CREATIVITY IN THE POST-GOOGLE GENERATION

Harvard Engineer and Visual Artist David Edwards on Artscience

Economist Martin Weitzmann on Global Warming’s Effect on the Financial Landscape

The Weatherhead Center for International Affairs at 50

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Harvard engineer and visual artist David Edwards's new book *Artscience* explores the unique “zone” between the two disciplines and how it can catalyze innovation in areas from music composition to industrial design.

4 The Heat is On
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from the dean

A New Era Begins

I begin the academic year with high hopes and expectations for the Graduate School of Arts and Sciences. This is an unusual time in the history of the University, one that offers important new opportunities for innovation and collaboration. As dean of GSAS, I am a member of President Faust’s Council of Deans. This group—the deans of all the University’s schools—meets regularly to discuss our particular and collective goals. We also constitute the Allston Planning Group, a committee that will advise the president about developments on the new campus. There is a remarkable spirit of cooperation and engagement among this group, which augurs well for the future of GSAS and the University.

As we begin to think concretely about the Allston campus (the first major science complex there is now under construction), I want to bring you up to date on some of the other activities and developments at GSAS.

We continue to enhance and refine existing programs and initiatives. For example, the English Language Program, now in its ninth year, has had a substantial impact in achieving our goal that all GSAS students should master English as part of their studies. Such mastery is not only vital to assuring excellence in teaching—even more important, it will enable our students to participate in the central discourse and debates of their fields.

This year also marks the appearance of the first seven Graduate Seminars in General Education. This program (described in the last issue of Colloquy) invites faculty and graduate students to undertake the planning and development of courses for the new Harvard undergraduate General Education curriculum. Giving graduate students a substantive role in course design and implementation offers them a chance to sharpen important intellectual and pedagogic skills. Among this year’s offerings is a seminar on the history of food in America and a course on probability that’s jointly taught by a philosopher and a molecular biologist. In coming years, we expect the number of Graduate Seminars to grow substantially, helping build and sustain the new curriculum while simultaneously strengthening graduate education.

We will also be establishing Harvard Interdisciplinary Graduate Consortia. This new program will encourage collaboration not only between adjacent disciplines but across the University—interdisciplinary initiatives that our students and faculty have eagerly sought. Graduate Consortia will draw together faculty from a range of Faculty of Arts and Sciences departments, as well as from other schools, to offer proseminars, courses, lectures, and conferences in important interdisciplinary topics.

The first such consortium will go “live” this fall and is being offered by the University’s microbial Sciences Initiative, a field that has attracted intense interdisciplinary interest. Still in preparation are consortia in Energy and Environment and in Global Health. In each instance, the goal will be to draw together faculty and graduate students from across Harvard as a means of enhancing collaboration and promoting innovative, interdisciplinary approaches to complex intellectual and social problems.

All these activities reflect core priorities that I’m eager to focus on. Most important, I want to insure that our students have strong financial and social support during their sometimes arduous course of study. Given the demands of graduate education, it remains absolutely

Continued on page 16
About ten years ago, during a pause between hunting and pecking at a shared sushi platter, I asked the late, acclaimed neuroscientist Mircea Steriade why he decided to become a researcher. “When I was eighteen I realized I would never be good enough to become a world-class concert pianist,” I recall him saying. “So I took the only logical path. I gave up music and went to medical school.”

“You,” he said, eyeing me like an acolyte, “should dedicate your life to one thing and one thing only. I still play piano but just to teach my daughter.” The native Quebecker was as sure of the axiom as he was that, despite the early hour, 11.30 a.m., one could not eat raw fish without having the proper beverage: a tall, cold glass of beer.

Five years later, I had a far different conversation with David Edwards, Gordon McKay professor of the practice of bioengineering at the Harvard School of Engineering and Applied Sciences (SEAS). He bounded into my office, black hair all jangled in comic contrast to a neatly ironed white silk scarf tucked into his open collar. Sporting a light beard and black rectangular framed glasses, he looked like a French cinema star. At the time, Edwards was writing a book about the 19th-century French scholar and political figure Édouard Laboulaye, an ardent admirer of the United States who originally suggested the idea for the Statue of Liberty. Edwards was also in the midst of organizing a new Harvard course on innovation and idea translation; designing a lab/museum hybrid in Paris (his second home); and continuing his research into a nanoparticle-based inhalation delivery system for a tuberculosis vaccine. An entrepreneur to boot (his biotech company, AIR, sold in the late 1990s), Edwards had also just been awarded an $8-million-dollar grant from the Gates Foundation.

“Sometimes, I am doing so much, in so many areas, I have no idea what I am doing,” he said.

Despite his successes, he seemed less certain of his method—leaping over academic fields and juggling multiple interests—and more isolated than Steriade, who chalked up all accomplishments to singular dedication within a single locus. In *ArtScience: Creativity in the Post-Google Generation* (Harvard University Press, 2007), Edwards seeks to reassure readers that there are alternatives to business-as-usual pigeonholing. Through his own expe-

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**Imagination at Work**

*ArtScience: Creativity in the Post-Google Generation*

By Michael Patrick Rutter

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continued on page 14
Although never a partisan on environmental issues, Martin Weitzman, professor of economics, recently developed a strong interest in global climate disruption, and he began applying his talents to studying that problem.

“The economist is the floor manager on what to do about this,” Weitzman explains. His role is to “examine the science, including the uncertainties,” in order to determine when, and how much of existing economic resources should be used to address the problem, in a nation or in a world where a slew of other demands jockey for your tax dollars.

What Weitzman found alarms him: The probability of catastrophic global warming is “worrisomely large,” he says, and he’s laid out his concerns in the new paper “On Modeling and Interpreting the Economics of Catastrophic Climate Change” (available at www.economics.harvard.edu/faculty/weitzman/files/REStatFINAL.pdf).

According to John P. Holdren, the Teresa and John Heinz professor of environmental policy and professor of environmental science and public policy, Weitzman has “very elegantly and quite rigorously” demonstrated that there’s “no sound basis” (using either cost-benefit analysis or expected-utility calculations) for recommending against making significant (and immediate) societal investments in an effort to avoid “potentially catastrophic climate-change outcomes.” Holdren was given Weitzman’s paper by Colloquy, and does not know Weitzman.

Climate scientists have long been frustrated by economists’ perceived general lack of urgency about this topic, says Holdren. They feel that “most economists have not been taking adequate account of the possibilities for really immense damages if the human-driven disruption of global climate is not sharply reduced.”

Using statistical methods designed to cope with large uncertainties in the data, Weitzman’s calculations place the risk of 10 degrees Celsius warming (18 degrees Fahrenheit) at 5 percent over the next 200 years, and 20 degrees C. warming at one percent. Either change would probably destroy human civilization, and would likely result in extinctions equivalent to the five major extinctions that have been documented in the geological record.

“To be sure, the one-in-20 chance of catastrophic global warming far exceeds the latest results from the International Panel on Climate Change [IPCC],” says Weitzman—but for reasons that are partly political.
“They are only considering things that are scientifically verified, in the sense that there is a consensus about them,” Weitzman says. “They are looking for hard numbers, not soft numbers, although there is no hard-and-fast rule about where to draw the line.”

But when it comes to global climate disruption, the strength of some of the feedback loops—and even the feedback loops themselves—are very poorly defined, meaning that they haven’t been factored into the IPCC model.

For example, enormous quantities of methane, a greenhouse gas more than 20 times more potent than carbon dioxide, are buried in the permafrost, and in “clathrates.” The latter are essentially molecular cages formed by water at low temperatures under high pressure, which can enclose methane molecules. The quantity of methane stored in clathrates is thought to be so vast that it has attracted the attention of energy companies.

Weitzman hopes that recognizing the magnitude of the uncertainties in this area will itself help move the discussion forward. Explaining to policy makers “the artificial crispness conveyed by conventional approaches [using integrated assessment model–based cost-benefit analysis] … might go a long way towards elevating the level of public discourse concerning what to do about global warming,” he writes.

The likelihood of global climate catastrophe is far greater than any of the other half dozen or so types of global catastrophe that could happen, such as from genetically engineered crops getting into the environment, or from a large meteor impact, says Weitzman.

The high level of danger means that even the more controversial means for mitigating global warming, such as geo-engineering and nuclear power must be considered as mitigation measures.

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David Holtzman writes regularly for Colloquy. He lives in Lexington, Mass.
Around the World in
A HALF CENTURY OF HARVARD’S WEATHERHEAD CENTER FOR INTERNATIONAL AFFAIRS

It was created to address the then-very-hot Cold War and its ramifications for the Atlantic community, on developing nations, and on conducting foreign policy in a nuclear age. Fifty years later, the Weatherhead Center for International Affairs—formerly the Center for International Affairs (CFIA)—contends with matters that are far “hotter” than any cold warrior could have imagined and accordingly has extended its purview to far more distant corners of the globe.

The center was necessary, wrote the CFIA’s first director Robert Bowie in the center’s early mission statement, because “nowhere do traditional attitudes fit new realities.”

At the time, Harvard had two strong regional studies centers: the Center for Asian Studies (later known as the Asia Center and including the Fairbank Center for Chinese Studies, Reischauer Institute of Japanese Studies, and Korea Institute) and the Davis Center for Russian Studies. The CFIA would focus largely on the West’s response to global challenges.

It would also be a place where practitioners would commingle with scholars, promised its founders. Today, the Weatherhead is the largest center for international research at Harvard and it can be credited with helping to develop the modern study of international relations.

2. Ibid., pg. 13.

In the photo on the left are the members of the then-Center for International Affairs, 1959–60. Those standing in the front row include Thomas Schelling (second from left), Director Rober R. Bowie (third from left), and Associate Director Henry Kissinger (second from right). The photo on the right shows a substantially larger group of 2006–07 associates. Current Director Beth Simmons is standing in the first row center, ninth from the left. Photos from the book In Theory and In Practice.
However, during that era—the mid-1950s—some Harvard faculty members balked at the idea of a center for international studies, believing the subject belonged more properly to the world of journalists and media pundits, not to academicians. Nonetheless, with a major grant from the Ford Foundation, plans—vague as they were at this stage—proceeded, with a general directive to study the human behavior of international actors.

McGeorge Bundy was the “spark plug” for the CFIA, according to first director Bowie. Bundy (who died in 1996), is best remembered as the national security advisor to Presidents John Kennedy and Lyndon Johnson. But he had been serving since 1953 as dean of the Faculty of Arts and Sciences. It was Bundy who lured Bowie away from government service to head the CFIA.

A Harvard Law School graduate and former faculty member there, Bowie had been serving as director of the Policy Planning Staff at the U.S. State Department when Bundy came to call. Following World War II, Bowie had served as assistant to General Lucius Clay, commander of the military occupation in the American Zone of the newly divided Germany.

Bowie chose Harvard, becoming not only the center’s first director but also a professor of international affairs.

Bundy wasn’t done recruiting, though. As associate Director, he brought in a fairly new PhD recipient: Henry Kissinger (AB ’50, PhD ’54). At the time of the appointment, Kissinger was in New York considering a job with the Council on Foreign Relations, for whom he had conducted a study on nuclear weapons and foreign policy. Kissinger was already a well-known figure in foreign policy circles, writing for Foreign Affairs and consulting with several government agencies. But, again, Bundy proved a great persuader.

With these two formidable individuals in place, the CFIA began its uncertain course toward defining a new area of study and finding its place within academia. Bowie and Kissinger set a precedent that center executives should maintain links to continued on page 12
CONSIDER THE FOLLOWING SCENARIO: A community is peopled by a “specialist in violence” and two groups of citizens. Headed by powerful patrons, the groups can act in a unified manner. The specialist in violence earns his living from the use of force; he either seizes the wealth of others or pockets funds they pay for their protection. Sheltered behind their patrons, the citizens generate incomes by engaging in productive labor; but they too can be mobilized either to seize the income of others—or to defend their incomes from seizure. The three personages in this drama repeatedly interact over time. The question is: Can political order prevail in such a setting?

The answer is: Yes. Under certain circumstances, the specialist will chose to use his control of the means of violence to protect rather than to despoil private property. And the groups of citizens will chose to devote their time and energies to labor and leisure and forswear the use of arms, while rewarding the specialist in violence for protecting them against raids by others. In addition, under certain well-specified conditions, these choices will persist in equilibrium, rendering political order a state.

The primary reason for this outcome is that the players interact over time. The specialist in violence and political organizations can therefore condition their future choices on present behavior; that is, they can make threats and inflict punishments and thus shape the behavior of others. Should one group raid or withhold tax payments, the specialist can retaliate by changing from guardian to predator. And should the specialist opportunistically seize the wealth of the member of a group, his defection would trigger punishment by that citizen’s confederates: They can withhold tax payments or mobilize for fighting. If not sufficiently paid for the provision of security, the specialist in violence can pay himself: he can turn upon or left undefended, then the citizens can furnish their own protection; they can take up arms.

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**“A Fable”**

By Robert H. Bates

*Bates is the Eaton professor of the science of government.*


**“The Paradox of Patronage”**

Marjorie Garber

Garber is the William R. Kenan Jr. professor of English, director of the Humanities Center, chair of the Department of Visual and Environmental Studies, and director of the Carpenter Center for the Visual Arts.

From *Patronizing the Arts*. Copyright © 2008 by Princeton University Press. Published by Princeton University Press, Princeton, NJ.

**ARTISTS HAVE ALWAYS HAD PATRONS.** From the time of Maecenas, a wealthy Etruscan noble who supported Virgil and Horace and was duly celebrated in their verse, to the Medicis and later the popes, and then to Isabella Stewart Gardner and the Guggenheim and MacArthur Foundations, rich sponsors have often supported painters, sculptors, and poets. And inevitably, these relationships have been loaded—fraught with over- and underestimation, with pettiness as well as generosity, with disdain as well as desire.

The artist had the talent, and the patron the money. In some cases, though by no means all, the dynamic of the relationship involved forgetting this key and defining fact. Artists, who often have very little money, could occasionally live as if they were rich, or at least live among the rich, receive invitations to their parties, and be received at their city and country homes. And patrons, who often have, though by no means always, possessed considerable artistic vision and taste, could experience pleasure in a creative society of people and be made to feel that their place in the world might transcend the means by which they came to financial and social prominence. By mobilizing the fantasies that artists have about patrons, and vice versa, productive instances of patronage can be forged and precipitated. For example, when he wanted to raise funds to rebuild Shakespeare’s Globe Theatre, the American actor Sam Wanamaker put together a highly effective coalition of philanthropic socialites, actors, and British and American academics. Each was possessed of a quality or attribute lacking in, and admired by, the others—wealth, fame, charisma, gravitas.

A complicated and contradictory mixture of deep gratitude and powerful resentment is thus built into the dynamic of patronage. Which of these two will predominate in any given encounter between patron and protégé is never entirely predictable, although the volatility of their
bond has been the stuff of many historical biographies and romanticizing films, such as the 1984 hit *Amadeus* and the 1988 French period piece *Camille Claudel* (featuring Gérard Depardieu as Auguste Rodin and Isabelle Adjani as his eponymous admirer). Indeed, as we have already noted, the relationship between patron and artist often follows the psychic structure of a love affair, with attendant fantasies, appropriations, misunderstandings, and disappointments. The more disinterested this relationship appears, the greater is its capacity to surprise and disconcert one party or the other—or both.

"Character"
By James Wood

*Wood is professor of the practice of literary criticism.*

It is getting these people out of the aspic of arrest and mobilized in a scene that is hard. When I encounter a prolonged ekphrasis like the parody above, I worry, suspecting that the novelist is clinging to a handrail and is afraid to push out.

But how to push out? How to animate the static portrait? Ford Madox Ford, in his book *Joseph Conrad: A Personal Remembrance*, writes wonderfully about getting a character up and running—what he called “getting a character in.” He says that Conrad himself “was never really satisfied that he had really and sufficiently got his characters in; he was never convinced that he had convinced the reader; thus accounting for the great lengths of some of his books.” I like this idea, that some of Conrad’s novels are long because he couldn’t stop fiddling, page after page, with the verisimilitude of his characters—it raises the specter of an infinite novel. At least the apprentice writer, with his bundle of nerves, is in good company, then. Ford and Conrad loved a sentence from a Maupassant story, “La Reine Hortense”: “He was a gentleman with red whiskers who always went first through a doorway.” Ford comments: “That gentleman is so sufficiently got in that you need no more of him to understand how he will act. He has been ‘got in’ and can get to work at once.”

Ford is right. Very few brushstrokes are needed to get a portrait walking, as it were; and—a corollary of this—that the reader can get as much from small, short-lived, even rather flat characters as from large, round, towering heroes and heroines. To my mind, Gurov, the adulterer in “The Lady with the Little Dog,” is as vivid, as rich, and as sustaining as Gatsby or Dreiser’s Hurstwood, or even Jane Eyre.

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**Philosophy**

Irvig Block, PhD ’58, has published a new book, *G-d, Rationality, and Mysticism* (Marquette, 2008), which argues that belief in God is not incompatible with rationality, and that rationality leads to religious mysticism. He is professor of philosophy emeritus at the University of Western Ontario and has published widely, particularly on Aristotle and Wittgenstein.

**Physics**

Mark P. Silverman, PhD ’73, recently published the sixth book of his experimental and theoretical researches, *Quantum Superposition: Counterintuitive Consequences of Coherence, Entanglement, and Interference* (Springer, 2008). The book, which greatly expands his Erskine Lectures (published as *More Than One Mystery: Explorations of Quantum Interference* (Springer, 1995)), details his contributions to the foundations and practical applications of quantum physics. Silverman, who was the Joliot professor of physics at the École Supérieure de Physique et Chimie Industrielles (Paris) and chief researcher in quantum physics at the Hitachi Advanced Research Laboratory (Tokyo) is professor of physics and department head at Trinity College (Conn.). He has written of his contributions to optics in *Waves and Grains: Reflections of Light and Learning* (Princeton, 1998), to atomic spectroscopy in *Probing The Atom* (Princeton, 2000), and to gravitation and astrophysics in *A Universe of Atoms, An Atom in the Universe* (Springer, 2002).

**Psychology**

Howard S. Friedman, PhD ’76, received the 2008 James McKeen Cattell Fellow Award from the Association for Psychological Science for outstanding contributions to the area of applied psychological research. He is distinguished professor of psychology at the University of California at Riverside.

Joanna Bunker Rohrbaugh, PhD ’76, has her book *A Comprehensive Guide to Child Custody Evaluations: Mental Health and Legal Perspectives* published recently (Springer, 2007). The up-to-date guide covers legal issues, psychological findings, and forensic procedures, emphasizing professional ethics, children’s psychological well-being, and clear communication among all parties as keys to resolving disputes with efficiency and minimizing the chances of children and their families getting lost in red tape. Rohrbaugh is director of Rohrbaugh Associates (Cambridge, Mass.) and clinical instructor in psychology at Harvard Medical School.
THE CHINESE CULTURAL REVOLUTION
A History
By Paul Clark, PhD ’83, history and East Asian languages

This collection is the first to survey the history of religious print culture in postbellum and modern America, and, the editors maintain, offers vital insights for understanding American religious history in that era, particularly its surprising diversity. Essays cover the “culturally relevant” Bible, coverage of the Scopes trial, and the spread of religious mass market paperbacks. Boyer is the Merle Curti professor of history emeritus at the University of Wisconsin at Madison, where he chaired the Center for the History of Print Culture in Modern America. His many books include Purity in Print: Book Censorship in America from the Gilded Age to the Computer Age (Wisconsin, 2002); he is editor in chief of The Oxford Companion to United States History.

IF BY SEA
The Forging of the American Navy—From the Revolution to the War of 1812
By George Daughan, PhD ’68, government

Conjure up an image of the American Revolution, and chances are it won’t involve naval warfare. But it should, says Daughan, because the American navy was founded in the context of the Revolution. Here, he recounts the story of how the force came into being, including the arguments by founding fathers about whether the nation should even maintain a navy and why naval warfare during the Colonial era has been historically overlooked. Daughan has taught at the Air Force Academy, Connecticut College, and other universities.

RELIGION AND THE CULTURE OF PRINT IN MODERN AMERICA
Edited by Charles L. Cohen and Paul S. Boyer, PhD ’66, history

INTRODUCING BERT WILLIAMS
Burnt Cork, Broadway, and the Story of America’s First Black Star
By Camille F. Forbes, PhD ’02, history of American civilization

Bert Williams (1874–1922), writes Forbes, was considered the greatest comedian on the American stage, during the height of the vaudeville era—but few know his name today. In this biography, Forbes brings to life the unjustly obscure star, revealing his artistic development and influence, and the complexities of a black man performing for largely white audiences during an era of “black face” entertainers. Forbes is assistant professor of African American literature and culture at the University of California at San Diego.
JULIUS CAESAR

By Philip Freeman, PhD '94, classical philology/Celtic languages and literatures

Children suffer more than most when war comes, not only as civilian victims but—increasingly—as combatants. In this collection of essays, academics, pediatricians, novelists, and others contend that, rather than shying away from these issues, literature should address them head-on. The various essays address the themes of violence and warfare in children’s literature and attempt to anticipate themes to come. Contributors include Harvard’s Maria Tatar. Goodenough is a lecturer in English at the Residential College of the University of Michigan and editor of Secret Spaces of Childhood (Michigan, 2003), among other books.

UNDER FIRE

Childhood in the Shadow of War

Edited by Elizabeth Goodenough, PhD ’82, English and American literature and language; and Andrea Immel

In these two volumes, the former chief historian of the NASA Dryden Flight Research Center takes readers from the early years of American rocketry to the massively high-tech vehicles of today’s space program, recounting the triumphs and failures, the controversies and personalities. Hunley also served as a historian for the US Air Force, NASA History Division, and the National Air and Space Museum.

HISTORY LESSON

A Race Odyssey

By Mary Lefkowitz, PhD ’61, the classics

Lefkowitz, the Mellon professor in the humanities emerita at Wellesley College, describes the troubling experience at her college as she tries to correct the spread of bad classical history. In return, she is accused of racism and anti-Semitism, and even faces a lawsuit meant to silence her. Lefkowitz has published widely on classical culture, including her books Greek Gods, Human Lives: What We Can Learn from Myths (Yale, 2005) and Not Out of Africa: How Afrocentrism Became an Excuse to Teach Myth as History (Basic Books, 1996). In 2006 she was awarded a National Humanities Medal.

continued on next page
In literature, the reader experiences emotions in reading about the fictional lives of others, but scholarship has not caught up with this phenomenon, says Wesling. In this new volume, he presents the landscape of writing on emotion—in several fields—followed by close readings of emotionalism in works by Shakespeare, William Carlos Williams, and other writers. Wesling is professor of English and American literature emeritus at the University of California at San Diego and the author of The Scissors of Meter: Grammetrics and Reading (Michigan, 1996), among other books.

**JOYS AND SORROWS OF IMAGINARY PERSONS**

**On Literary Emotions**

By Donald Wesling, AB ’60, PhD ’65, English and American literature and language Rodopi, 2008, 221 pp.

In literature, the reader experiences emotions in reading about the fictional lives of others, but scholarship has not caught up with this phenomenon, says Wesling. In this new volume, he presents the landscape of writing on emotion—in several fields—followed by close readings of emotionalism in works by Shakespeare, William Carlos Williams, and other writers. Wesling is professor of English and American literature emeritus at the University of California at San Diego and the author of The Scissors of Meter: Grammetrics and Reading (Michigan, 1996), among other books.

Authors: GSAS alumni/ae who have published a general-interest book within the past year and would like it to be considered for inclusion in Alumni Books should send a copy of the book to: Colloquy, Harvard Graduate School of Arts and Sciences, Holyoke Center 350, 1350 Massachusetts Avenue, Cambridge, MA 02138-3846. Questions? E-mail gsas@fas.harvard.edu.

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In 1969, CFIA advisor Benjamin Brown was bloodied in an attack on the center by radical students, and, in 1970, a bomb was detonated in the center library, destroying several offices. However, there was no monolithic view—positive or negative—on the war at the CFIA, according to center historian David Atkinson.

Since those early days, the center has grown substantially, in size, reach, and wealth. In November 1997, Albert J. Weatherhead III, AB ’50, head of the Weatherhead Foundation, and his wife give $21 million to the CFIA, which was renamed the Weatherhead Center for International Affairs.

New directors have come and gone, including such prominent figures as Samuel P. Huntington (now the Albert J. Weatherhead university professor emeritus), Robert Putnam (now the Peter and Isabel Malkin professor of public policy), Joseph Nye (now the Sultan of Oman professor of international relations at the Kennedy School of Government and Harvard University distinguished service professor), and Jorge Dominguez (now the Antonio Madero professor of Mexican and Latin American politics and economics and vice provost for international affairs). All, except for Putnam, are GSAS alumni.

Well over a hundred books have been published under the center’s aegis, from Zbigniew Brzezinski’s The Soviet Bloc (1960) to Timothy Colton’s Yeltsin: A Life (2008). Hundreds of graduate students—known as associates—have enjoyed the center’s nurturing environment, and a greater number of scholars, diplomats, politicians, and policy-makers have conducted research and presented seminars there.

Still, because the world—including the social sciences—evolves, the center evolves, too. Where it once focused on how other nations—particularly the nuclear powers—affected the doings of the United States (and how this country affected other powers), it came to respond to the realities of global interdependence and to take on projects well beyond those solely involving American interests.

“As the world is continually redrawn, those projects must become even more creative and far-reaching, says current director Beth Simmons, the Clarence Dillon professor of international affairs (a title all center directors have held during their tenures). “Since the 1980s, we’ve had more economists, more historians, more sociologists and anthropologists, and more people from all the professional schools [at Harvard], not just the Faculty of Arts and Sciences,” Simmons says.

WCIA associates lately have been focused on projects focusing on topics such as globalization and public opinion, religion and international affairs, and the coping strategies of marginalized ethnic groups throughout the world.

“Over the last decade, the center has greatly broadened its horizons, which is demonstrated by the growing variety of affiliates we have,” adds Simmons. “Projects and ideas bubble up from the faculty, and we facilitate their ideas.”

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HARVARD SCIENTIST WINS COVETED “GENIUS GRANT”
In September, the MacArthur Foundation named 25 new MacArthur fellows for 2008, including Harvard’s Rachel Wilson, assistant professor of neurobiology. Her work involves understanding how the brain distinguishes different smells. Since types of smells vary across many more dimensions than physical senses of light or sound, determining the neural activity patterns in olfaction represents an important step in sensory physiology and may serve as a template for understanding other more abstract forms of neural representation, such as speech recognition or color. By developing experimental models that integrate electrophysiology, neuropharmacology, molecular genetics, functional anatomy, and behavior, Wilson opens new avenues for exploring a central issue in neurobiology—how neural circuits are organized to sense and react to a complex environment. Fellows are selected for exceptional creativity, promise for important future advances based on a track record of significant accomplishment, and potential for the fellowship to facilitate subsequent creative work. The fellowship is a “no strings attached” award that comes with a stipend of $500,000 to the recipient, paid out in equal quarterly installments over five years.

AMERICAN ACADEMY OF ARTS AND SCIENCES 2008 CLASS OF FELLOWS HAS LARGE HARVARD CONTINGENT
The newest members of the prestigious academy, located in Cambridge, Mass., include these Harvard Faculty of Arts and Sciences members: Susan C. Athey, professor of economics; Mahzarin Banaji, the Richard Clark Cabot professor of social ethics; Janet Browne, the Janet Aramont professor of the history of science; Benjamin Buchloh, the Andrew W. Mellon professor of modern art; Lawrence Buell, the Powell M. Cabot professor of American literature; Nancy F. Cott, the Jonathan Trumbull professor of American history; Daniel Gilbert, Harvard College Professor and professor of psychology; David Kazhdan, professor of mathematics emeritus; Gülru Necipoğlu, the Aga Khan professor of Islamic art; Jeremy C. Stein, the Moise Safran professor of economics; and Xiaoliang Xie, professor of chemistry.

Faculty with Medical School appointments are: Kevin Struhl, the David Wesley Gaiser professor of biological chemistry and molecular pharmacology; Judith Lieberman, professor of pediatrics; Timothy J. Mitchison, the Hasib Sabbagh professor of systems biology; Jerome Groopman, the Dina and Raphael Recanati chair of medicine; Rakesh K. Jain, the Andrew Werk Cook professor of tumor biology; Norbert Perrimon, professor of genetics; and Leonard Ira Zon, the Grousbeck professor in hematology and oncology. Faculty with Law School appointments are: William J. Stuntz, the Henry J. Friendly professor of law, and Elizabeth Warren, the Leo Gottlieb professor of law.

WORLD’S TOP YOUNG INNOVATORS INCLUDE HARVARD ENGINEERING DUO
In the August 2008 issue, Donhee Ham and Robert Wood were recognized in Technology Review’s annual listing of the world’s top young innovators under the age of 35. Ham, the John L. Loeb associate professor of the natural sciences, was recognized for his role in building one of the smallest complete nuclear magnetic resonance (NMR) systems to date. The lightweight system delivers 60 times more sensitivity than a 120-kilogram commercial machine. In addition to the obvious benefits of being portable (ideal for use on battlefields and other remote locations or en route to medical facilities), the boost in sensitivity could enable physicians to find pathogens or tumors much earlier, at the first sign of a disease.

Wood, assistant professor of electrical engineering, also received praise for thinking and designing on a small scale, perfecting a life-sized microrobotic fly (research noted in the summer 2008 issue of Colloquy). Wood’s fly is believed to be the first such biomorphic bug of its size and shape to actually take off. He envisions that some day a fleet of such flies could rapidly fan out to scout an area (for civilian or military surveillance) or be used for detection (such as to check for potential forest fires or to enhance search-and-rescue missions in hard-to-reach or dangerous places).
experiences—and interviews with like-minded others—he raises the exciting prospect of operating not just “outside the box” but beyond boxes altogether. It’s a bracing read, especially if you’ve ever found yourself dancing among plural disciplinary or professional allegiances.

His interview subjects and fellow artscientists—from France, Germany, and the United States—all belong to the “post-Google” generation and have all succeeded in their mixing of art and science.

Readers will meet, among others, Don Ingber, a Harvard cell biologist who, after becoming inspired by a sculpture, found on the slopes; and Anne Goldfeld, a physician turned documentarian who used photography and theater to advocate for a public health program in Africa.

At first, Edwards’s approach smacks of “personalized colonialism,” attempting to hang the same label on a handpicked collection of individuals who have blended the worlds of art and science. He, however, probes deeper, searching for an explanation for the ineffable ‘ah-ha’ moments that led such “artscientists” to break down traditional barriers despite experiencing “loneliness, institutional discouragement, and even fear.”

Moreover, his Virgil leading him through the depths of creativity is pragmatist John Dewey. Edwards relies upon exemplars (as above), examples (a science exhibit in the middle of the Louvre), and results (using music to heal patients).

That said, readers expecting Artscience to be a paint-by-numbers guide to creativity (here’s how to think outside the box!) or a volume of business wisdom told through animal anecdotes will be disappointed. Likewise budding historians of science beware, as Edwards steers clear of the standard debates about “what is art?” and “what makes science scientific?” He dismisses the tired dichotomy of C.P. Snow’s Two Cultures. In fact, Edwards and his fellow artscientists remain mystified about the origins of their epiphanies. Innovation simply found a way.

In the case of Ingber’s blending buckeyballs with biology, Edwards writes, “This was not his idea. At this point Don had no real idea. He did not know how to think yet as a researcher, was not confident it was even what he wanted to be. But he was very curious, and this particular curiosity seemed his own.”

For the skier/architect Rose, Edwards reports, “Skiing made Peter decide there was something else he could do with his life that would make him feel free. Nobody had told or showed him that as he grew up in Montreal.” Likewise, when Edwards turns the lens on himself—a closet fiction writer, researcher, and accidental entrepreneur—he says, “I felt like an impostor.”

By not filling in the blanks to assert meaning, does Edwards leave the reader with little more than a series of idiosyncratic anecdotes? Innovators whose stories are fascinating, likely connected, and hinting at some central truths, but whose take-home message is—basically—“Don’t try this at home”? Edwards, thankfully, weaves between individuals and institutions, dedicating a chapter each to cultural, academic, humanitarian, and industrial organizations.

Although the artscientists Edwards interviews serve to inspire (“those who personally and rather uniquely possess an idea”), the idea to action path will take place not in their heads but in labs, studios, and museums. His goal, after all, is to encourage a “free and relevant path to innovation” not to articulate a full understanding of the creative process.

Practically, this means removing barriers (departments, political bottlenecks, lack of funding), while keeping the overall support structure intact. Open walls are fine, but not having a roof will leave even the most creative minds wet. Institutions, particularly knowledge-based ones like universities and museums, often provide just enough freedom (or benign neglect) for motivated individuals to flourish; Edwards, Ingber, Rose, and many of the other artscientists found their footing in such places.

Yet, Edwards warns that even the most liberal institutions exist for their own ends, frowning on cell biologists who sculpt or artists who long to be engineers.

Imagine, Edwards proposes, a young graduate student dedicated to her degree/career. She discovers that her research on luminescent algae, if taken a few steps further, could revolutionize eco-friendly lighting. However, she is so focused on institutional expectations or so distracted by other pressures (funding, family life, a demanding advisor) that she takes the road more traveled. As a result, “her idea ceases (at least temporarily) to translate toward greater human impact because her organization is not prepared to measure impacts outside its particular idea-impact realm.”

For every bold artscientist, there are countless others who suppress the creative spark or are so tightly focused that they miss the glimmer of an idea altogether.

To be fair, think back to my friend Mircea—his singular focus worked well for him. True, Edwards, might say, but there...
are other routes to innovation, especially in the open source, global, Internet age. Edwards's overarching aim is thus far less personal than it first seems: “What if research institutions were to find ways to lower these barriers to artsience? Might more ideas—and idea translators—flow into them?” Again, the goal is not simply to populate such places with people like Edwards and his fellow artscientists, but also to catapult ideas into actions—the kind of actions that make a far richer world. At the very least, lowering barriers could encourage everyone to uncork a nascent dream or two.

Ever the pragmatist, Edwards is building what he calls an “idea lab” based upon a few basic tenets: Process matters.

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**In Memoriam**

Stanley W. Page, PhD ’47, history, died June 22, 2008, at age 94. He taught Russian history and psychohistory (a field he helped develop) at City College of New York (CCNY) for 35 years. His books include Lenin and World Revolution, The Formation of the Baltic States, and Russia in Revolution. In 1975, Page was part of what came to be known as the “City College Five,” a group of professors who opposed the lowering of standards for graduation as they strove to maintain CCNY’s standing as one of the finest schools in the country. His outspoken stance almost cost him his tenure, but the New York Civil Liberties Union intervened, and Page continued to teach until his retirement in 1983. He then became editor of the English edition of the Korea Times and was a frequent contributor to the New York Times and other New York-area newspapers. Fluent in Russian and German, Page also took great pride in helping immigrants adjust to America by teaching English as a second language at Touro College (New York). He was, writes his daughter, “a caring and loving soul who radiated warmth and joy.”

Submit Alumni Notes to: Colloquy, Harvard University Graduate School of Arts and Sciences, Holyoke Center 350, 1350 Massachusetts Avenue, Cambridge, MA 02138-3846; fax: 617-496-5333; or gsaa@fas.harvard.edu. Please include your telephone number or e-mail address. Alumni Notes are subject to editing for length and clarity.

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Writes Edwards: The story of Archimedes leaping out of the Greek baths and running naked down the street (shouting his eponymous “Eureka!”), after having discovered the principle of buoyancy, is perhaps our most famous metaphorical illustration of the ultimate creative insight. Of course, the years of learning, the countless times Archimedes needed to enter the baths and notice the water spill over the edge, the long development of the liberated personality that had euphoric Archimedes running to see the king without a stitch of clothing—all that goes unspoken. Pictured: Archimedes (1630), by Jusepe de Ribera (1591–1652), in Spain’s Prado Museum.
more than results. Experiments are never repeated. Results are never bad.

“A n artscience laboratory gives the power back to the creators who gave us power in the first place. It asks them to create and not absorb lessons. It gives them the advantage of experience and the opportunity for discovery. It shows them how to fail and recover and how to communicate,” he writes. Whether this concept will translate and scale to larger institutions is not clear, but in several small ways, Edwards’s concept for innovation has found a way.

In his “Idea Translation” course, ES 147, a group of students won funds to develop their low-cost microbial fuel-cell lighting system for Africa that relies on dirt for power; Ling Wong, one of Edward’s talented graduate students, once having received money from the Gates Foundation, now works for them to give the money to others to help improve global health; and Le Laboratoire, the first artscience gallery, opened last October in Paris. On a larger scale, such thinking may be trickling upwards. Harvard, for example, is actively re-inventing interdisciplinary research, creating school-to-school collaborations, centralizing funding, and promoting “start-up” initiatives—all concepts unheard of less than a decade ago for a place famed for “every tub on is own bottom.”

With the desire to keep innovation percolating, surprisingly, Edwards does not address what such channeled creativity should “do” or be directed toward. Just as the process of creativity remains in a black box, results, while very real, often are secondary. The artscientists profiled rarely set out to cure a disease, invent a new art form, or—more broadly—to make the world a better place. He hints that having a fixed end in mind limits vision; better to be swept along.

With barriers lowered, field-mixing encouraged, and freedom preserved in a suitable structure, the sought-after “Eurekas!” will likely flourish even (and perhaps especially) if they can never be fully explained. The simple truth: It is best not to worry about what artscience actually is (that includes Edwards’s own definition) any more than trying to codify the taste of a perfect meal or to bottle the experience of a rosy sunset. As the iconoclast—and no doubt honorary artscientist—Buckminster Fuller wrote, “There is nothing in a caterpillar that tells you it’s going to be a butterfly.” In other words, allow yourself to be surprised.

Michael Patrick Rutter is communications director at Harvard’s School of Engineering and Applied Sciences.

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[continued from previous page] critical that we have adequate financial aid for our students. The provision of a dedicat-ed five-year package of funding for doctoral students has been a major step forward for GSAS. But to attract the most talented students (in a highly competitive setting) we must be sure that our offers provide appropriate support so our students can sustain and complete their important work.

Besides financial support, our students benefit from an exceptional intellectual and social environment. In this respect, Dudley House and all its activities are central to life and learning in GSAS. In addition, we need to see that our students have access to quality health care and that those who are—or become—parents during the course of their studies will have access to child-care benefits and support.

The Graduate School Alumni Association (GSAA) Council has served, even in this early phase of my deanship, as an outstanding source of support and an invaluable sounding board on these and other critical issues facing GSAS. This remarkable group of alumni remains centrally involved in seeing that GSAS retains its stature as a place of great learning and discovery.

This fall we will mark an important transition in the Alumni Council. Sandy Moose, PhD ’68, economics, who has led the GSAA Council with great dedication and insight, will be succeeded by Allen Sangines-Krause, PhD ’87, economics. Allen is a longtime council member, and I am confident that his energy and enthusiasm will be invaluable as he takes on this new challenge. I am enormously grateful to both Sandy, Allen, and all the council members for their service and commitment to GSAS.

During the coming year, I look forward to working closely with the GSAA Council and to meeting many alumni at GSAS chapter events around the country. And I’m eager to have your ideas and counsel as we move forward.
ELP Helps Students Soar

The English Language Program (ELP), now in its ninth year, provides invaluable assistance to many international graduate students—not just through improving their English language skills but also preparing them for life at Harvard. A highly intensive program, the ELP has remained relatively small, though it’s grown steadily since its inception in 2000. This year, approximately 60 students are enrolled.

Monika Floyd, a new ELP instructor and current preceptor for the Institute for English Language Programs (which helps administer the ELP), explains the program’s appeal: “The ELP classroom is composed of graduate student experts from many different subjects and many different countries. What is most exciting is that everybody, including the instructor, is a learner in the classroom.”

Focusing on integrated skills—reading, writing, speaking, and comprehension—the four-week program prepares students for the demands of studying in a foreign country, while simultaneously providing an introduction to American culture and the American classroom. Students meet for six hours a day, Monday through Friday, and for three hours on Saturday. The program begins with a session on learner training, in which instructors consciously initiate a relationship of mutual responsibility. In sharing responsibility for reaching linguistic goals, students are able to contribute their particular talents to the group, receive direct feedback, and make active links between what happens in the classroom as well as in the world encompassing the classroom. The design of the program engages texts and issues that traverse the liberal arts curriculum. Through academic consultation, negotiation, demonstration, and practice, students are able improve their overall comprehension and proficiency. The high point of the program for most participants is the opportunity to participate in micro-teaching at the Derek Bok Center for Teaching and Learning. There, they receive feedback on their presentation skills from instructors, undergraduates, and fellow graduate students.

“It’s interesting for me to hear other students speak and see them improve their language skills,” says Sun-Hee Bae, a linguistics student from Korea. Bae was encouraged to join the ELP by another Harvard student. “I thought it would be a great opportunity to meet other colleagues from different cultures and majors, and to traverse the liberal arts curriculum.

In making the gift, Froewiss, a longtime member of the Graduate School Alumni Association Council, recognized that it would benefit students from both schools. “The ELP is important to international graduate students because it enhances their ability to take advantage of academic opportunities and eases their transition to a different language and culture,” he says. “Undergraduates also benefit because [those] graduate students develop into better teaching fellows, tutors, and laboratory assistants.”

Having worked for the Federal Reserve as an economist and then as an investment banker, Froewiss himself now works in higher education—at New York University’s Stern School of Business. In addition, Froewiss has served in the U.S. Army and completed 12 months of rigorous Russian language training at the Defense Language Institute. As a result of his experience with language training, and through his work at NYU, he has witnessed and come to understand the challenges that international students face in adjusting to American culture and language. His background has heightened his sensitivity toward an issue he learned about nine years ago as a member of the Graduate School Alumni Association Council when George H. Heilborn AM’58 served as the chair.

“If Harvard is to maintain its role as a preeminent university, clearly to attract top faculty it must attract top graduate students from every corner of the world, many of whom happen to come from non-English-speaking countries,” Froewiss says. “This issue creates a need worthy of our support, and the impact of a gift in this area can be felt quite immediately in a student’s career. It’s real, palpable, and dramatic in its effect.”

The Graduate School Fund provides discretionary funding for areas that need it most, like the ELP. To learn more about supporting the Graduate School of Arts and Sciences, please contact Marne Perreault at 1-800-VERITAS or marne_perreault@harvard.edu. Visit the GSF online at post.harvard.edu/harvard/gsf.
Alumni Events and Notices

For more information about any of the following events, e-mail gsaa@fas.harvard.edu or call the Graduate School’s Office of Alumni Relations at 617-495-5591.

CHAPTER EVENT
Thursday, November 20, Harvard Club of New York, Gordon Reading Room, 27 West 44th Street, New York City. Joseph Newhouse, the John D. MacArthur professor of health policy and management, will speak on “The Paradox of Health Care Costs.” Professor Newhouse, AB ‘63, PhD ’69, economics, also edits the Journal of Health Economics, is a member of the editorial board of The New England Journal of Medicine, serves on the Comptroller Generals Advisory Board, the Board of Health Advisors of the Congressional Budget Office, and has been a member and vice chair of the Medicare Payment Advisory Commission. Cost: $10 (talk only); $70 (talk and dinner with speaker).

CHAPTER EVENT
Tuesday, December 2, Washington, DC. More information on this event will be posted at www.gfas.harvard.edu/alumni/alumni.php.

SAVE THE DATE
GSAS Alumni Day 2009 will be held Saturday, April 4, in Cambridge, Mass. You will hear from Harvard faculty across the arts and sciences about their recent scholarship, catch up with old friends, and enjoy a day of intellectual and social refreshment. More information on these events will be mailed early in 2009 and posted at http://gsas.harvard.edu/alumni/alumni.php.

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