculty Fellow by the U.S. Department of Defense.

Emiko Ohnuki-Tierney (University of Wisconsin-Madison) was named to the John W. Kluge Center's Chair of Modern Culture.

Adam Riess (Johns Hopkins University) was named a 2008 MacArthur Fellow.

Choon Fong Shih (National University of Singapore) received the Ted Belytschko Applied Mechanics Award.

Galen Stucky (University of California, Santa Barbara) was presented with the Department of Defense's Advanced Technology Applications for Combat Casualty Care Award.

Twyla Tharp (Twyla Tharp Dance Company) is among the recipients of the 2008 Kennedy Center Honors.

Anne Treisman (Princeton University) is the recipient of the 2009 University of Louisville Grawmeyer Award for Psychology.

Laurence H. Tribe (Harvard Law School) is the recipient of the 2009 Outstanding Scholar Award from the American Bar Foundation.

Edward O. Wilson (Harvard University) is the recipient of a Lifetime Achievement Award from the National Council for Science and the Environment.

William Wulf (University of Virginia) received the Award for Distinguished Public Service from the Institute of Electrical and Electronics Engineers in the United States.

New Appointments

Johnnetta Cole (Bennett College) has been named Director of the National Museum of African Art.

William Dally (Stanford University) has been named Chief Scientist and Vice President of Research of NVIDIA.

Jennifer Doudna (University of California, Berkeley) has been appointed Vice President of Discovery Research at Genentech, Inc.

Jan Ake Gustafsson (Stockholm, Sweden) was appointed to the Scientific Advisory Board of Biogen, Inc.

Yuan T. Lee (University of California, Berkeley) has been elected President of the International Council for Science.

Lawrence Lessig (Stanford University) has been appointed Director of Harvard University's Edmond J. Safra Foundation Center for Ethics.

Arthur Levitt (Carlyle Group) has been appointed to the Board of Trustees of Westport Country Playhouse.

J. D. McClatchy (Yale University) has been named President of the American Academy of Arts and Letters.

Bruce S. McEwen (Rockefeller University) was named to the Scientific Advisory Board of Allostatis LLC.

James E. Rothman (Yale University) was appointed to the Board of Directors of Introgen Therapeutics, Inc.

Nicholas Stern (London School of Economics and Political Science) was appointed Trustee of the British Museum.

Patty Stonesifer (Bill & Melinda Gates Foundation) was elected Chair of the Board of Regents of the Smithsonian Institution.

Select Publications

Poetry

Lucille Clifton (St. Mary's College of Maryland). *Voices*. Boa, November 2008

Geoffrey Hill (Cambridge, United Kingdom). *Selected Poems*. Yale University Press, March 2009

J.D. McClatchy (Yale University). *Mercury Dressing*. Knopf, February 2009

J.D. McClatchy (Yale University) and Stephen Yenser (University of California, Los Angeles), eds. *Selected Poems by James Merrill*. Knopf, October 2008

Fiction

Aaron Appelfeld (Ben-Gurion University of the Negev, Israel). *Laish*. Schocken, March 2009

Louis Auchincloss (New York City). *Last of the Old Guard*. Houghton Mifflin, December 2008

Louise Erdrich (Minneapolis, Minnesota). *The Red Convertible: Selected and New Studies, 1978–2008*. Harper, January 2009

Elie Wiesel (Boston University). *A Mad Desire to Dance*. Knopf, February 2009

Nonfiction

Henry J. Aaron (Brookings Institution) and Leonard E. Burman (Urban Institute). *Using Taxes to Reform Health Insurance*. Brookings Institution Press, December 2008

Peter Ackroyd (London Times, United Kingdom). *Poe: A Life Cut Short*. Doubleday/Talese, January 2009

Daniel Barenboim (Chicago Symphony Orchestra). *Music Quickens Time*. Verso, November 2008

Larry Bartels (Princeton University). *Unequal Democracy: The Political Economy of the New Gilded Age*. Princeton University Press, April 2008

Michael Bloomberg (Office of the Mayor, New York City). *Do the Hard Things First (and Other Bloomberg Rules for Business and Politics)*. Perseus/Vanguard, February 2009

John Bogle (The Vanguard Group, Inc.). *Enough: True Measures of Money, Business, and Life*. Wiley, November 2008

Alan Boss (Carnegie Institution of Washington). *The Crowded Universe: The Search for Living Planets*. Basic Books, February 2009

Paul Brest (William and Flora Hewlett Foundation) and Hal Harvey (William and Flora Hewlett Foundation). *Money Well Spent: A Strategic Guide to Smart Philanthropy*. Bloomberg Press, November 2008

Paul Brest (William and Flora Hewlett Foundation), **Sanford Levinson** (University of Texas at Austin School of Law), **Jack Balkin** (Yale Law School), **Akil Reed Amar** (Yale Law School), and **Reva Siegel** (Yale Law School). *Process of Constitutional Decisions: 2008 Case Supplement*. Aspen Publishers, Inc., August 2008

Bruce Cain (University of California, Berkeley), **Todd Donovan** (Western Washington University), and **Caroline Tolbert** (University of Iowa). *Democracy in the States: Experiments in Election Reform*. Brookings Institution Press, June 2008

Keith Christiansen (Metropolitan Museum of Art). *Duccio and the Origins of Western Painting*. Yale University Press, February 2009

Carl Djerassi (Stanford University). *Four Jews on Parnassus – A Conversation: Benjamin, Adorno, Scholem, Schönberg*. Columbia University Press, October 2008

Wendy Doniger (University of Chicago). *The Hindus: An Alternative History*. Viking/Penguin, March 2009

Gerald Early (Washington University in St. Louis) and E. Lynn Harris (Atlanta, Georgia; Fayetteville, Arkansas). *Best African American Fiction, 2009*. Bantam, January 2009

Marian Wright Edelman (Children's Defense Fund). *The Sea Is So Wide and My Boat is So Small: Charting a Course for the Next Generation*. Hyperion, September 2008

Robert Engle (New York University). *Anticipating Correlations: A New Paradigm for Risk Management*. Princeton University Press, February 2009

John Hope Franklin (Duke University) and Alvia J. Wardlaw (Museum of Fine Arts, Houston). *Collecting African American Art: The Museum of Fine Arts, Houston*. Yale University Press, February 2009

Henry Louis Gates, Jr. (Harvard University). *In Search of Our Roots: How 19 Extraordinary African Americans Reclaimed Their Past*. Crown, January 2009

Henry Louis Gates, Jr. (Harvard University) and Donald Yacovone (Harvard University), eds. *Lincoln on Race and Slavery*. Princeton University Press, March 2009

William H. Goetzmann (University of Texas at Austin). *Beyond the Revolution: A History of American Thought from Paine to Pragmatism*. Basic Books, March 2009

Anthony Grafton (Princeton University). *Worlds Made by Words: Scholarship and Community in the Modern West*. Harvard University Press, March 2009

Loren Graham (Massachusetts Institute of Technology) and Jean-Michel Kantor (Institut de Mathématiques de Jussieu, Paris, France). *Naming Infinity: A True Story of Religious Mysticism and Mathematical Creativity*. Harvard University Press, March 2009

Francine du Plessix Gray (New York City). *Madame de Staël: The First Modern Woman*. Atlas, October 2008

James S. House (University of Michigan), Robert F. Schoeni (University of Michigan), George A. Kaplan (University of Michigan), and Harrold Pollack (University of Chicago). *Making Americans Healthier: Social and Economic Policy as Health Policy*. Russell Sage Foundation, January 2008

Ada Louise Huxtable (New York City). *On Architecture: Collected Reflections on a Century of Change*. Walker, November 2008

Gwen Ifill (WETA, Arlington, Virginia). *The Breakthrough: Politics and Race in the Age of Obama*. Doubleday, January 2009

Ha Jin (Boston University). *The Writer as Migrant*. University of Chicago Press, November 2008

Nicholas deB. Katzenbach (Princeton, New Jersey). *Some of It Was Fun: Working with RFK and LBJ*. Norton, October 2008

Thomas Keneally (Avalon Beach, Australia). *Searching for Schindler: A Memoir*. Doubleday/Talese, October 2008

Margaret Levi (University of Washington), **Susan Stokes** (Yale University), James Johnson (University of Rochester), and Jack Knight (Duke University). *Designing Democratic Government: Making Institutions Work*. Russell Sage Foundation, September 2008

Lawrence Lessig (Stanford Law School). *Remix: Making Art and Commerce Thrive in the Hybrid Economy*. Penguin Press, October 2008

Leon F. Litwack (University of California, Berkeley). *How Free is Free? The Long Death of Jim Crow*. Harvard University Press, February 2009

Thomas Nagel (New York University), ed. *A Brief Inquiry into the Meaning of Sin and Faith with "On My Religion" by John Rawls*. Harvard University Press, March 2009

Mike Nichols (New York City), **Twyla Tharp** (Twyla Tharp Dance Company), **Mitsuko Uchida** (London, United Kingdom), John Lahr (*The New Yorker*), and Andre Gregory (New York City; London, United Kingdom). *Performance: Richard Avedon*. Abrams, October 2008

Richard E. Nisbett (University of Michigan). *Intelligence and How to Get It: Why Schools and Cultures Count*. Norton, February 2009

Ronald Numbers (University of Wisconsin-Madison). *Galileo Goes to Jail and Other Myths about Science and Religion*. Harvard University Press, March 2009

Hilary Putnam (Harvard University). *Jewish Philosophy as a Guide to Life: Rosenzweig, Buber, Levinas, Wittgenstein*. Indiana University Press, January 2009

Felix Rohatyn (FGR Associates). *Bold Endeavors: How Our Government Built America, and Why it Must Rebuild Now*. Simon & Schuster, February 2009

Richard Rose (University of Aberdeen). *Understanding Post-Communist Transformation: A Bottom Up Approach*. Routledge, January 2009

David O. Sears (University of California, Los Angeles), **James Sidanius** (Harvard University), Shana Levin (Claremont McKenna College), and Colette Van Laar (Leiden University, the Netherlands). *The Diversity Challenge: Social Identity and Intergroup Relations on the College Campus*. Russell Sage Foundation, December 2008

Eric J. Sundquist (University of California, Los Angeles). *King's Dream*. Yale University Press, January 2009

Murray Weidenbaum (Washington University in St. Louis). *The Competition of Ideas: The World of the Washington Think Tanks*. Transaction Press, September 2008

William Julius Wilson (Harvard University). *More than Just Race: Being Black and Poor in the Inner City*. Norton, March 2009

Theodore Ziolkowski (Princeton University). *Mythologisierte Gegenwart: Deutsches Erleben seit 1933 in Antikem Gewand*. Wilhelm Fink Verlag, January 2008

Theodore Ziolkowski (Princeton University). *Minos and the Moderns: Cretan Myth in Twentieth-Century Literature and Art*. Oxford University Press, June 2008

We invite all Fellows and Foreign Honorary Members to send notices about their recent and forthcoming publications, scientific findings, exhibitions and performances, and honors and prizes to bulletin@amacad.org. ■

From the Archives

This year marks the bicentennial of the birth of Charles Darwin, the British naturalist whose work on natural selection and the origin of species sparked intense debate. In 1860, Louis Agassiz, a zoologist and geologist, and Asa Gray, a botanist, participated in a series of meetings at the American Academy on Darwin's *Origin of Species*. Agassiz presented arguments in favor of divine creation and Gray defended the variability of species as proof of adaptation.

Darwin was elected a Foreign Honorary Member of the Academy in January 1874. His letter accepting his election is among the Academy's archival treasures.

Feb. 20th 1874

Down,
Beckenham, Kent.

Sir

I beg leave to acknowledge your
letter of Jan. 28th in which
you announce to me that the
American Academy of Arts
& Sciences has conferred on me
the distinguished honor of electing
me a Foreign Honorary Member.

I request that you will return to
the Academy my most sincere thanks
for this honor, & I remain
Sir

Your Obedient & Obliged Servant
Ch. Darwin

To the Secretary Am. Acad. of Arts & Sciences.

Letter to the Secretary of the American Academy from Charles Darwin, February 20, 1874, acknowledging his election as a Foreign Honorary Member.

Feb. 20, 1874

Down,
Beckenham, Kent.

Sir

I beg leave to acknowledge your letter of Jan. 28 in which you announce to me that the American Academy of Arts & Sciences has conferred on me the distinguished honour of electing me a Foreign Honorary Member. I request that you will return to the Academy my most sincere thanks for this honour, & I remain

Sir

Your obedient & obliged servant

Ch. Darwin