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# HARVARD

MAGAZINE

MARCH-APRIL 2012 • \$4.95

## Al Franken

From *Saturday Night Live*  
to the U.S. Senate

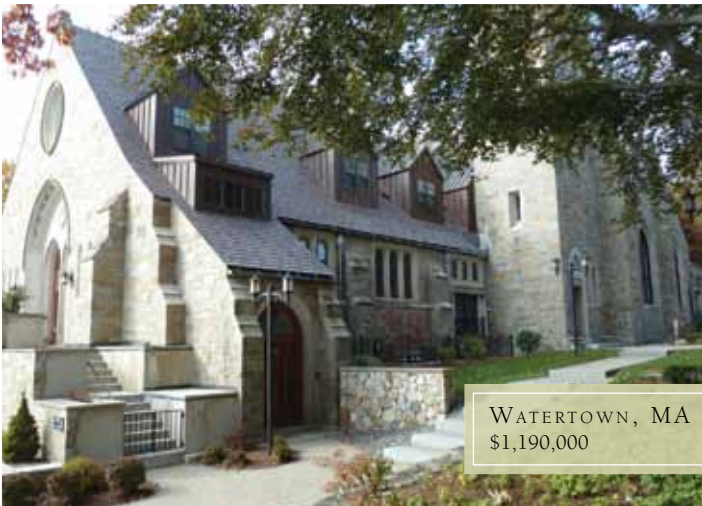






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# HARVARD

MAGAZINE



PETER PEREIRA

page 46

## FEATURES

### 23 Twilight of the Lecture

Eric Mazur is an evangelist for "active learning"

by CRAIG LAMBERT

### 28 Vita: Fanny Bullock Workman

Brief life of a feisty mountaineer: 1859-1925

by THOMAS PAULY

### 30 Al Franken: You Can Call Me Senator

From comedy to the Capitol

by JESSE KORNBLOTH

### 36 The Traumatized Brain

Probing the brain after grievous assault, scientists seek new approaches to care and therapy

by COURTNEY HUMPHRIES

### 42 Forum: Renewing Civic Education

A call to restore American higher education's lost mission

by ELLEN CONDLIFFE LAGEMANN and HARRY LEWIS

### 46 John Harvard's Journal

Academic (and alumni) initiatives in India, climate-change climber, studious radicals, cherry-blossom celebration in an artistic master-work, the long distance between Cambridge and Longwood, Allston—and competing developments, the Undergraduate on life lessons off campus, Harvard's two-sport threat, when the Crimson christened Fenway Park, and baseball's metaphorical reach



ROBERT NEUBECKER

page 42

## DEPARTMENTS

### 4 Cambridge 02138

*Communications from our readers*

### 9 Right Now

*Artful dodging, watching neurons at work, wind-energy entrepreneurship*

### 12A New England Regional Section

*A calendar of spring events, rigorous outdoor recreation, and a relaxed restaurant in Kenmore Square*

### 13 Montage

*Art thieves, Rufus Buck's rampage, Twitter comedienne, sacred India, American injustice, New York at war, and more*

### 63 The Alumni

*The greening of the Empire State Building, Overseer and HAA director candidates, students and service, and more*

### 68 The College Pump

*The prophet (Gibran) and the president (Eliot)*

### 76 Treasure

*Medieval monthly guidance on living well*

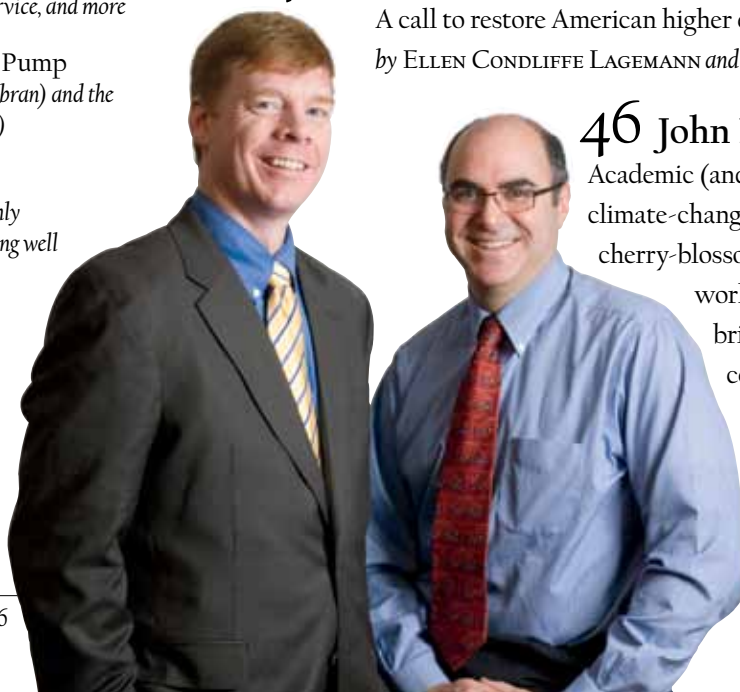
### 69 Crimson

*Classifieds*

On the cover:

Al Franken, 2009, Rochester, Minnesota. Photograph by Eric Miller/Reuters/Corbis Images

page 36



JIM HARRISON



# Cambridge 02138

*Tea Party “spin,” theater oasis, water woes*

## TOUCHPOINTS...

LIKE other critical scholars, pediatrician T. Berry Brazelton and his colleagues work to ensure that children and families of diverse backgrounds benefit directly from their research (see “Early Learning,” January-February 2012, page 27). The training that service providers receive helps them create genuine relationships with families, which is crucial. I was delighted to read about these meaningful partnerships.

ANNETTE BEAUCHAMP, Ed.M. '07  
Wisconsin Early Childhood Association  
Madison, Wisc.

KUDOS TO THE Brazelton Touchpoints Center, part of Children's Hospital Boston,

for their terrific work translating research on childhood development into practical advice for parents of young children.

But as a physician and father of a toddler, I was appalled by the suggestion, in the article's opening vignette, that Susana Saldivar should give her son a bottle of pills to use as a rattle. Accidental ingestion of any medication by a child can be life-threatening. Furthermore, small, round, smooth objects such as pills are easily aspirated into the trachea or lungs by a child, and can cause choking and asphyxiation.

Perhaps next time, if a rattle is so urgently needed for a child's cognitive development, one should suggest putting Cheerios in a sippy cup. Drugs/medica-

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Web Extras from the March-April 2012 issue.

### Theft at the Gardner

page 13 | Meet Anthony Amore, M.P.A. '00, now head of security at the Gardner Museum, scene of one of history's biggest art heists. In this video, learn more about art thefts—and stopping them.



### Harvard in India

page 46 | From slums to luxury malls, Harvard students explored many sides of today's India during January. See photographs of their work and of President Faust's visit.



### Franken Facts

page 30 | Al Franken's career has led him from *Saturday Night Live* to Capitol Hill. Read little-known facts about the comedy-writer-turned-politician.



### Cherry Blossoms

page 54 | The *Colorful Realm* exhibit marks the hundredth anniversary of Japan's gift of cherry trees to the nation's capital. In this video, curator Yukio Lippit introduces some of these rarely seen treasures.



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tions should *never*, under any circumstances, be left in the reach of children.

TYKEN C. HSIEH '02, M.D. '06  
San Francisco

### ...AND WEALTH AND EDUCATING CHILDREN

ALTHOUGH she does not pose it herself, one important question raised by Elizabeth Gudrais's report on Michael Norton's research article ("What We Know About Wealth," November-December 2011, page 12,) is whether we should reduce the wealth gap by "pulling down" or by "building up."

Economic growth is not the natural state of affairs. It depends on a large cohort of capable and economically ambitious people working extraordinarily hard and taking risks with their human and economic capital. Europeans think Americans are nuts to "hustle" as we do. Let them.

Can we have our cake (the hustle) and eat it (the redistribution), too? Alas, for most people there is a close correlation between the disposition toward hard work and the economic reward from it. This means that raising taxes on the rich costs jobs in the long run by hurting economic growth. Too many of the very productive people whom we especially wish to work harder will find other outlets for their energies and talents.

Is it "fair" to let high earners keep most of their money? John Rawls would say no, and he'd have plenty of company. But if economic growth is what you want, leveling is not the answer.

There is another way to close the wealth gap, and that is to "push up" by closing the achievement gap. We can do this by getting a much better return on our current education spending. We dedicate today—after inflation—an astounding two-and-one-half times the amount per pupil that we did in 1970! But we get less today for our \$2.50 than we got for yesterday's dollar because the teachers' unions have kidnapped the system.

### SPEAK UP, PLEASE

*Harvard Magazine* welcomes letters on its contents. Please write to "Letters," *Harvard Magazine*, 7 Ware Street, Cambridge 02138, send comments by e-mail to [yourturn@harvard.edu](mailto:yourturn@harvard.edu), use our website, [www.harvardmagazine.com](http://www.harvardmagazine.com), or fax us at 617-495-0324. Letters may be edited to fit the available space.

What should we do differently with this incremental 150 percent of our 1970 educational dollar? Let's specially focus, very early in their lives and through the educational system, on the needs of the very poor kids. Under the present system, they are simply not learning. Their early-life needs are more social than cognitive, and while it would be better for their families rather than for their schools to supply these needs, these children very often don't have families. And all the money that has been invested on their behalf over the years through other channels has fallen far short of achieving the behavioral change that alone will open them up to the learning process. So let's shift resources away from the middle class to the very disadvantaged.

JOHN THORNDIKE '64, J.D. '68  
Palm Beach, Fla.

### TEA PARTY "SPIN"

"TEA PARTY PASSIONS" (January-February, page 9), on Theda Skocpol [and Vanessa Williamson's] book about the Tea Party, did not disappoint me. I expected to see the typical liberal spin (or should I say smear). By God, it was better than I expected. Skocpol is quoted as saying of Tea Party distaste for Barack Obama: "We don't think it's the color of his skin so much as the fact that he's a black liberal professor with a foreign father." Wow. They don't hate him because he's black... but because he's a black professor. This level of brilliance makes me proud to be a double Harvard grad. Thank you, Professor Skocpol, for giving me my morning chuckle and for confirming my assumption that you would play the race card in smearing the Tea Party. I just didn't think it would be done so crudely and incoherently.

SAM LEVIN '80, J.D. '84  
New York City

### RECALLING EDWARD ROWE SNOW

I WAS SO HAPPY you had an article on Edward Rowe Snow (Vita, January-February, page 40), but then disappointed that so much about him was missing. I remember sitting around the radio with my parents and siblings, listening to his radio shows. One of my brothers was in some of those shows. Because he could talk with many voices, he took the part of different characters. And the boat rides around the islands that were narrated by Snow were something special. I can see him now. I would

## HARVARD

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love to see something written about his radio show and his many wonderful books.

VERA GROPPER  
Somerville, Mass.

### THEATER'S MIDWESTERN OASIS

TO WRITE ON "The Future of Theater," as Craig Lambert did (January-February, page 34), with no reference to Chicago is like writing on Greek theater and ignoring Epidaurus. Most critics in the English-speaking world have at one time or another acknowledged, in the words of the *Guardian*, that "The beating heart of U.S. Theatre is in Chicago." Harvard playwrights including Arthur Kopit, Charles Mee, and Wallace Shawn [see "Famous Comedian, 'Dangerous' Playwright," March-April 2011, page 35] have all seen their plays produced in Chicago—often premiered there—by some of the best regional theaters in the country, including Steppenwolf, Goodman, Victory Gardens, Lookingglass, Writers' Theater, and Court Theater. Especially if you include Chicago's Second City cabaret theater, a great many important actors, directors, playwrights, and other theater art-

ists launched their careers in Chicago. The percentage of Actors' Equity members who actually work in their craft is higher in the bureau covering Chicago than any other.

Unlike the New York theater scene, Chicago's more than 100 regional and neighborhood theater companies can depend on their audiences responding to new and unconventional work. Chicago audiences do not come and go merely on reading critical commentary of others. They may not like all the plays done by their preferred regional or neighborhood theaters, and they may be vocal in their opinions bad and good, but they show up for the next offering. This is not to suggest Chicago's theater companies don't face many of the same challenges as other not-for-profit and commercial theaters around the country that Lambert writes about, but ask almost anyone active in the U.S. theater scene and you are likely to hear that they look forward to working in Chicago. They most certainly would be skeptical of an attempt to assay that scene without mentioning Chicago.

JOEL HENNING '61  
Chicago

### WATER WOES

JONATHAN SHAW'S article on John Briscoe's water-security initiative ("The Water Tamer," January-February, page 42) illustrated how academic research can help solve urgent, real-world problems. The "thinking-doing axis," across which dialogues between academic scholars and field practitioners take place, enables researchers to ask the right questions and provide the right answers. Goethe once wrote: "Thinking and doing, doing and thinking; that is the sum of all wisdom."

But while the initiative's focuses on infrastructure and institutions are critical for water security at the local level, as demonstrated in its Pakistan project, it seems to have neglected attention to some broader, fundamental questions common in water problems—on reconciling the intrinsically conflicting views on water from the perspectives of global ecology, geopolitics, and socioeconomics. How can a community's water demand be met in ecological conformity with its hydrological context, rather than at the expense of it? How can the democratic policymaking be recon-

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## LETTERS

ciled with the absolute characteristics of the laws of nature in the geologic world? Consensus on these and similar questions is no less critical for long-term water security than dams and pricing schemes, and the debates over them may prove as challenging to tame as water itself. On these questions, Harvard would be much valued for the thinking that its water experts are uniquely able to provide.

LIKWAN CHENG, A.L.M. '11  
*Chicago*

## MEDIEVAL LITERATURE

AFTER AN EXTENSIVE quote from Sextus Amarcus, Adam Kirsch [in his reading of the Dumbarton Oaks Medieval Library, "Mysteries and Masterpieces," January-February, page 48] concludes, "It is comforting, in a way, to learn from the Satires that decadence is such a hardy perennial." Decadence? It's not about decadence. It's all about women. I find it neither comforting nor cute, and unfortunately not surprising, that misogyny is such a hardy perennial in a religious leader. Does Kirsch think burqas cute? They meet the requirements of Amarcus to cover up women. We have this same issue alive and well in Israel, where religious extremists have been harassing and verbally abusing women for being "indecent" in dress. American Southern Baptists find justification for male domination in the Bible, and then there's the religious practice of female circumcision. For a University still enjoying quite a rarefied status as one of the few great universities to have essentially fired its president for boneheaded sexist comments and beliefs, I find it revealing (hope that's okay with Sextus) that its alumni magazine would publish remarks reflective and subtly approving of these attitudes. How can you still not get it?

JOHN K. CRAFT '68, A.M. '69  
*Rocky Hill, Conn.*

EVEN a Columbia graduate like me knows that the title of Ernst Robert Curtius's book is *European Literature and the Latin Middle Ages*. He practically begins the work with Virgil leading Dante through the Inferno. You can do better.

GEORGE SANTICCIOLI  
*Needham, Mass.*

## A LIFE OF FAITH

CONGRATULATIONS on the excellent alumni profile of Father Paul O'Brien ("The



# I CHOOSE HARVARD...

DON M. WILSON III '70 AND LYNN S. WILSON

Coming from a family of moderate means in small-town Ohio, Don Wilson '70 depended on financial aid to attend Harvard College. Now, after a successful career in international banking, the retired Connecticut resident has returned the support by establishing the Mr. and Mrs. Don M. Wilson III AB '70 Scholarship Fund, which helps multiple undergraduates annually, both now and into the future. "I'd always promised myself that, if I ever had the wherewithal, I would give back to Harvard so that future students might benefit as I had from the generosity of those before me," he explains.

He and wife Lynn have also created three funds to assist students pursuing study, travel, and internships abroad. Wilson is active in Harvard fundraising through his class, the New York Major Gifts Committee, and other activities. He admires Harvard for its policy of admitting the best students, regardless of their ability to pay. "To the extent that our good fortune can help strengthen and preserve need-blind admissions," he says, "how can one argue against that principle?" Wilson relishes his interactions with the Harvard students who receive his scholarship support. "Whenever I meet any of them," he notes, "I make a point of saying, 'Make sure you give back to Harvard in any way you can.'"

To read more, please visit [www.alumni.harvard.edu/stories/wilson](http://www.alumni.harvard.edu/stories/wilson).

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KERRY HEALEY '82 AND SEAN HEALEY '83, JD '87

Sean and Kerry (Murphy) Healey had plenty in common when they met as undergraduates. Both came from middle-class families in coastal towns. Their fathers were in the military and their mothers, schoolteachers. And each benefited from Harvard's generous financial assistance. Today, the Healeys, who live in Massachusetts and Florida, are helping open Harvard's doors to talented students from all backgrounds through the Healey Family Cornerstone Scholarship Fund. They've also contributed to the Harvard College Fund and volunteer their time to sustain the University's commitment to student aid. "Harvard gave us the opportunity to receive a broad and deep exposure to academics and the larger world," they reflect. "We feel extraordinarily fortunate to have been able to attend."

To read more, please visit [www.alumni.harvard.edu/stories/healey](http://www.alumni.harvard.edu/stories/healey).

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## LETTERS

*Father Father*," by Nell Porter Brown, January-February, page 69). It is a good example of how religious faith has an impact on the life of an alumnus and how that enriches society. I hope that you can do more like it.

JIM DOHERTY, C.S.C., Ed.M. '78

*St. Mary's Catholic Church*  
Taunton, Mass.

## A HEALTHFUL DIET

"A DIABETES LINK TO MEAT" (by Jonathan Shaw, January-February, page 10) has a diagram labeled "Healthy Eating Plate." One bit of advice is: "Use healthy oils...." The article counsels the consumption of "healthy proteins." The eating, the plate, the oils, and the proteins are not healthy; they're *healthful* (I trust)!

DAN KELLY '75  
*Hopkins, Minn.*

## ERRATA AND ADDENDA

CHARLOTTE BRONTË, notes David S. Johnson, G '59, died *not* of tuberculosis like her siblings, but probably of septicemia, in childbirth, at the age of 39 ("Tiny Brontës," *Treasure*, January-February, page 80).

Harvard Innovation Lab director Gordon Jones writes of the photograph of him in the January-February issue (page 55): "The caption could be misconstrued to mean that I invented all the products in the picture. While this is partly true (as I am listed on the patent or patent application for the Oral-B Hummingbird, ALLCLEAR Mosquito Mister, and TuffTech Scraper [not shown]), with the other items I either led the development and commercialization (on behalf of the inventing person/group, e.g., Oral-B Brush-Ups, Stages Flossers, Mini-Satin Floss) or advised/consulted the inventors on launching their businesses (e.g., Planet Fuel, Doodle Roll)."

In "Bullish on Private Colleges" (November-December 2011, page 36), Richard Chait and Zachary First stated: "Bloomberg News called Phoenix's online program 'The single greatest improvement in higher education since the condom.'" Matthew Winkler, editor-in-chief of Bloomberg News, responds: "The quotation was an opinion by Christopher Byron, a columnist, not a statement by Bloomberg News. Bloomberg News did an extensive year-long investigation of for-profit colleges in 2010, exposing their abuses and high cost to the taxpayer; the series was a finalist for a Pulitzer Prize and won numerous awards."



# Right Now

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TAMING TERGIVERSATION

## The Art of the Dodge

**D**URING THIS YEAR'S presidential campaign, the candidates will face many questions they do not want to answer. In most cases, they will do what politicians usually do: talk about something else.

Every politician dodges questions, but only sometimes are they able to do so without anybody noticing. Recent research by Todd Rogers, a behavioral scientist, social psychologist, and assistant professor of public policy at the Harvard Kennedy School, sheds light on the circumstances and techniques that allow politicians to wriggle away from difficult subject matter.

Rogers hoped to determine "under what conditions people are able to get away with dodging a question, and under what conditions listeners can be empowered to help detect when this kind of question-dodging occurs."

He and his research partner, Michael I. Norton, an associate professor in the marketing unit of Harvard Business School, devised a series of simple experiments to

determine when people detect a dodge and when they don't. After prerecording a speaker answering a question about universal healthcare, they attached the same answer to three separate questions—the original one about healthcare, another about illegal drug use, and a final one about the war on terror. Then they showed the three tapes to separate groups of subjects and asked them to assess the truthfulness of the speaker.

Their results, published in the *Journal of Experimental Psychology*, showed that "artful dodging" depends on subtlety. When the speaker gave a response about healthcare to a question about illegal drug use—which sounds similar but is in fact quite unrelated—his audience found him just as trustworthy as did the group who heard him answer a question about universal healthcare. (In fact, when quizzed af-



terward, almost none of the subjects in the drug-use scenario could remember exactly what question had been asked.) Only when the speaker responded to a question about the war on terror with an answer on health-care did the subjects notice the dodge.

Rogers believes there are two reasons for this inability to detect subtle evasions. The first, he says, is that humans simply have a limited attention span. Poor attention is universal to all “humans and all animals that we manage to study,” he says. “Though we don’t realize it, we go through our lives detecting just the gist of what’s going on. Even if we wanted to pay careful attention to each answer, we would have a limited capacity” to do so. A second, related reason is that paying attention to a speaker involves taking in an overwhelming amount of information. When watching a presidential debate, for example,

viewers are considering not only the questions and answers but also the speakers’ body language, facial expressions, and overall lik-

ability. This adds yet another level of cognitive challenge, making it more difficult to remember whether

a given answer is a specific response to the question asked.

Rogers does think there are ways to minimize “artful dodging” in political discourse. Television producers and documentary filmmakers, for example, can actively remind audiences of what was asked by displaying the text of questions right on the screen while the candidate answers. In one study, he reports, “We posted the text of the question on the screen, and everybody detected what was going on”—even in the case of subtle dodges. Another approach, employed during recent Fox/YouTube Republican debates, is to ask the audience to use social media to grade the candidates on their responses. “At the beginning of the debate, the moderator asked viewers to tweet whether the person answered the question they were asked,” Rogers says. “Asking the audience to hold the

Every politician dodges questions, but only sometimes are they able to do so without anybody noticing.

speakers accountable is a very cool idea.”

Yet Rogers is quick to point out that dodging isn’t necessarily a bad thing, at least on a personal level. For instance, avoiding direct answers to questions can be useful in precarious social situations when other people’s feelings are at stake. But in politics, Rogers thinks, dodging should be kept to a minimum. “I don’t think that dodging is lying,” he says, “but I think it’s a problem for democracy.” —PETER SAALFIELD



Visit [harvardmag.com/extras](http://harvardmag.com/extras) to see a video of the artful dodge in action.



What techniques do you employ to dodge questions? How do you prevent someone else from dodging them? Discuss with other readers at [www.harvardmag.com/artful-dodge](http://www.harvardmag.com/artful-dodge).

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## ILLUMINATING THOUGHT

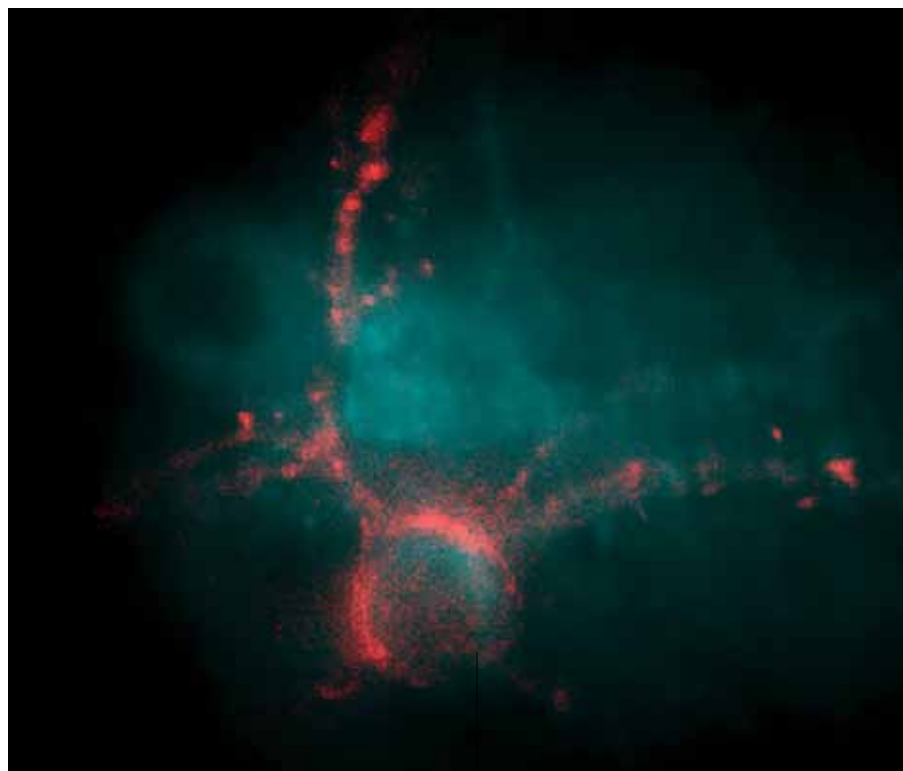
# Light-Up Neurons

**A** NEW TOOL developed in the lab of Adam Cohen, Loeb associate professor of the natural sciences, may illuminate neuroscience research: it allows neurons to light up as they fire. “For decades, people have wanted a way to look at a neuron and tell what it’s doing,” Cohen says. But just as we can’t see electricity coursing through a telephone wire, there’s been no good way to watch electrical signals move across neurons.

Until now. Cohen’s team used a protein from a Dead Sea microorganism that normally absorbs sunlight and converts it into electricity. “A few years ago, I wondered if it was possible to run [similar proteins] in reverse,” he says, “so instead of taking in light and generating electricity, we could use it to sense electrical energy in a cell and convert that into a de-

tectable optical signal.” MIT researcher Ed Boyden recently conducted research that involved placing the gene that expresses this protein in an animal neuron,

**Genetic alterations allow researchers to observe the electrical firing of a neuron (pink) as a flash of light, detectable by specially modified optical microscopes.**





and he shared the gene with Cohen.

Cohen's team genetically modified a virus to carry the gene, and then used the virus to infect rat neurons. Once inside a neuron, the gene prompts production of these proteins, which settle in the cell membrane. There they act like microscopic voltmeters, monitoring voltage changes.



Visit [harvardmag.com/extras](http://harvardmag.com/extras) to view videos showing neuron fluorescence.

When a neuron is at rest, the inside of the cell is electrically negative compared to the outside, keeping the protein "dark." But when a neuron fires, it causes a brief voltage spike that reverses the charge, prompting the protein to light up.

Although Cohen has already shared them with more than 60 labs, these voltage-indicator proteins aren't ready for wide use yet, he says. The flashes are infrared and invisible to the naked eye, so Cohen's team has had to develop specialized optical equipment to see them, and it will take other labs some time to set up similar equipment. "The neuroscientist's dream," he explains, "is to look into a brain and see all the neurons firing," which would allow researchers to watch how signals spread, and even to see whether the speed at which they move is modulated by learning. "But we need to make our indicator brighter for that to work."

Cohen believes the proteins have a range of additional applications as well. They could help test new drugs, for example: his team has added the voltage indicators to cardiac cells, which would allow them to study the effect of new medications on signaling in the heart. The fact that scientists would see the results through a microscope, he says, could dramatically increase the speed of drug testing.

—ERIN O'DONNELL

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## THE MOTHER OF INVENTION

# The Rise of the Wind Industry

**A**S THE CHINESE, Spanish, Indian, and American governments subsidize the growth of wind technology as a source of renewable energy, they're learning that breakthroughs in the field require more than money. "Unglamorous persistence,"

instead, has produced the greatest results during the past 150 years, according to Straus professor of business history Geoffrey G. Jones. In the first of what he envisions as a series of papers on the origins of "green" industries, Jones focuses on the critical role of early inventors.

In "Historical Trajectories and Corporate Competences in Wind Energy," he and research associate Loubna Bouamane track the history of green entrepreneurship in developing wind technology. The working paper focuses on the first turbine manufacturers, who pushed to make

**Clockwise from left: American inventor Marcellus Jacobs atop one of his wind turbines in the 1940s; in his office at the Jacobs Wind Electric Factory; this truck-mounted turbine visited county fairs and small towns; a Jacobs "wind machine" in Antarctica in 1934, imported by Admiral Richard Byrd for his base camp**



Photographs courtesy of Jacobs Wind Electric and the Jacobs Family

the technology more efficient and reliable, including a Scottish engineer who built a windmill for electricity production in 1887, a Danish teacher who experimented with a wind tunnel in 1891, and the Jacobs brothers of Montana, who used turbines to bring electricity to remote farms across the upper Northwest during the first half of the 1900s. The authors note differences between the work of these innovators, who sought to solve problems of power scarcity, and the origins of the oil and gas industries, where development was driven by the presence of abundant natural resources that could be brought to market for profit. Green innovators generally are less motivated by profit than by other considerations, Jones says. “You see entrepreneurs who imagine a world they see as not sustainable, that has huge problems, and they set about doing what they do, which is entrepreneurship to change that world.”

The paper also covers the effects of public policy, which varies in effectiveness by country. In general, renewable energy has not yet emerged as a profitable energy source, Jones explains, so it still needs to be buttressed with government subsidies. His research suggests that “the striking

## There are differences between the work of these innovators, who sought to solve problems of power scarcity, and the origins of the oil and gas industries.

thing about wind energy—even solar energy, for that matter—is that it’s the story of incremental improvement: experiments and decades, really, where there’s not that much money to be made.” Thus government-sponsored efforts to purchase power from providers—known as feed-in tariffs—are integral to encouraging the technology’s growth. Denmark’s embrace of wind energy in the 1970s, coupled with plenty of wind and the entrance of heavy-equipment manufacturers such as Vestas, Nordtank, and Bonus into the turbine-production industry have resulted in that



small country’s ability to obtain nearly 20 percent of its electricity from turbines.

The Danish approach, Jones notes, contrasts with that of the United States, which sank more than \$380 million into research to develop giant wind turbines beginning in the 1970s. Funding peaked during the oil shortages of 1979, as the U.S. government awarded contracts to the leading aerospace and technology firms Boeing, General Electric, and Westinghouse to build commercially viable, large-scale turbines that could rival other power sources. But the 15-year surge of spending from 1973 to 1988—like other government forays into green technology research and development—came up empty, hitting what Jones labels a “technological dead end.”

Meanwhile, government operating subsidies dating back to the early 1980s help explain why large corporations like General Electric, Siemens, India-based Suzlon, and many Chinese firms dominate turbine production, and thus the industry, today. Even Enron, an energy-services company, jumped into the business: its sales of wind turbines, which “provided a veneer of respectability for a company engaged in increasingly illegal practices,” says Jones, rose from \$50 million in 1997 to \$800 million in 2001 (the year it went bankrupt while facing investigations into accounting fraud).

Jones sees the ups and downs of the wind-energy business, from entrepreneurial origins to government subsidization,

### Denmark’s Copenhagen Wind Farm

within a larger context of the rise of green businesses in multiple industries, including organic food, solar energy, sustainable agriculture, and ecotourism. (Working papers focusing on solar energy and on organic agriculture and natural food are scheduled for publication later this year.) Research for *Beauty Imagined*, his 2010 book on the history of the global beauty industry, made him aware that “natural” cosmetics producers had been exploring the idea of developing beauty products without synthetics “at a time when nobody else did, and they were regarded as complete lunatics and struggled for decades to make a profit.” He suggests that wind energy’s analogous rise has been ignored to this point because histories of renewable energy have largely ignored the entrepreneurs introducing the technology: “There’s been this general assumption that the rise of wind energy is a story about government, not business.” Instead, he says, his research is documenting that entrepreneurs and government leaders need to work together to foster practices of sustainable living and promote the industries that make it possible to “live green.”

—ALEXANDER BLOOM



Visit [harvardmag.com/extras](http://harvardmag.com/extras) for a video of Marcellus Jacobs discussing wind energy.

GEOFFREY JONES WEBSITE:

<http://drfd.hbs.edu/fit/public/faculty-Info.do?facInfo=ovr&facId=24276>



# New England

## REGIONAL SECTION



## Extracurriculars

### SEASONAL

<http://ofa.fas.harvard.edu/arts>

617-495-8676

• April 26-29

The twentieth annual **Arts First Festival** offers dozens of performances by student dancers, jugglers, actors, and musicians, among others—and honors the 2012 Arts Medalist, actor Tommy Lee Jones '69.

### MUSIC

• March 30 and 31 at 8 P.M.

[www.music.fas.harvard.edu/calendar.html](http://www.music.fas.harvard.edu/calendar.html); 617-495-2791

John Knowles Paine Concert Hall

The Harvard music department presents the **Fromm Players at Harvard** with the **Boston Modern Orchestra Project**.

Free admission and free parking (at the garage on Felton Street, off Broadway).

• April 21 at 8 P.M.

[www.jamesonsingers.org](http://www.jamesonsingers.org)

First Church, 11 Garden Street

The chorus founded by retired Harvard choral director Jameson Marvin performs Haydn's *Missa in Angustiis* (*Lord Nelson Mass*), among other works.

### Sanders Theatre

[www.boxoffice.harvard.edu](http://www.boxoffice.harvard.edu); 617-496-2222

• April 13 at 8 P.M.

The **Harvard Glee Club**, **Radcliffe Choral Society**, and **Harvard-Radcliffe Collegium Musicum** join forces for a spring concert.

• April 20 at 8 P.M.

The **Harvard-Radcliffe Chorus** performs Schubert's *Mass in A-Flat*.

• April 28 at 8 P.M.

An Arts First Festival concert of music by Ravel, Debussy, and Falla, performed by the **Harvard Glee Club**, the **Radcliffe Choral Society**, and the **Harvard-Radcliffe Collegium Musicum**.

### DANCE

<http://ofa.fas.harvard.edu/boxoffice>

627-496-2222

<http://ofa.fas.harvard.edu/dance>

617-495-8683

Harvard Dance Center, 60 Garden Street

• March 23-24 and 30-31 at 8 P.M.

Harvard students perform three new works choreographed by dance program director Jill Johnson and artist-in-residence Christopher Roman.

### FILM

#### The Harvard Film Archive

<http://hcl.harvard.edu/hfa>

617-495-4700

• March 9-25

**The Melancholy Worlds of Béla Tarr** celebrates the work of this Hungarian auteur with a rare showing of his feature films, including the area premiere of *The Turin Horse*.

• March 16-26

**Sing, Memory: Terence Davies' Postwar England.** An exploration of works by this British filmmaker, who will be on hand to discuss his creative process as well as his latest drama, *The Deep Blue Sea*.

• March 23

**Claude Lanzmann and the Karski Report.** The director of *Shoah*, the 1985 documentary about the Nazi genocide of Europe's Jews, discusses his work, including more interview material and footage of the testimony of Jan Karski, a member of the Polish resistance.

• March 30 through April 2

**Inutile: The Films of Carmelo Bene** offers a look at one of the renowned figures of the Italian avant-garde in the second half of the twentieth century. Screenings include *Salomé* and *Our Lady of the Turks*.

Left to right: Gil Rose, of the Boston Modern Orchestra Project; from *The Sounding of the Whale*, by D. Graham Burnett, at the Harvard Museum of Natural History; #2690, from the series *House Hunting, 2000*, by photographer Todd Hido, at the Harvard Art Museums

FROM LEFT TO RIGHT: LIZ UNDER/HARVARD MUSIC DEPARTMENT; HARVARD MUSEUM OF NATURAL HISTORY; HARVARD ART MUSEUMS

# Harvard Art Museums

Fogg Museum  
Busch-Reisinger Museum  
Arthur M. Sackler Museum

## Lyonel Feininger Photographs, 1928–1939



A rare look at the avant-garde photography of modernist painter Lyonel Feininger.

March 30–June 2, 2012

Arthur M. Sackler Museum  
485 Broadway, Cambridge, MA

[harvardartmuseums.org/feininger](http://harvardartmuseums.org/feininger)

## NEW ENGLAND REGIONAL SECTION



Watercolor by Edward Lear, known as "Lear's Macaw," at Houghton Library

• March 31

**Ivan & Ivana** By Jeff Silva. A follow-up to Silva's documentary *Balkan Rhapsodies*, which he produced after visiting the former Yugoslavia in 1999, just after the NATO bombing campaign. The subjects are now seemingly living the good life in Southern California.

## EXHIBITIONS & EVENTS

### Carpenter Center for the Visual Arts

[www.ves.fas.harvard.edu](http://www.ves.fas.harvard.edu); 617-495-3251

• April 27 through May 24, with an opening reception on April 27, 5:30–6:30 P.M.

**VES Thesis Exhibition 2012** features the final projects of graduating seniors.

### Harvard Art Museums

[www.harvardartmuseums.org](http://www.harvardartmuseums.org)

617-495-9400

Sackler Museum, 485 Broadway

More than 600 objects from the Fogg, Busch-Reisinger, and Sackler Museums are on display.

• Opening March 30, with a lecture and reception on March 29 at 6 P.M.

**Lyonel Feininger: Photographs, 1928–1939** offers a first look at the virtually unknown photographic work of this (American-born) member of the German modern art movement. Lecturer Siegfried Gohr is a professor of art history and deputy director of the Kunstakademie Düsseldorf. Free and open to the public.

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**Cambridge...**Gorgeous, Huron Village single-family rehab. 4BR, 2.5BA. Premium craftsmanship and custom finishes. Gas fireplace. Fenced yard with a patio. Parking. \$1,450,000



**Cambridge...**Gracious 1925 single-family on coveted street. 4BR, 3.5BA plus a legal 3rd floor 2BR apt. Professionally landscaped fenced garden and patio. Garage. *Price upon request*



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**Cambridge...**Adorable 2nd floor 1BR near Harvard Sq and Huron Village. Newly renovated eat-in kitchen and tiled bath. HWF. Professionally managed. \$289,900



**Cambridge...**Superb Ralph Adams Cram single-family in most sought-after area of Cambridge. Lovely reception rooms, library, many bedrooms, many baths. Superb site. Julie Messervy gardens. \$2,950,000



**Cambridge...**Harvard Square. Rare to market, well-planned 2-bedroom, 2-bath condominium in very desirable, established doorman building. Many amenities. Garage parking. \$995,000

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## NEW ENGLAND REGIONAL SECTION

- April 10 at 6 P.M.

**ArtisTalk: Todd Hido.** The photographer takes nighttime images of suburban neighborhoods that emphasize the effects of fog and light from streetlamps and windows.

**A gold aureus of the British emperor Carausius (A.D. 286–93), found in 2008 in a hoard in Derbyshire, will be discussed in a Harvard Art Museums lecture.**

- April 26 at 6 P.M.

A lecture, “New Views on Roman Gold Coins Found in Britain,” reveals that Britain was not the poor province at the edge of the Roman Empire that it was once thought to be.

**Peabody Museum of Archaeology and Ethnology**

[www.peabody.harvard.edu](http://www.peabody.harvard.edu); 617-496-1027

- March 29 at 6 P.M.

A musical evening featuring “**Mexican Music of the Borderlands: Talk and**

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**The Manishet Nasser district of Cairo, Egypt, also known as “Garbage City,” 2009.**

**Demonstration”** with José Cuellar, professor of Raza Studies, College of Ethnic Studies, at San Francisco State University. Tsai Auditorium, 1730 Cambridge Street (concourse level).

- April 5 at 6 P.M.

**“Trash Talk” Lecture Series:** Preview of the film *Garbage City and the Informal Economy*, followed by a discussion.

Geological Lecture Hall, 24 Oxford St.

- April 19 at 6 P.M.

**“Trash Talk” Lecture Series:** “Tornadoes, Twin Towers, and Hurricanes: 20 Years of Urban Disaster Clean-up,” with executives of the specialty contractor Phillips and Jordan Inc.

Geological Lecture Hall, 24 Oxford St.

**Harvard Museum of Natural History**

[www.hmn.harvard.edu](http://www.hmn.harvard.edu); 617-495-3045

• Continuing: **Mollusks: Shelled Masters of the Marine Realm** explores the amazing diversity of mollusks, which comprise



## NEW ENGLAND REGIONAL SECTION

almost a quarter of all known sea-dwelling species.

- March 11 at 2 P.M.

Princeton history professor D. Graham Burnett discusses his new book, *The Sound-  
ing of the Whale: Science and Cetaceans in the  
Twentieth Century*.

- April 12 at 6 P.M.

Pellegrino University Professor emeritus Edward O. Wilson lectures on the origins of human beings and our domination of the earth's biosphere, the topic of his most recent book, *The Social Conquest of Earth*.

## LIBRARIES

### Houghton Library

[http://hcl.harvard.edu/info/exhibitions/  
index.cfm](http://hcl.harvard.edu/info/exhibitions/index.cfm); 617-495-2440

- Opening April 2

**The Natural History of Edward Lear.** Houghton holds the largest and most complete collection of the English author's artworks; many depicting the natural world are now on display to celebrate the bicentennial of his birth.

## LECTURES

### The Mahindra Humanities Center at Harvard

<http://mahindrahumanities.fas.harvard.edu>; 617-495-0738 or 617-496-4955  
Sanders Theatre

Free and open to the public.

- March 20 and 27 and April 3, 10, 16, and 24 at 4 P.M.

**From Tree Rings: Ceramic Panoramas by Warren Mather, at the Arnold Arboretum**



WARREN MATHER/ARNOLD ARBORETUM

The **Norton Lectures** this year will be delivered by South African artist William Kentridge, best known for his prints, drawings, and animated films. His series is titled "Six Drawing Lessons."

- May 4 and 5 at 4 P.M.; May 6 at 10 A.M.

The **Tanner Lectures on Human Values**, delivered by Esther Duflo, Jameel professor of poverty alleviation and development economics at MIT

## NATURE AND SCIENCE

### The Arnold Arboretum

[www.arboretum.harvard.edu](http://www.arboretum.harvard.edu); 617-384-5209

- March 17 through April 29, with an artist's talk on April 12, 6:30-8 P.M.

**Tree Rings: Ceramic Panoramas by Warren Mather.** The artist, a faculty member at the School of the Museum of Fine Arts in Boston, creates inverse panoramas of tree bark by taking images of the bark,



  
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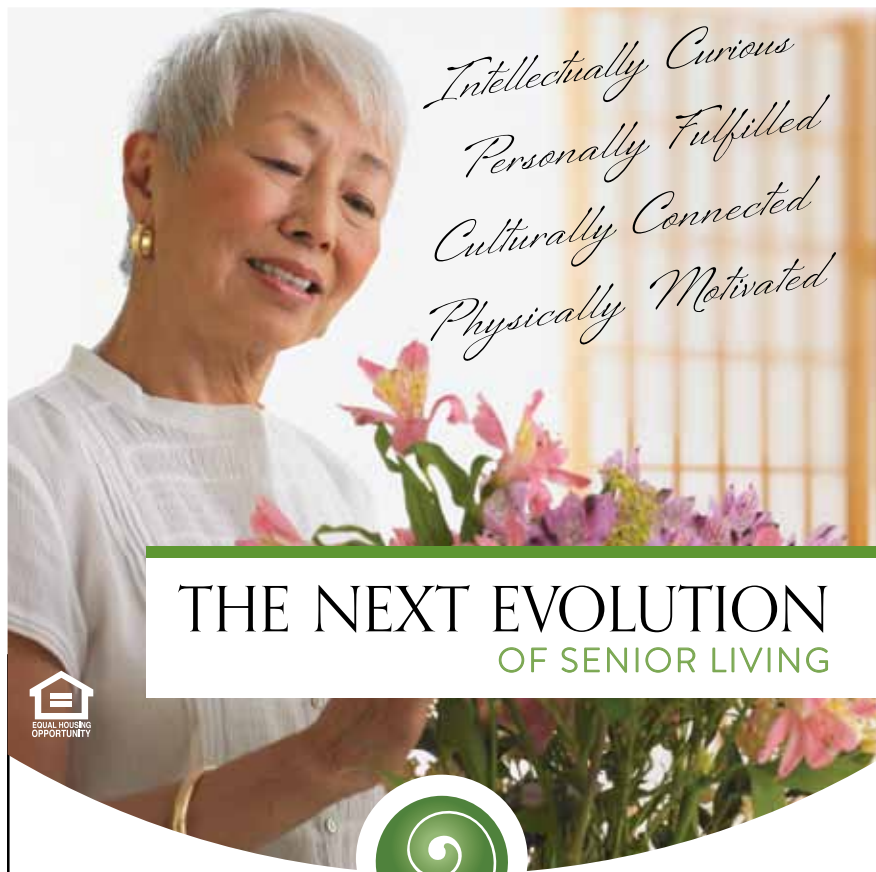
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#### NEW ENGLAND REGIONAL SECTION



SYLVIE LABORD/HARVARD MUSEUM OF NATURAL HISTORY

***Chlamys nobilis*, on display at the Harvard Museum of Natural History.**

transferring them to silk screens, and then printing the images on clay.

#### **The Harvard-Smithsonian Center for Astrophysics**

[www.cfa.harvard.edu/events/mon.html](http://www.cfa.harvard.edu/events/mon.html)

617-495-7461; 60 Garden Street

Observatory night lectures with night-sky viewing, weather permitting.

- March 15 at 7:30 P.M.

**Happy Anniversary, Henrietta** celebrates the centennial of Henrietta Leavitt's discovery of a cosmic yardstick to measure the distance to remote celestial objects.

- April 19 at 7:30 P.M.

**Love, Fear, and Greed: Why We Should Go to the Asteroids** looks at how advanced space engineering and new astronomical knowledge can be combined to make exploring asteroids possible.

Events listings also appear in the *University Gazette*, accessible via this magazine's website, [www.harvardmagazine.com](http://www.harvardmagazine.com).

#### **Lyonel Feininger, *Untitled (Lux Feininger deep en der Regal)*, 1932, from *Lyonel Feininger: Photographs, 1928-1939* at the Harvard Art Museums**



VG BILD-KUNST, BONN2011/HARVARD ART MUSEUMS



# Vigorous Outdoor Escapes

New England mountain, river, and woodland adventures • by Nell Porter Brown



**Maine's Baxter State Park offers rigorous climbs and majestic views, as seen above on First Cathedral.**

**T**HE LAST STRETCH of arête—the rocky ridge leading to the 5,268-foot summit of Mount Katahdin in northern Maine—is called the Knife Edge, and for good reason. It is about a mile and a half long and several sections are a mere three feet wide, with thousand-foot drops on both sides. To hike it, says outdoor writer and blogger Matt Heid '96, is a singular thrill.

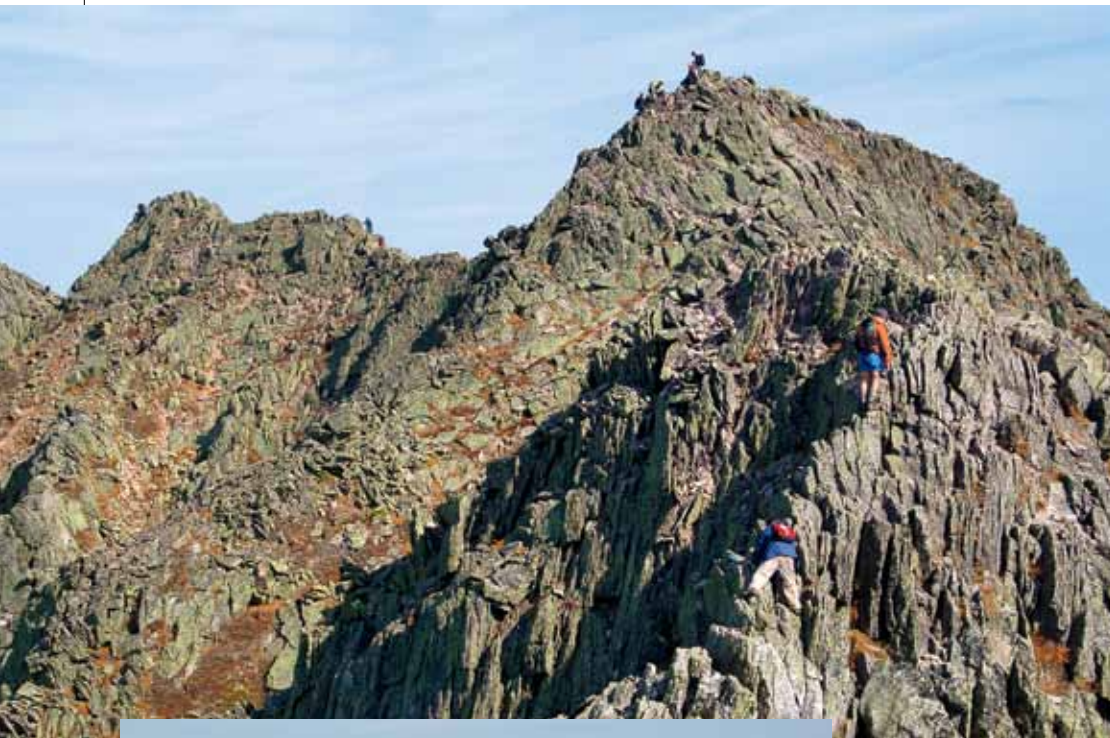
"Katahdin is the centerpiece of the most iconic, true wilderness area in the region," he explains. "It's the only mountain in New England that was not overtopped during the last ice age—the ice dug instead only into its flank, creating the only true arête around. There is no other

hike like it in New England. The view, the exposure, and the experience are unparalleled." Heid has ascended Katahdin a half-dozen times over the years and outlines the trip in his 2008 book, *AMC's Best Backpacking in New England*. (He also writes the Appalachian Mountain Club's equipment blog (<http://equipped.outdoors.org>). "If you only do one high adventure in New England," he adds, "that is the trip I would recommend."

Such high praise for a Maine mountain might seem suspect, given that Heid recently spent three years in Alaska pursuing his passion for remote wilderness. (He returned to New England following the birth of his first child.) Yet he maintains

that this region hosts "the gnarliest and most challenging trails I've hiked anywhere." Typically extremely rocky and steep, many "were built before modern trail standards were in place," he explains. "Back then, people followed the premise that the fastest way from here to there was a straight line, regardless of the terrain. Some trails are nothing more than paint blazed on rocks on a mountainside. Only in New England would such routes even be called 'trails.' Add to all that the notoriously fickle weather, and I like to say that if you can hike and backpack in New Eng-





**Hikers in Baxter State Park tackle the craggy rocks that form Mount Katahdin's famous Knife Edge, and triumph.**

sible compared with other sports: "Once you have the climbing gear, which is expensive, the sport is virtually free."

There are at least three categories: bouldering, "trad" (traditional), and sport climbing. Bouldering is the most physically demanding of the three, Brotherton explains; it entails hoisting one's body up and around massive rocks that are often horizontal to the ground and up to 15 or 20 feet high, using only one's hands and feet; there's *no* equipment, save for a thick foam pad placed at the bottom of the boulder in case of a fall. He favors Rhode Island's Lincoln Woods because it has "massive overhangs" and is only an hour's drive from Cambridge. "Bouldering is great because you can do it throughout the season, even into the cold weather," he says. "It's more flexible than sport or trad climbing; you can climb a lot, climb fast, and get a great workout in two or three hours. And you can do it anywhere there are big rocks," whereas the nearest place for him



land, you can do it anywhere. It's a great training ground."

NEW ENGLAND OFFERS outdoor adventures of almost all sorts: whitewater rafting, surfing, paragliding, ziplining, mountain biking, and sailing, among other rigorous sports that Harvard community members of all ages engage in. (See page 12K for a list of resources.)

Outdoor sports such as rock climbing have clearly risen in popularity, according to Sam Brotherton '12, vice president of the Harvard Mountaineering Club ([www.harvardmountaineering.org](http://www.harvardmountaineering.org)), which is open to students, faculty, staff, alumni, and other

surfers, and backcountry skiers. Brotherton also co-manages the club's popular Bouldering Gym, a 16-foot-high climbing wall built five years ago (by Keller Rinaldo '09, among others) in a former squash court in the basement of Lowell House. Climbing in particular "is becoming astronomically more popular because of the creation of urban gyms; it has expanded from a niche sport," Brotherton reports. His girlfriend, Brianna Goodale '09, also a rock climber, teaches the skill at the indoor Metro Rock gym near Boston, where a new program has opened climbing to underprivileged children. Rock climbing outdoors, he adds, is relatively acces-

University affiliates. Founded in 1924, the club was revitalized about 10 years ago and now has a large cohort of climbers, as well as mountain bikers, kayakers,

to go trad climbing is about three hours north, in New Hampshire.

Sport climbing, which emerged about 25 years ago, relies on permanent anchors embedded in cliff rock that climbers clip into during the ascent. The emphasis is on gymnastic athleticism, speed, and endurance. Trad climbing requires placing one's own anchors and thus trusting to personal judgment in the moment during the vertical ascent. It is therefore considered riskier and more adventurous.

Brotherton had one of his best trad climbs on the popular Cathedral Ledges in North Conway, New Hampshire (in the White Mountains), traveling about 400 feet on a vertical grade in six hours, which was "extremely challenging." He and club friends have also climbed Cannon Cliff in Franconia Notch in New Hampshire. "It is the most adventurous place to climb in New England because, after hiking in for an hour to get to the base, you can spend the entire day climbing to the summit, which is about 1,000 feet up," he reports. "It is a big, flat mountain top. Then you





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## NEW ENGLAND REGIONAL SECTION

can hike back or you can rappel down, which most people do not do because it is very risky for climbers below because of loose rocks falling.”

Then there is ice climbing. “Instead of hands and feet, you’re using mountain boots—so crampons can attach to the ice—and two ice picks,” he explains. Sometimes the ice is covering rocks, but more often Brotherton and his friends climb frozen waterfalls, such as those that form in the gullies of Mount Washington. Climbers debate the advantages of indoor versus outdoor rock climbing; many do one or the other exclusively. In the end, “they are completely different sports,” Brotherton asserts. “For me, nothing compares to spending the day outside climbing 60 feet up a cliff in the snow and ice.”

IF STRENUOUS ASCENTS do not appeal, try a sheer drop from an airplane. Howard White ’59 has been skydiving in New England for 47 years. People who have an intense fear of riding a roller coaster do not want to try skydiving because they “worry about that gut-wrenching terror you can get on the ride,” he says. “But you don’t have that with skydiving, because you are not attached to anything that jerks



**Athena Jiang ’11, of the Harvard Mountaineering Club, takes on “The Wave” while bouldering in Lincoln Woods, near Providence, Rhode Island.**

you around. It’s more like a floating sensation”—akin to scuba diving.

Fear of heights? Not an issue, apparently. “Once you get over that initial thought of getting out of the plane, you do not have that fear because you are so high up—you do not even notice the height,” he explains. (The jumps can occur at about 11,000 feet, and the parachutes typically deploy at about 3,500 feet.) For belly-flying (fall-

ing prone toward the ground), the focus is on maneuvering the body to stay level with one’s group of co-divers—camaraderie can be a big part of the sport. Vertical flying, falling head or feet first and traveling 150 to 160 miles per hour (versus the 120 m.p.h. in belly-flying), is a different discipline, White reports, as are the flips and spins performed during air acrobatics.

Learning to skydive is not difficult—the initial training takes about 30 minutes—although one should be in reasonably

good physical shape, says White, who was an instructor himself for many years. (A 250-pound weight limit is enforced.) He is a member of the Massachusetts Sport Parachute Club, which operates Jump Town, a skydiving center at the municipal airport in Orange, Massachusetts ([www.jumptown.com](http://www.jumptown.com)). Beginners engage in a tandem free fall, in which they are harnessed to an instructor for the free fall and the parachute ride down. White also recommends the drop zone at the Pepperell Skydiving Center near Nashua, New Hampshire, and Skydive New England in Lebanon, Maine. In the colder months, he travels to Connecticut Parachute, in Ellington, Connecticut, because it is the only regional drop zone open year-round—and he likes to land in the snow. “I’m at 9,000 jumps,” he says, “and I’m still doing it.”

THE REGION’S winter season lasts the longest in northern Maine, where adventures in dogsledding are available from late October through March. Deborah Markowitz ’86, a pulmonary and critical-care physician in Natick, Massachusetts, and her family travel north of Moosehead Lake (due west of Mount Katahdin) to mush at the Nahmakanta Lake Wilderness Camps ([www.nahmakanta.com](http://www.nahmakanta.com) or [A photograph showing a person in a climbing harness and helmet climbing a steep, light-colored rock face. The climber is positioned low on the rock, with a rope visible. The background shows a clear blue sky and some green foliage at the base of the cliff.](http://www.maine-</a></p>
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**Former Mountaineering Club head Jimmy Watts ’10 “trad” climbs at Cannon Cliff in Franconia Notch, New Hampshire.**



## NEW ENGLAND REGIONAL SECTION



**Sam Brotherton '12 belaying at the top of the Henderson Ridge on Mount Washington during a Mountaineering Club trip**

dogsledging.com). The year-round lodge was established in 1872 and now supports or leads wilderness adventures, including backcountry cross-country skiing and snowshoeing, fishing, hiking, boating—and moose tours.

In winter and early spring, the camp is accessible only by snowmobile, Markowitz notes; visitors are picked up by Don

## Resources

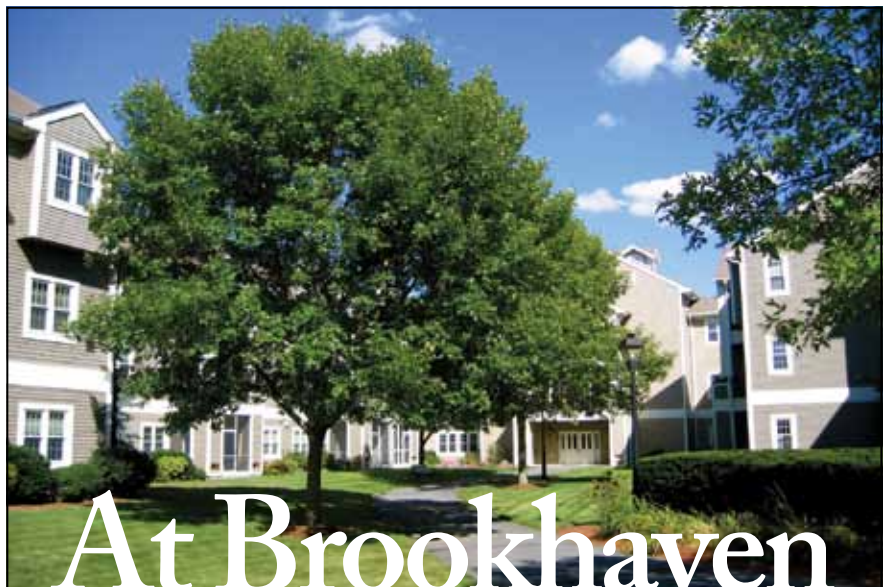
**Appalachian Mountain Club** (trips, lodging, training, and education)  
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 800-372-1758

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 800-890-JUMP (5867)  
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**Metro Rock** (indoor and outdoor climbing courses)  
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 617-387-ROCK (7625)  
 Everett and Newburyport, Mass.

**Nahmakanta Lake Wilderness Camps** (dogsledging, fishing, canoeing, and hiking)  
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 207-731-8888  
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## A Guide to the Great Outdoors

**For outdoor adventures** in New England, the nonprofit Appalachian Mountain Club (AMC) is the place to go. The organization offers recreational and educational activities for all ages and abilities throughout the region—including a new emphasis on urban escapes for young people.

“We run more than 7,000 activities throughout our 12 regional chapters, stretching from Washington, D.C., to

many activities listed by region and age groups at [www.outdoors.org/recreation/activities/index.cfm](http://www.outdoors.org/recreation/activities/index.cfm).)

The group's oldest trail (established in 1879 in Tucker Ravine, on the southeast face of Mount Washington) and first hut site (Madison Spring) are in the White Mountains of New Hampshire, the original focus of AMC's co-founder, Harvard astronomer and physicist Edward Pickering, S.B. 1865. New Hampshire now boasts a series of European-style, hut-to-hut hiking options (eight huts in all), also in the White Mountains. Lodges elsewhere in New Hampshire include a popular family destination in the Lakes Region at the base of Cardigan Mountain. Set on a 1,200-acre reservation, Cardigan Lodge ([www.outdoors.org/lodging/cardigan](http://www.outdoors.org/lodging/cardigan)) has trails rated at all levels of difficulty, a swimming pond, home-cooked meals, and kid-friendly events that include educational films, games, and evening campfires. “What we love about getting people outside,” Judge says, “is that it's great for their health and personal enjoyment and it is terrific in terms of the bonding that goes on with nature” and among fellow travelers.

In 2003, AMC launched its Maine Woods Initiative, which has targeted conservation and recreation lands. In 2009 it completed the purchase of the 29,500-acre Roach Ponds Tract near Baxter State Park in northern Maine, adding to a hundred-mile wilderness corridor. A trip exploring this region is offered in late May. Also in Maine is one of AMC's newest accommodations, opened last year: Gorman Chairback Lodge and Cabins on Long Pond, near Greenville, in the Moosehead Lake Region. Surrounded by 66,000 acres of AMC-owned conservation land, Gorman Chairback is part of a lodge-

to-lodge ski route and also a wilderness destination open year-round. Individual and guided activities there include hiking, paddling, skiing, snowshoeing, fly-fishing, swimming, mountain biking, and even dogsledding (with local guides).

AMC recognizes the need to expose more city dwellers, including at-risk kids and teens, to nature, and plans “to get 500,000 kids into the outdoors” in the next decade, Judge says, through initiatives such as the Youth Opportunities Program, Outdoor Leadership Training, and Teen Trail Maintenance Program. In the Boston area, for example, AMC and the Trustees of Reservations ([www.thetrustees.org](http://www.thetrustees.org)) are entering into a partnership with the Bay Circuit Alliance ([www.baycircuit.org](http://www.baycircuit.org)) to assist with stewardship and land protection of the alliance's 200-mile trail and greenway. The organization's Boston chapter is active as well with the trails and events at the Blue Hills Reservation (in neighboring Milton) that also help draw city kids outside. In addition, AMC has joined forces with other environmental and youth-focused groups to target kids in Springfield (Massachusetts), Hartford, New York City, Philadelphia, and Washington, D.C.

“We want people everywhere to power down the electronics, the iPads and iPods, that are sucking us indoors and cutting us off from the outside, and power up in the outdoors,” Judge says. “We're hearing that loud and clear from parents—and adults who are overly focused on their digital worlds. With the childhood obesity rate at 17 percent—almost triple what it was in 1980—there is really an urgency around this issue.”

Along the way, of course, the hope is also that these kids will develop a lifelong love of and appreciation for nature. “One of the unique things about us is that there is an educational component to everything we do,” Judge explains. “Kids will learn about mountain ecosystems, trail maintenance, groundwater run-off. This is the only way we are going to educate the next generation—and get them active in conservation.”



**Paddling on Long Pond with AMC's Gorman Chairback Lodge in the background.**

Maine,” says AMC's new president, John D. Judge, M.P.A. '01. “There is something here for everyone.” (Judge succeeded Andrew J. Falender, M.B.A. '71, who expanded and strengthened the organization during his 23-year tenure.) From moderate weekend hiking in the Berkshires and rock climbing in Rhode Island, to backcountry skiing in northern Maine and paddling on New Hampshire's countless lakes, AMC aims to provide trips and lodging to meet any budget. (See the



**“It’s an amazing experience being on the sled...  
being pulled by these athletes.”**

Hibbs—the certified Maine Master Guide (and former Alaskan guide) who owns Nahmakanta with his wife, Angel (also a guide, as well as the camp’s cook)—and driven in through the woods. Guests stay in log cabins with wood stoves and views of a pristine lake. Hibbs breeds and trains all the dogs and accompanies people out for mushing expeditions and training sessions. “This is not a mushing school. It’s a one- or two-day adventure for people who love animals and are fascinated by it,” Hibbs says. “They drive their own teams or stand on the runner and follow behind us. They are not cargo, they are active participants.”

The level of athleticism required is akin to what’s involved in skiing a beginner’s slope. “It’s an amazing experience being on the sled and holding on while being

pulled by these athletes,” Markowitz reports. People may “think it’s a cruel thing to do to dogs. Far from it. They just want to run. They’re leaping and excited and fairly straining at the harness to get going. There is so much energy and power.” The skill comes in handling the dogs’ strength and knowing how and when to shift body weight as the sled takes turns and speeds along the trails. Markowitz and her children, Ariel and Kayla Silverman, have also loved witnessing Hibbs’s deep relationship with the dogs, as well as learning about how they are trained, and about each animal’s particular habits and personality. “This trip is about getting

**Ariel Silverman, 10, enjoys dogsledding with her family in northern Maine at Nahmakanta Lake Wilderness Camps.**



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## NEW ENGLAND REGIONAL SECTION



COURTESY OF DEBORAH MARKOWITZ

**Nahmakanta owner Don Hibbs says his dogsledding runs offer a "one- or two-day adventure for people who love animals."**

back to nature in the wilderness and being with the animals," Markowitz says. "You can go across the frozen lake and through the snowy woods where it's so quiet and see these beautiful vistas: snow-peaked Katahdin and the Knife Edge. It's just such a spectacular experience."

IN EXPLORING nature, free from the workaday demands and digital compulsions of modern life, "you can experience the world—and yourself—on its truest terms," notes Matt Heid. He recommends hikes in the Taconic Range, which runs along the eastern New York border from northwest Connecticut into central Vermont, and Mount Greylock, in particular, for its woodland diversity. For greater immersion, he suggests a two- to three-day circuit through the Great Gulf Wilderness and over the peaks of the northern Presidential Range in New Hampshire's White Mountains. Hikers will find deep solitude amid tangled forests, mountain views, and glacial boulders—along with a rigorous physical workout: "The climb out of the Great Gulf gains 1,700 feet in less than a mile," Heid reports. One can camp the first night in the wilderness and spend the second night along the ridge itself; available lodging includes AMC huts.

New England's outdoor adventures offer varied thrills, but at the root of any excursion into nature is the promise of "spiritual nourishment," says Heid. "Our lives are fleeting. Nature is eternal." ♡

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# Urbane Yet Casual

*Boston's Audubon Circle offers terrific food in relaxed environs.*



nor the unpleasantness of many late-night Boston pubs (intoxicated louts and menus dominated by chicken wings). “We were trying to create a bar and grill where you could have drinks with friends, and, if you decided to stay for dinner, the food was really good,” says co-owner Matthew Curtis, of the restaurant’s founding in 1996. “We think the bar scene can add a little vitality to the dining room.”

Hence the open-space concept: Audubon is a long rectangular room with high ceilings and an elegantly curved bar that occupies most of one wall. Sparseness rules. The décor includes paneled walls, subdued art, and simple black tables. There’s plenty of space to walk among the tables and up to the bar, where all key ingredients, like visually distracting liquor

two more places in Harvard Square: Tory Row and Cambridge 1.

The food at Audubon is an eclectic mix, with appetizers, salads, sandwiches, and full entrées. There is an Asian, vegetarian influence, but we also enjoyed the juiciest cheeseburger, with bacon, lettuce, and tomato (\$11), that we’d had in years.

The steamed vegetable dumplings (\$9) were hot, soft, and succulent. Their dipping sauce, a thick Worcestershire-type, proved just as good for the New England crab cakes (\$11), which were properly crunchy and loaded with meat. The grilled shrimp appetizer (\$9), with a citrus sauce, was a little limp, but the chunky tomato, cucumber, and fresh mozzarella salad (\$11), dressed in a garlicky balsamic vinaigrette with focaccia croutons, made up for that.

Entrées include a \$22 rib-eye steak that looked enticing, but we opted for the pan-seared salmon (\$18). Perfectly cooked, with a slightly peppery herb coating, it came with spaetzle, a German-style pasta that had the pleasing texture of dense pieces of popcorn. Brussels sprouts on the side added an earthy green bite. The only dessert, chèvre cheesecake with Oreo crumb crust (\$8), was as light and creamy as we hoped.

Dishes aren’t fussy, and the menu rarely changes. “We care about fabulous food and the experience of being at Audubon,” notes Curtis, “but we aren’t chefs and we’re not highly dependent on one individual chef, unlike other restaurants.” This mix of high quality and low-key ambiance adds to Audubon’s appeal for locals of all ages (although late in the evening, the louder bar atmosphere may dominate). And the fact that

the kitchen is open from 11 A.M. to 11 P.M. makes it easy to pop in anytime for a relaxed meal amid relaxed people. ~N.P.B.

**A**UDUBON CIRCLE, named for its location at the quiet end of Kenmore Square, is a comfortable mix: a spacious bar/restaurant with great food in an intimately lit, minimalist setting that is all the more inviting thanks to the friendly warmth of its staff.

The kitchen is open all day, and prices range from \$6 to \$22, making it accessible to most appetites and wallets. Audubon fits a nice niche, carrying neither the burdens of a big night out in a chef-owned restaurant,

**Minimalist décor that is both restful and dynamic allows the food to shine.**

bottles, are stashed away in tall cabinets. Curtis once installed prominently branded beer-tap handles “to add a little color to the place,” but patrons told him he’d ruined the atmosphere, so he took them out.

Curtis and his business partner, Chris Lutes, opened their first restaurant, Miracle of Science, on Mass. Ave. in Cambridge near MIT in 1991. At the ages of 25 and 30, respectively, it was a place they and their brainy friends liked to hang out. They have since become mature restaurateurs, with

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# Montage

Art, books, diverse creations



- 14 The Rampage of the Rufus Buck Gang
- 15 Tweeter Titters
- 16 Open Book
- 18 Chapter and Verse
- 18 Justice Falls Down
- 20 Off the Shelf

chief theft investigator—that he has work to do. “They hang there as testament to our belief that we’ll get them back someday,” he says. “They’re placeholders, not memorials.”

Amore, a longtime security expert for the federal government, had previously directed an overhaul of security at Boston’s Logan Airport after the September 11 terrorist attacks. Upon taking the Gardner job,

he began studying the history of art theft and discovered it’s more *Jersey Shore* than James Bond. In contrast to the image of suave billionaires employing high-tech schemes

**Anthony Amore at the Isabella Stewart Gardner Museum in Boston, with empty frames that held venerable paintings before the 1990 theft**

to steal paintings, the reality is clueless yokels hiding Rembrandts in the hayloft of a pig farm—or thieves driving off with a canvas on top of a station wagon, only to get caught when they bragged about it in a bar afterward. Eventually, Amore accumulated enough tales to fill his 2011 book, coauthored with Tom Mashberg, *Stealing Rembrandts: The Untold Stories of Notorious Art Heists*.

“What made the book interesting was what became of all these bumbling

## Hot Canvases

*A new book shatters myths about art theft.*

by DAVID MENCONI

EVERY DAY when he goes to work at Boston’s Isabella Stewart Gardner Museum, Anthony Amore, M.P.A. ’00, sees an empty frame on the wall. It used to hold Johannes Vermeer’s *The Concert*—one of 13 paintings stolen from the Gardner in the early-morning hours of March 18, 1990, when thieves posing as police officers got inside, subdued the guards, and made off with a haul in-

cluding a Monet, three Rembrandts, and *The Concert* (which Amore calls “the white whale of all missing paintings”). The stolen works have a total estimated worth of around \$500 million, making the robbery the largest property theft ever.

In fact, four empty frames representing those masterpieces still hang on the museum’s walls, reminding Amore—since 2005 the Gardner’s head of security and

crooks,” Amore says. “There are no Brad Pitts out there stealing art, and there is no Dr. No. The first James Bond film had Dr. No holding Goya’s *The Duke of Wellington*, which was missing at the time, and that image has persisted. In fact, *The Duke of Wellington* had been stolen by an old-age pensioner in England who was unhappy with his taxes. It’s not the Hollywood stories you’d expect. More like a Coen Brothers film.”

On rare occasions, thieves actually get away with it. Amore selected his book title because Rembrandts are among the most frequently stolen artworks (“They’re the perfect storm of value and name recognition,” he says). One of the book’s more colorful stories is the case of Myles Connor, a Massachusetts con man in trouble with the law in 1975. Told by a district attorney that he could help his cause by recovering a stolen Rembrandt, Connor stole one from Boston’s Museum of Fine Arts, hid it for a time, and then delivered



**The Concert by Johannes Vermeer (1632-1675). Now missing, it is one of only 34 verified Vermeers.**

are stealing problems, not paintings. About a month after *Stealing Rembrandts* was published, a Rembrandt sketch was stolen from an exhibit in Marina Del Rey, California. After a publicity blitz that included Amore doing radio and television interviews in which he urged the perpetrators to give the sketch up because they’d never be able to sell it, the work was anonymously returned.

But no such luck on the 13 Gardner paintings, at least not yet. They’ve been missing for more than two decades and Amore is still working on the investigation every day, running down leads and “making the haystack smaller.” Someday, he vows, that

needle will turn up, which is one reason he has thus far put off suggestions that he write a book devoted solely to the Gardner theft and investigation.

“In my mind, there is no book until they’re recovered,” he says. “The good news about art theft is that more than 70 percent of them are recovered. And that’s a number that will go up when I get the Gardner paintings back.”

COURTESY OF THE ISABELLA STEWART GARDNER MUSEUM



Visit [harvardmag.com/extras](http://harvardmag.com/extras) to view an original video on the Gardner heist, as well as additional images of the stolen paintings.

it up and got his deal. He never admitted he was the thief until writing his autobiography years later. “That’s the best example I’ve found of art being stolen as a get-out-of-jail-free card,” Amore says.

More often, however, art theft doesn’t pan out even when thieves can overcome their own ineptitude, because masterpiece paintings are as impossible to sell as they are valuable. As Amore puts it, art thieves

## The Rampage of the Rufus Buck Gang

*A gritty Western depicts a brief, violent crusade.*

by CRAIG LAMBERT

IN THE SUMMER of 1895, in the Indian Territory that became Oklahoma, a ragtag gang of five teenaged boys—all black, Native American, or of mixed race—went on a vicious two-week spree of robbery, rape, and murder. The apparently random violence terrified not only the local white settlers but also the neighboring Indians and African-American

freedmen. But the violence wasn’t random. The gang’s leader, Rufus Buck, the 18-year-old son of a black mother and Creek father, burned with a zealot’s passion: he dreamed that his gang’s spree would trigger an Indian uprising that would expel the illegal white majority and reclaim the whole Territory for its native people.

That true story forms the basis for the

2011 novel *I Dreamt I Was in Heaven: The Rampage of the Rufus Buck Gang*, by Leonce Gaiter ’80. His fictional account (buckrampage.com) of the gang’s bloody tear through the dusty Indian country had its seeds in a clipping given to him 20 years earlier that included the only known photograph of the five outlaws. “They looked so young that it was quite shocking,” he says. “Some



S T R E A M I N G

# Tweeter Titters

**I** didn't make a joke until I was 17 years old," Megan Amram '10 claims. Perhaps she was saving them up all those early years. Today she posts quite a few jokes on her Twitter feed, and more than 135,000 followers read them daily. They are often dark witticisms, the products of an entertainingly warped mind—such as, "Luckily my grandpa died of natural causes (8.4 magnitude earthquake)." Or, "I can't believe Lou Gehrig's parents named him after a DISEASE." (See sidebar for other examples.)

Amram describes herself as a former "super nerd" who discovered comedy in college. She wrote two Hasty Pudding shows (*Acropolis Now* and *Commie Dearest*) with her roommate, Alexandra Petri '10 (now a *Washington Post* columnist), making them the first all-female team of Pudding playwrights. Amram also frequently performed in plays at Harvard, and moved to Los Angeles three months after graduating to break into The Industry, as it is called there. "I never had a Plan B," she says.

For comedy writers, Twitter may be turning into a new form of job interview. Amram started tweeting jokes in the spring of 2010; some show-business people began following her and "created a lot of buzz around me, pretty randomly," she says. She shared mutual friends with comedian and comedy writer Jordan Rubin, who asked her to write jokes for "this thing" he was doing. The "thing" turned out to be the 2011 Academy Awards telecast; Amram signed on to create quips for co-hosts James Franco and Anne Hathaway. (She had met both stars before: they had been, successively, the Pudding's Man of the Year and Woman of the Year when Amram's shows were staged.) It's hard to top that start: "Forever, I will be able to say that my first job was writing for the Oscars."

Meanwhile, Amram got a desk job assisting producers of a Disney Channel show, *Ant Farm*. After two weeks, her tweets struck again. The producers said they had heard she was writing for the Oscars and they had read her on Twitter, and would she like to write for *Ant Farm*?

"Twitter is a good way to show that you're prolific and that you can write jokes about tons of things," she says. "It's sort of a portfolio. Until Twitter, like, self-implodes, it's probably going to be useful to comedy writers for the foreseeable future."

Amram's own foreseeable future includes writing for *The Nick Show Kroll*, a sketch show starring the eponymous actor and comic, set to premiere this year on Comedy Central. She con-

## Sweet Tweets

3-D is a good type of movie but a bad type of bra size.

Everyone knows about the one phone call from jail, but you never hear about the UNLIMITED TEXTING.

Seems like a life coach's first job should be to coach himself to get a better job than life coach.

It's less whimsical to be an eccentric thousandaire.

*Posted just before Rosh Hashana:*

Dear Jews: want something new to worry about? Y6K is just around the corner!

A little bird told me I'm schizophrenic.

Cleanliness is next to godliness in a dictionary missing some stuff.

Las Vegas is what would happen if a spam filter came to life.

When I tell you no one's ever thrown me a surprise party, just know that I'm not counting interventions.

4 out of 1 dentists have multiple personality disorder.

Long distance relationships are tough. I mean, how do they seriously expect me to stay at least 500 yards away from my ex at all times??

I'll have a glass of 1% milk. Please make the other 99% Kahlúa.

tinues to tweet her jokes within Twitter's 140-character limit, especially in the morning and late afternoon, when, she says, "there are lots of people online." She tries never to miss a day and usually tweets two or three times, including a good pun when one occurs ("I like my eggs ovaries.") Yet Twitter "does not prepare you for writing professionally," she explains. "Writing for Hasty Pudding did that."

—CRAIG LAMBERT

COURTESY OF MEGAN AMRAM

Megan Amram



O P E N B O O K

# India's Sacred Geography

interconnected pilgrimage sites throughout India. Now she explicates that interwoven world-view of the sacred and the profane in *India: A Sacred Geography* (Harmony Books, \$27)—a sweeping examination of texts, places, and beliefs that may also help to explain to Western readers the rise of place-based Hindu nationalism in Indian politics. From chapter 2, “What Is India?”

In ancient Greece, Eratosthenes, in the third century B.C.E., was the first to coin the word “geography.” He clearly saw his work—the mapping of the known world, the *oikoumene*, and the calculation of its circumference—to be quite distinct from the kind of world description found in Greek myths or in the epics of Homer. Ernst Cassirer has distinguished the “geometric space” that concerned Eratosthenes and, a few years later, Euclid,

and for the multitude of gods and goddesses one encounters in the temples and public spaces of India. Less well known, however, is the fact that Hindus have been equally avid geographers who have described with considerable detail the mountains, river systems, and holy places of India. For the most part, Hindu mythology has been studied by one group of scholars, primarily historians of religion, while the geographical traditions have been studied and catalogued by another group, primarily British and Indian civil servants, historical and cultural geographers. The great geography scholar Bimala C. Law speaks for this latter group when he confesses, “One finds it tedious to read the legendary history of *tirthas* or holy places, but to a geographer it will never be a fruitless study.”

Here we look at mythology and geography together, in a single view, to see what we can learn of this complex conception of the land of India. Rather than focusing exclusively on texts, however, we begin “on the ground,” with shrines, rivers, and hilltops where pilgrims have enacted the sense of connectedness that is part of pilgrimage. This intersection of mythology and geography reveals how the people who have come to be called Hindus have “mapped” their world and how they have understood the land they have called Bhārata in relation to the larger universe. There is arguably no other major culture that has sustained over so many centuries, and across such diverse regions, a fundamentally locative or place-oriented world-view.

Three decades ago, Diana L. Eck—master of Lowell House and Wertham professor of law and psychiatry in society (a scholar of South Asian religions, despite her chair’s title)—wrote *Banaras: City of Light*, exploring Hinduism through its holiest pilgrimage site. Her perspective has become ever more expansive, as she has explored the

The boys in the gang aren’t even faintly romantic villains, but lost, unloved souls.

of them looked like babies. There was something incredibly compelling about that photograph, and I immediately felt, ‘My God, I would love to write about that.’”

Yet the writing came hard, and Gaiter, whose 2005 novel *Bourbon Street* is a noir tale set in 1958 New Orleans, made multiple false starts. Still, he did extensive historical research, mining century-old news clippings and court documents. “This was an extraordinarily difficult piece to get my head around,” he explains. “You have people who are doing horrible things, but you must understand *why* they are doing them. I’m not asking you to sympathize with their actions, but I want you to find their motives, given the personal and sociopolitical contexts, compelling. I wanted to create a dramatic story—I *do* write to entertain—but I also wanted a story that gives you a reason to read it. Not just something where you say afterwards, ‘Well, that was unpleasant.’”

He finally hit on the story’s rhythm, register, and key—a jazz buff, he says that “Music is my principal metaphor for everything”—by expanding its scope to include the politics of the Indian Territory



**Sacred scene in a sacred landscape:** “Radha and Krishna Walk in a Flowering Grove,” Kota Master, 18th century

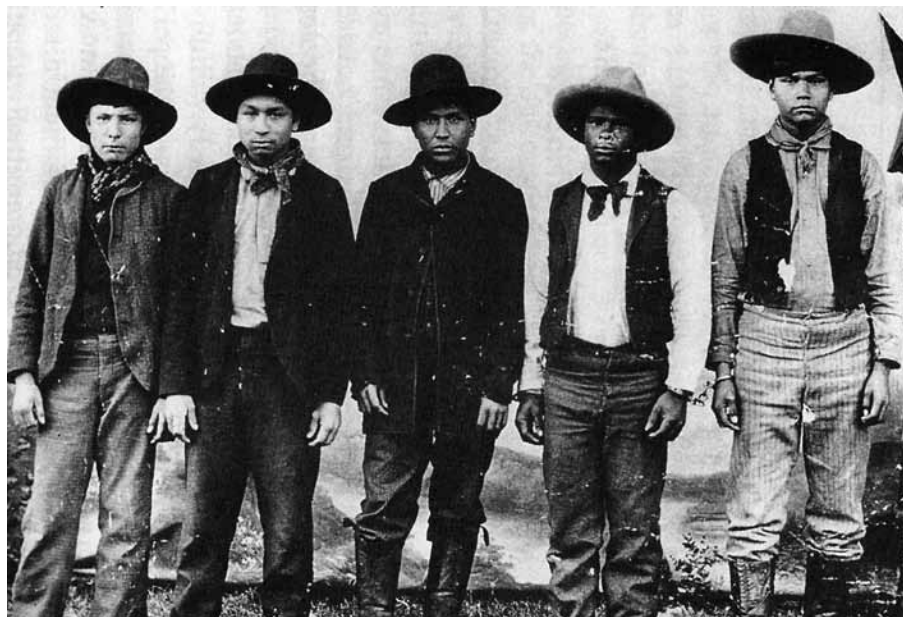
from what he calls the “space of perception” and “the space of myth.”...While Olympus and Delphi retained their mythic charge in Greece itself, the study of geography began to diverge from the image of the world composed by the great Greek mythmakers....

Students of Hinduism or travelers in India quickly become aware of what prolific mythmakers Hindus have been. The Hindu tradition is famous for its mythol-



**Leonce Gaiter**





**The only known photograph of the Rufus Buck gang, taken in the summer of 1895 in Indian Territory. Buck is in the middle.**

and characters like the famous mixed-race outlaw Cherokee Bill (1876-1896), who was jailed in Fort Smith, Arkansas, when Buck was also incarcerated there. The deeply religious federal magistrate Isaac Parker (1838-1896), a “hanging judge” who ruled the judiciary in the area for decades and tried Buck’s gang, also plays a central role.

The fictional Theodosia Swain is the blonde, beautiful, and feral 13-year-old daughter of a white bourgeois widower, a thoroughly embittered ne’er-do-well from Mississippi whose world collapsed with that of the old South after the Civil War. When the Buck gang carries her off, she blithely accompanies them on their rampage—and the racial and sexual overtones of that reality both outrage and confound the white citizenry after the gang’s arrest.

The novel’s raw, unvarnished portrait of the Old West sounds and feels both grittier and more real than the place frequently seen in Hollywood Westerns and on television. For example, when the embryonic Buck gang starts selling liquor, they receive “three cases of brown whiskey in plain bottles that had been mixed with creek water and seasoned with chilies, tobacco, and a touch of strychnine to give it a much-appreciated kick.” The boys in the gang aren’t even faintly romantic villains, but lost, dimwitted, unloved souls staggering clumsily through the world, creating havoc not from evil plans but from sheer teenage impetuosity. When the gang

steals some horses from a livery stable, for example, one boy heedlessly tosses a lantern onto a pile of hay as they leave, setting the building ablaze, nearly incinerating two other horses left behind, and eventually burning down half the small town.

The gang embodies a dangerous combination: a volatile, high-testosterone mix of young male energy with no meaningful channel (or future), lethal weapons, and an evangelical, simplistic, dogmatic ideology. It has much in common, in other words, with today’s terrorist cells and extremist paramilitary groups. “Rufus’s trajectory, the quasi-religious mania that inspires his mission, has a template,” Gaiter says, “and that template fits religious zealots, from John Brown to Saint Paul. If you want to consider them all crazy, you can—but some of these crazy people have changed the world.”

Rufus Buck (“Even his name sounds like a criminal’s,” Gaiter notes) did not change the world. But the author says he went down “fighting for his identity. What was done to the Indians was as brutal as what Rufus did.” Buck’s victims were mostly unlucky whites the gang happened on (though his first murder is that of a black U.S. marshal), but “people alight with righteous rage go after symbols of their oppression,” Gaiter explains, “not the people who’ve done the actual harm.”

Gaiter himself is an African American, from a military family with New Orleans roots. He concentrated in visual and en-



Visit [harvardmag.com/extras](http://harvardmag.com/extras) to hear Leonce Gaiter reading passages of his work aloud.

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vironmental studies and says he spent “thousands of hours” listening to jazz and classical music in the Loeb Music Library. He has lived most of his adult life in California, first in Los Angeles, where he was a story analyst for CBS and a paralegal for A & M Records. Now he lives in a “horsey community” near Sacramento, where he works as director of marketing for a technological company—and rides horses. “That’s something I never thought I’d do,” he says. “Own horses.”

Reflecting on his novel, he says, “The history of African-American letters is largely a history of people who take the outside world’s condemnation and destroy themselves by turning it inward. *Native Son*, *Invisible Man*, *Beloved*—these are all people who take the hatred that is spewed at them and internalize it. I got sick of reading those books, because they suggest a passive, pathetic people, which I know I am not from. The fact that these teenagers were fighting back—as a black man, that meant a great deal to me. Win or lose, right or wrong, they went out fighting, and that matters.”

## Chapter & Verse

Correspondence on not-so-famous lost words

**Donald Kinnear asks** which Aldous Huxley novel “contains a dissertation on death and dying with the first line, ‘Death is the beginning, not the end.’ It was written in French and then translated into English.”

**More queries from the archives:**

A hymn containing the phrase “Jesus seeking the humble heart.”

A poem containing the lines: “In the corner of the field/A boy flicks a spotted beetle from her wrist.”

A poem that refers to geese and also contains the line, “The distant hills draw night.”

A poem that contains the sentence, “The woodlands lead the feet to green adventure.”

The titles of a Broadway show and the song from that show with a chorus declaring, “Maybe I’ll jump overboard but I’m afraid I’ll drown;/Water isn’t cool enough to cool this baby down.”

“stalk” (January-February). Responding to a request for pre-1968 usage of “stalk” in the “modern sense of obsessive, unwanted attention,” a reader suggested a line from Shakespeare’s *Troilus and Cressida*: “...I stalk about her door;/like a strange soul upon the Stygian banks/staying for waftage” (act III, scene ii).

Send inquiries and answers to “Chapter and Verse,” Harvard Magazine, 7 Ware Street, Cambridge 02138, or via e-mail to [chapterandverse@harvardmag.com](mailto:chapterandverse@harvardmag.com).

## Justice Falls Down

*America’s flawed criminal justice system*

by TRACEY L. MEARES

THE TITLE OF William J. Stuntz’s masterwork, *The Collapse of American Criminal Justice*, is at first glance a misnomer. “Collapse” does not describe a system that seems to be humming along, processing ever-larger numbers of Americans. Stuntz notes that our rate of incarceration is closing in on 500 inmates per 100,000 people, up sevenfold from a century ago. But upon reflection, the last word of the book’s title really makes his point: it is *justice* that has collapsed, not the system that purportedly delivers it.

Stuntz, the late Friendly professor of law, was a giant among legal theorists of criminal law and procedure. This reader has long followed his scholarship, which is characterized by impressive originality and quirky counterintuitive claims. In his book, published just months after his trag-

ic early death from cancer at 52 last spring, Stuntz lodges two major complaints about U.S. criminal law and procedure. First, he claims that far too many people are caught up, prosecuted, and incarcerated. Today’s system is directed primarily and often-times arbitrarily by over-powerful prosecutors whose discretion is not adequately circumscribed, given the political realities of local urban law enforcement dictated by disinterested suburbanites who also fuel the politics of legislative actions. Second, Stuntz claims that African Americans bear the brunt of official decisionmaking and—primarily because of two sets of Supreme Court decisions—have little power to effect systemic change. In support of these conclusions, Stuntz pursues a fascinating and intricate journey through history, empirical evidence, and judicial interpretation, contrasting our contem-

porary practices with those of the past.

The book’s first section is a big-picture history. Stuntz creatively compares the country’s crime statistics and punishment practices from the mid nineteenth to the early twentieth centuries (when thousands of mostly European immigrants arrived in the United States and settled primarily in eastern cities) to those from the “Great Migration” (when thousands of southern African Americans moved north). According to Stuntz, white northeastern immigrant defendants in the early nineteenth century were able to protect themselves from injustice without the benefit of constitutional rights and procedures. Instead, they relied upon local politics. The second wave of migrants, black, was unable to deploy comparable political power in the same ways. In the second section of the book, Stuntz explains what he thinks caused the difference in a rich, detailed, and thorough analysis of the jurisprudential path to the constitutional procedures that today are celebrated as the hallmarks of American

William J. Stuntz,  
*The Collapse of American Criminal Justice*  
(Harvard, \$35)



criminal justice—and that are, in his view, the basis of its collapse.

STUNTZ'S TAKEDOWN of constitutional criminal procedural rights is striking. He begins with the Founding, pointing out that federal and state criminal law differed entirely from one another at that time, and that policing as we know it was then nascent at best. By the Civil War's end, however, the local machinery of criminal justice with which we are familiar was largely in place. Critically, that machinery and the substantive criminal law that provides oil to the machine's gears developed *independently* of the influence of federal constitutional law. Still, there were failures of justice—for instance, private groups terrorized southern blacks, and state governments were unable to protect them. When the Supreme Court was given an opportunity to interpret the Fourteenth Amendment in a way that would insure that *all* Americans, especially the newly freed slaves, would enjoy both freedom from government oppression and freedom from private violence, the Court ducked. Stuntz, bluntly and to the point, writes, "The ideal of equal protection...was for all

practical purposes dead. So were thousands of southern blacks who needed that protection, and needed it badly."

But despite the Supreme Court's failure, he shows that at least in the Northeast, extending into the early twentieth century, criminal justice was largely egalitarian. Cities were the places where the "poor and ordinary workers had the most political clout." Crime was low compared to today's rates, and not because we punished more—New York State incarceration rates today are three to four times those of a century ago. Almost shockingly, Stuntz claims that blacks then avoided conviction at the relatively high rates prevalent today (at least in the large industrial cities) not because they lived in racially enlightened times but because *all* defendants fared better. The prescription: large police forces; low levels of required criminal procedures, which in turn made conducting trials cheap and jury judgments common; and relatively vague, defendant-friendly, substantive criminal law defined primarily by judges, rather than by legislators, as is now the case. Stuntz argues that this elixir, combined with local political control over policing and prosecution, produced the favorable statistics he celebrates.

What Stuntz calls "Earl Warren's Errors" changed all this. In an attempt to promote civil rights for all criminal defendants, es-

**American criminal justice in process:  
inside the Men's Central Jail, in down-  
town Los Angeles, October 2011**



Photograph by Reed Saxon/Associated Press/Corbis Images



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pecially poor African-American ones from the South, the Warren Court crafted a constitutional “code” of criminal procedure specifying a host of rules such as strictures dictating the provision of counsel, the availability of jury trials, the reading of warnings during police interrogation, and the exclusion of evidence when the rules were violated. In an argument bound to infuriate the American Civil Liberties Union, Stuntz argues essentially that *rights are wrong*: rather than promoting equality of access to justice by rich and poor defendants alike, the Court’s procedural approach *exacerbated* the gap. Wealthy defendants who already could afford lawyers received even more ammunition to achieve acquittals. Poor defendants, on the other hand, suffered the bite of a political backlash fueled by the perception that the guiltiest defendants were receiving the most procedural protections at a time when crime in cities was skyrocketing.

In his book’s final chapter, Stuntz offers some strategies for repair. He advocates increasing the number of police on the streets, and of prosecutors and defense counsel. More police patrols, he suggests, should lead to crime control through the

most politically responsive agency in the system—as he says occurred in the early twentieth century. More lawyers in the system could result in more trials and system transparency, in contrast to the low-visibility plea bargains that dominate convictions today. But local accountability ought to accompany transparency, Stuntz argues, so we also need system changes that promote neighborhood democracy. He is clear-eyed here: he admits that traveling with him requires a major measure of hope. But he remains hopeful nonetheless.

A QUESTION one comes away with at the end of his story, though, is whether those who potentially stand to benefit from his diagnosis and recommended therapy—primarily African-American men—agree with him. Twenty-three-year-old community college student and *New York Times* editorialist Nicolas K. Peart recently has written cogently and compellingly about being stopped and frisked by New York City cops five times since he turned 18. What would Peart say about Stuntz’s proposals? I suspect he’d be quite concerned about a cornerstone of those recommenda-

tions: more police on the street. Stuntz’s strategy makes sense. More policing can result in lower levels of crime *without* increasing imprisonment. It can be a substitute for incarceration as opposed to an automatic conduit to it, as many suppose. But intensified policing potentially brings with it increased estrangement from the police among people like Peart, the very group Stuntz intends to help.

No doubt Stuntz’s solutions—more policing, more prosecutors, more defense counsel, and more opportunities for the community to speak through jury trials about exactly what it will (and will not) tolerate—are potentially useful. But none of these mechanisms is particularly welcome in a world where the group suffering most from the incidence of crime *and* from the excesses of strategies designed to combat crime distrusts that system and even views it as illegitimate. Simply putting more cops on the street, even if incarceration rates decline, is unlikely to enhance perceptions of the system’s legitimacy.

Somewhat counterintuitively, people typically care much more about *how* they are treated by law enforcement agents

## Off the Shelf

Recent books with Harvard connections

**The People’s Courts: Pursuing Judicial Independence in America**, by Jed Shugerman, assistant professor of law (Harvard, \$35). At a time when judges are objects of derision in certain presidential primaries, and subject to heavily funded interest-group campaigns in some states, the author explores the uniquely American practice of judicial elections and the consequences for an independent judiciary—possibly “a new crisis for the rule of law.” Timely and important.

**The Power of Habit**, by Charles Duhigg, M.B.A. ’03 (Random House, \$28). The *New York Times* investigative reporter examines “Why We Do What We Do and How to Change It” by drawing on business case studies, neuroscience, William James, and more.

**But Will the Planet Notice?** by Gernot Wagner ’02, Ph.D. ’07 (Hill and Wang, \$27).

An Environmental Defense Fund economist says frankly that, given the seven billion people on the planet, when it comes to “paper or plastic,” “what you and I do individually does not make the least bit of difference on its own.” Economics, however, can help: witness control of acid rain, removal of lead from gas, et cetera.

**How to Read the Qur’an**, by Carl W. Ernst, Ph.D. ’81 (University of North Carolina, \$30). The Kenan Distinguished Professor of religious studies at UNC Chapel Hill offers non-Muslims a new guide, with select translations, to a fundamental text that is more debated—and feared—than read in contemporary America.

**The Assumptions Economists Make**, by Jonathan Schlefer (Harvard, \$28.95). Behavioral economics is much in vogue—but what about economists’ behavior? The author, a Business School research associate, looks into the assumptions that underlie these social scientists’ seemingly scientific models and finds human frailty, prompting

his final recommendation: that the brethren “explain publicly what they do not know.”

**New York at War**, by Steven H. Jaffe, Ph.D. ’89 (Basic, \$29.99). An independent historian probes Gotham as a strategic site shaped by war, from Indian attacks on Henry Hudson through the aerial horror of 9/11. Four centuries of “combat, fear, and intrigue” (as the subtitle has it) make one marvel at the concurrent ability to cope with threats and enable casual tourism.

**Visionary Journeys**, by Xiaofei Tian, professor of Chinese literature (Harvard University Asia Center/Harvard University Press, \$39.95). During the spread of Buddhism in the fourth and fifth centuries, and in the nineteenth century, China and its people collided with outside ideas—as they have again since Deng Xiaoping’s “reform and opening.” A close reading of travel writings from those eras reveals profound cultural impacts. (The author participated in this magazine’s “Changing, Challenging China” roundtable, March–April 2010, page 25.)



than about the particular *outcome* of the contact—that is, whether they are arrested or not. Research shows that people care about being treated with dignity and respect, and, when encountering police, they look for behavioral signals that allow them to assess whether the officer's decision to stop or arrest them was made accurately and without bias. Perceptions of good treatment and fairness are the foundations of *procedural* justice. Social-science evidence from around the world shows that people are more likely to obey the law voluntarily when they believe that authorities have the right to tell them what to do. In fact, people may be at least as motivated to comply with the law by the belief that they're being treated with dignity and fairness as by fear of punishment. When police generate good feelings in their everyday contacts, it turns out that people are motivated to help them fight crime.

In this significant work, Stuntz recognizes the importance of this kind of legitimacy. "[W]hen the justice system seems legitimate to the young men it targets," he writes, they "are more likely to follow the system's rules. When that justice system seems illegitimate

to those same young men, crime becomes more common and harder to control."

My colleague, Tom Tyler, who has done the foundational work in this area, would argue that procedures, not substance, are the keys to enhancing legitimacy. The kind of procedures engineered by the Warren Court likely are not particularly helpful. Transparency is. And so are rules that help to identify wrongdoers with accuracy and that help to dampen bias. Procedures that allow participation—juries, yes, but also stop-and-arrest processes that give the target a chance to tell her side of the story—are critical. Perhaps most importantly, legitimacy is created when policymakers welcome the help of high-crime communities in developing crime-control strategies, and when police officers focus on courtesy and respect in interactions with citizens.

Nicolas Peart may not disagree with Bill Stuntz's analysis at the end of the day, but I am less confident that Peart would welcome Stuntz's proposed remedies, no matter how closely they are tied to his critical diagnosis. Addressing this country's addiction to imprisonment is not the same as attempting to repair the con-

sequences of our sad history with respect to race and crime. I think Stuntz is right on the money on the first, but the second needs a concerted effort toward racial reconciliation in criminal justice.

Bill Stuntz was a remarkable human being. In addition to being a towering intellect, he was a singularly humble man who regularly wrote for a blog (begun with a fellow law professor and evangelical Protestant) named *Less than the Least*. *The Collapse of American Criminal Justice* teaches us a great deal despite any flaw we may find in it. And even going part of the way with Bill is a path worth walking. ▢

Tracey L. Meares is Hamilton professor of law at Yale Law School, where her teaching and research focus on criminal procedure and criminal-law policy. She has written on policing and incarceration, among other subjects. Since 2004, Meares has served on the Committee on Law and Justice of the National Research Council.



**Henry Friendly: Greatest Judge of His Era**, by David M. Dorsen '56, J.D. '59 (Harvard, \$35). The life, thought, and work of the jurist ('23, LL.B. '27, LL.D. '71)—most prominently of the U.S. Court of Appeals for the Second Circuit—are analyzed comprehensively. In the foreword, the Honorable Richard A. Posner, LL.B. '62, who is in a position to know (Seventh Circuit), says of the work, "[W]e learn more about the American judiciary at its best than we can learn from any other biography."

**The Missing Martyrs**, by Charles Kurzman '86 (Oxford, \$24.95). A professor of sociology at UNC Chapel Hill finds Muslim terrorists a marginalized and declining cohort, despite young Muslims' alienation from perceived Western support for discredited governments in the Islamic world (some of them, of course, now being swept away).

**Kayak Morning**, by Roger Rosenblatt, Ph.D. '68 (Ecco, \$12.99 paper). A highly personal reflection on grief, following *Making Toast*, the author's book about the death of his adult daughter.

**The "Enemy Alien Menace" looms over lower Manhattan: The New York Herald, March 28, 1918; cartoon by W.A. Rogers**

**The Novel after Theory**, by Judith Ryan, Weary professor of German and comparative literature (Columbia, \$29.50). Surrounded by literary theory, novelists began to imbibe and incorporate it into their fictions. Ryan examines the results in works by Don DeLillo, Thomas Pynchon, Margaret Atwood, and others.

**Demand: Creating What People Love Before They Know They Want It**, by Adrian J. Slywotzky '73, J.D. '76, M.B.A. '80, and Karl Weber, B '91 (Crown Business, \$27). A consultant and a business writer examine triggers, trajectories, and launches from Kindle and Teach for America through marvels yet unknown and undesired. They might make a good panel with Charles Duhigg, above, on the intersection with willpower.

**Miss Fuller**, by April Bernard '78 (Steerforth Press, \$14.99). A short historical

novel about Margaret Fuller, journalist and women's-rights pioneer. It begins with an ending: a shipwreck. (The author, a poet and novelist, was profiled in "Noir Romantic," November-December 2010, page 24.) For voracious readers of a factual bent, pretty nearly all the facts concerning Fuller are in *The Lives of Margaret Fuller* (Norton, \$32.95), a new biography by John Matteson, J.D. '86, whose Alcott family biography—same era—earned the 2008 Pulitzer Prize.

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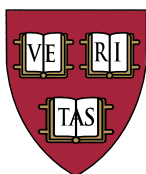
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# Twilight of the Lecture

The trend toward  
“active learning”  
may overthrow the  
style of teaching that  
has ruled universities  
for 600 years.

by CRAIG LAMBERT

**I**N 1990, after seven years of teaching at Harvard, Eric Mazur, now Balkanski professor of physics and applied physics, was delivering clear, polished lectures and demonstrations and getting high student evaluations for his introductory Physics 11 course, populated mainly by premed and engineering students who were successfully solving complicated problems. Then he discovered that his success as a teacher “was a complete illusion, a house of cards.”

The epiphany came via an article in the *American Journal of Physics* by Arizona State professor David Hestenes. He had devised a very simple test, couched in everyday language, to check students’ understanding of one of the most fundamental concepts of physics—force—and had administered it to thousands of undergraduates in the southwestern United States. Astonishingly, the test showed that their introductory courses had taught them “next to nothing,” says Mazur: “After a semester of physics, they still held the same misconceptions as they had at the beginning of the term.”

The students had improved at handling equations and formulas, he explains, but when it came to understanding “what the real meanings of these things are, they basically reverted to Aristotelian logic—thousands of years back.” For example, they could recite Newton’s Third Law and apply it to numerical problems, but when asked about a real-world event like a collision between a heavy truck and a light car, many firmly declared that the heavy truck exerts a larger force. (Actually, an object’s weight is irrelevant to the force exerted.)

Mazur tried the test on his own students. Right at the start, a warning flag went up when one student raised her hand and asked, “How should I answer these questions—according to what you taught me, or how I usually think about these things?” To Mazur’s consternation, the simple test of conceptual understanding showed that his students had not grasped the basic ideas of his physics course: two-thirds of them were modern Aristotelians.

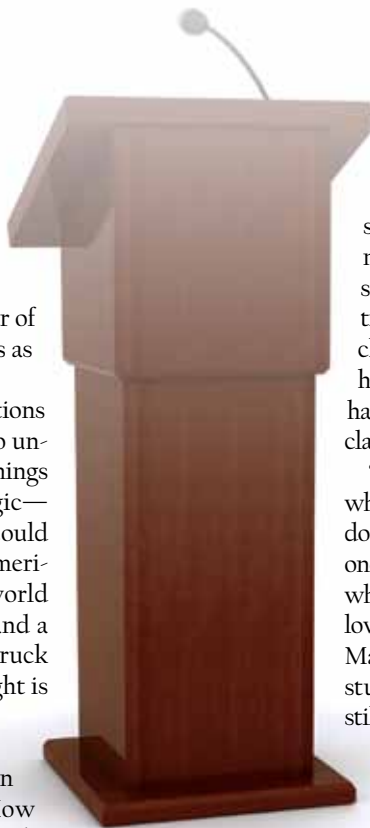
“The students did well on textbook-style problems,” he explains. “They had a bag of tricks, formulas to apply. But that was solving problems by rote. They *floundered* on the simple word problems, which demanded a real understanding of the concepts behind the formulas.”

Some soul-searching followed. “That was a very discouraging moment,” he says. “Was I not such a good teacher after all? Maybe I have dumb students in my class. There’s something wrong with the test—it’s a trick test! How hard it is to accept that the blame lies with yourself.”

Serendipity provided the breakthrough he needed. Reviewing the test of conceptual understanding, Mazur twice tried to explain one of its questions to the class, but the students remained obstinately confused. “Then I did something I had never done in my teaching career,” he recalls. “I said, ‘Why don’t you discuss it with each other?’” Immediately, the lecture hall was abuzz as 150 students started talking to each other in one-on-one conversations about the puzzling question. “It was complete chaos,” says Mazur. “But within three minutes, they had figured it out. That was very surprising to me—I had just spent 10 minutes trying to explain this. But the class said, ‘OK, We’ve got it, let’s move on.’”

“Here’s what happened,” he continues. “First, when one student has the right answer and the other doesn’t, the first one is more likely to convince the second—it’s hard to talk someone into the wrong answer when they have the right one. More important, a fellow student is *more likely* to reach them than Professor Mazur—and this is the crux of the method. You’re a student and you’ve only recently learned this, so you still know where you got hung up, because it’s not that long ago that *you* were hung up on that very same thing. Whereas Professor Mazur got hung up on this point when he was 17, and he no longer remembers how difficult it was back then. He has lost the ability to understand what a beginning learner faces.”

This innovative style of learning grew into “peer instruction” or “interactive learning,” a pedagogical method that has spread far beyond physics and taken root on campuses nationally. Last year,



Eric Mazur says *learning* interests him far more than *teaching*, and he encourages a shift from “teaching” to “helping students learn.”



Mazur gave nearly 100 lectures on the subject at venues all around the world. (His 1997 book *Peer Instruction* is a user's manual; a 2007 DVD, *Interactive Teaching*, produced by Harvard's Derek Bok Center for Teaching and Learning, illustrates the method in detail.)


Interactive learning triples students' gains in knowledge as measured by the kinds of conceptual tests that had once deflated Mazur's spirits, and by many other assessments as well. It has other salutary effects, like erasing the gender gap between male and female undergraduates. "If you look at incoming scores for our male and female physics students at Harvard, there's a gap," Mazur explains. "If you teach a traditional course, the gap just translates up: men gain, women gain, but the gap remains the same. If you teach interactively, *both* gain more, but the women gain disproportionately more and close the gap." Though there isn't yet definitive research on what causes this, Mazur specu-

lates that the verbal and collaborative/collegial nature of peer interactions may enhance the learning environment for women students.

There's also better retention of knowledge. "In a traditional physics course, two months after taking the final exam, people are back to where they were before taking the course," Mazur notes. "It's shocking." (Concentrators are an exception to this, as subsequent courses reinforce their knowledge base.) Peer-instructed students who've actively argued for and explained their understanding of scientific concepts hold onto their knowledge longer. Another benefit is cultivating more scientists. A comparison of intended and actual concentrators in STEM (science, technology, engineering, mathematics) fields indicates that those taught interactively are only half as likely to change to a non-STEM discipline as students in traditional courses.



## Mazur likes a Camus quote: “Some people talk in their sleep. Lecturers talk while *other* people sleep.”



SCORES of Harvard faculty members are experimenting with innovative styles of teaching in their classes. Mazur's profile is perhaps the highest because he has been at it for two decades and has poured so much passion into the pursuit. But across the University's faculties, instructors are trying out new, more effective modes of pedagogy, partly in response to a generation of students who have been learning all their lives from computer screens, websites, and visual media (see “Professor Video,” November-December 2009, page 34). Often, these efforts embody a search for alternatives to the traditional lecture. The recent \$40-million gift from Rita E. Hauser, L ’58, and Gustave M. Hauser, J.D. ’53, will spur a wide variety of experiments in this realm (see “A Landmark Gift for Learning,” <http://harvardmag.com/hauser-gift-11>).

Such pedagogical invention isn't just a trial-and-error endeavor. Rigorous evaluations using statistical analysis can help distinguish the most promising innovations. For his part, Mazur has collected reams of data on his students' results. (He says most scholars, even scientists, rely on anecdotal evidence instead.) End-of-semester course evaluations he dismisses as nothing more than “popularity contests” that ought to be abolished. “There is zero correlation between course evaluations and the amount learned,” he says. “Award-winning teachers with the highest evaluations can produce the same results as teachers who are getting fired.” He asserts that he is “far more interested in *learning* than *teaching*,” and envisions a shift from “teaching” to “helping students

learn.” The focus moves away from the lectern and toward the physical and imaginative activity of each student in class.

Interactive pedagogy, for example, turns passive, note-taking students into active, *de facto* teachers who explain their ideas to each other and contend for their points of view. (“The person who learns the most in any classroom,” Mazur declares, “is the teacher.”) Thousands of research studies on learning indicate that “active learning is really at a premium. It's the most effective thing,” says Terry Aladjem, executive director of the Bok Center and lecturer on social studies. “That means focusing on what students actually *do* in the classroom, or in some other learning environment. From cognitive science, we hear that learning is a process of moving information from short-term to long-term memory; assessment research has proven that active learning does that best.”

Active learners take new information and *apply* it, rather than

merely taking note of it. Firsthand use of new material develops personal ownership. When subject matter connects directly with students' experiences, projects, and goals, they care more about the material they seek to master. In the abstract, for example, statistics may seem a dry pursuit, but a graduate student with her own data to analyze for a doctoral dissertation suddenly finds multiple regression a compelling subject.

When Mazur speaks to audiences on pedagogy, he asks his listeners to think about something they are really good at—perhaps some skill they are proud of, especially one that advanced their career. “Now, think of *how* you became good at it,” he says next. Audience members, supplied with wireless clickers, can choose from several alternatives: trial and error, apprenticeship, lectures, family and friends, practicing. Data from thousands of subjects make “two things stand out,” Mazur says. “The first is that there is a huge spike at *practicing*—around 60 percent of the people select ‘practicing.’” The other thing is that for many audiences, which often number in the hundreds, “there is absolutely *zero* percent for lectures. Nobody cites lectures.”

Taking active learning seriously means re-vamping the entire teaching/learning enterprise—even turning it inside out or upside down. For example, active learning overthrows the “transfer of information” model of instruction, which casts the student as a dry sponge who passively absorbs facts and ideas from a teacher. This model has ruled higher education for 600 years, since the days of the medieval Schoolmen who, in their *lectio* mode, stood before a room reading a book aloud to the assembly—no questions permitted. The modern version is the lecture.

Though it remains the dominant form of instruction in higher education and can sometimes become a real art form, the lecture may be on its last legs. “The hands-on interactive experience in a lab or an art studio is more powerful than a lecture, and can't be replicated online,” says Logan McCarty, director of physical sciences education. “The stereotypical lecture where the professor is giving exposition of textbook-type material to the students—I think *that* type of exposition can be done better with online video or by an interactive-tutorial format.” Today at Harvard, many courses distribute lecture notes, and others post video recordings of lectures online. After hearing about Mazur's approach to teaching, Weatherhead University Professor Gary King, a government scholar, started to make recorded lectures available *before* class, thus freeing class time for more active styles of instruction.

The active-learning approach challenges lecturers to re-evaluate what they can accomplish during class that offers the greatest value for students. Mazur cites a quip to the effect that lectures are a way of transferring the instructor's lecture notes to students' notebooks without passing through the brains of either. (He also likes a quote from Albert Camus: “Some people talk in their sleep. Lecturers talk while *other* people sleep.”) “The danger with lucid lectures—of which we have so many on this campus, with so many



Visit [harvardmag.com/](http://harvardmag.com/) extras to view several clips of Eric Mazur discussing interactive teaching.

brilliant people—is that they create the illusion of teaching for teachers, and the illusion of learning for learners,” he says. “Sitting passively and taking notes is just not a way of learning. Yet lectures are 99 percent of how we teach!”

Technology is also pushing lecturers to either get better or explore alternatives. “These days I’m competing, frankly, with myself on video,” said senior lecturer on computer science David Malan at a Faculty of Arts and Sciences program on “Redefining Teaching and Learning in the Twenty-First Century” last February (see <http://harvard-magazine.com/2011/02/teach-in-on-teaching>). Online videos of his Computer Science 50 lectures, he said, “are accessible any number of hours of the day, and you can play me at twice the speed and therefore get these lectures twice as efficiently. I genuinely view this as a challenge to myself: what should be the role of lectures in CS 50? It’s definitely an opportunity to present conceptual material, but I also think it’s to incentivize students to get there and stay there throughout the semester: it needs to be a compelling experience.”

At the same time, “More and more faculty are finding that the traditional lecture no longer suits them,” Aladjem notes. “And they are finding alternative ways to connect with students. Some are quite sophisticated in using course websites, blogs, and other means to be in touch. Michael McCormick, Goelet professor of medieval history [see “Who Killed the Men of England?” July-August 2009, page 30], holds office hours late at night via Skype, and it’s very popular. Nearly all undergraduates have laptops, smart phones, or other computing devices and use them all constantly. In this environment, we have to keep in mind that there’s some sort of quantum—a fixed amount—of human attention. In a digital age, we are dividing it up into ever-smaller slices, and there’s more and more a race to get pieces of that attention, especially in the classroom. That is one of the biggest challenges facing our faculty.

“I think the answer to this challenge is to rethink the nature of the college course, to consider it as a different kind of animal these days,” he continues. “A course can be a communication across time about a discrete topic, with a different temporal existence than the old doing-the-homework-for-the-lecture rou-



**In 2006, Mazur introduced wireless polling in his introductory physics course, during which these photographs were taken. Here Chelsey Forbes '07 and Jonathan Paul '07 discuss results with Mazur while Julia Pederson '07 registers her answer with a handheld clicker and a laptop at the front of the classroom tallies students' responses.**

tine. Students now tap into a course through different media; they may download materials via its website, and even access a faculty member’s research and bio. It’s a different kind of communication between faculty and students. Websites and laptops have been around for years now, but we haven’t fully thought through how to integrate them with teaching so as to conceive of courses differently.”

Mazur’s reinvention of the course drops the lecture model and deeply engages students in the learning/teaching endeavor. It starts from his view of education as a two-step process: information transfer, and then making sense of and assimilating that information. “In the standard approach, the emphasis in class is on the first, and the second is left to the student on his or her own, outside of the classroom,” he says. “If you think about this rationally, you have to flip that, and put the first one outside the classroom, and the second inside. So I began to ask my students to read my lecture notes *before* class, and then tell me what questions they have [ordinarily, using the course’s website], and when we meet, we discuss those questions.”

Thus Mazur begins a class with a student-sourced question, then asks students to think the problem through and commit to an answer, which each records using a handheld device (smartphones work fine), and which a central

computer statistically compiles, without displaying the overall tally. If between 30 and 70 percent of the class gets the correct answer (Mazur seeks controversy), he moves on to peer instruction. Students find a neighbor with a different answer and make a case for their own response. Each tries to convince the other. During the ensuing chaos, Mazur circulates through the room, eavesdropping on the conversations. He listens especially to incorrect reasoning, so “I can re-sensitize myself to the difficulties beginning learners face.” After two or three minutes, the students vote again, and typically the percentage of correct answers dramatically improves. Then the cycle repeats.

“We want to educate leaders, the innovators of society,” Mazur says. “Let’s turn our students into *real* problem solvers. In a real-world problem, you know where you want to get, but you don’t know how to get there. For example: how can I bake a cake with



no flour? The goal is known, but the prescription to get there isn't. Most tests and exams at Harvard are not like that; they are questions where you need to determine what the *answer* is. In physics it might be, What was the velocity of the car before it hit the tree? There, you know exactly what you need to do: you *have* a prescription to calculate velocity, but you don't know the velocity. It's the opposite of a real-life problem, because you know the prescription, but you don't know the answer.

"Even now, if I give my students a problem on an exam that they have not seen before, there will be complaints: 'We've never done a problem of this kind.' I tell them, 'If you *had* done a problem of this kind, then by definition, this would not be a problem.' We have to train people to tackle situations they have not encountered before. Most instructors avoid this like the plague, because the students dislike it. Even at Harvard, we tend to keep students in their comfort zone. The first step in developing those skills is stepping into unknown territory.

"It's not easy. You get a lot of student resistance," he continues. "You should see some of the vitriolic e-mails I get. The generic complaint is that they have to do all the learning *themselves*. Rather than lecturing, I'm making them prepare themselves for class—and in class, rather than telling them things, I'm asking them questions. They'd much rather sit there and listen and take notes. Some will say, 'I didn't pay \$47,000 to learn it all from the textbook. I think you should go over the material from the book, point by point, in class.' Not realizing that they learn precious little by that, and they should actually be offended if I did that, because it's an insult to their intelligence—then, I'm essentially reading the book to them."

In addition to student resistance, there is architectural resistance. "Most classrooms—more like 99.9 percent—on campus are auditoriums," Mazur says. "They are built with just one purpose: focusing the attention of many on the professor. The professor is active, and the audience is just sitting there, taking in information. Instead, you could get away from the auditorium seating and set up classrooms like you see in elementary schools, where four children sit around

a square table facing each other, and you give them some kind of group activity to work on: that's active learning. It's no accident that most elementary schools are organized that way. The reason is, *that's how we learn*. For some reason we *unlearn* how to learn as we progress from elementary school through middle school and high school. And in a sense, maybe I'm bringing kindergarten back to college by having people talk to each other!"

"Think of education as a whole—what is it?" Mazur asks. "Is it just the transfer of information? If that's the case, then Harvard has a problem, and all other universities have a problem, too. Information comes from everywhere now: the university is no longer the gatekeeper of information, as it has been since the Renaissance. And if it were, the only thing we would need to do is videotape the best lectures and put them online, like the Khan Academy [the California-based, nonprofit, online educational organization

founded by Salman Khan, M.B.A. '03]. They have 65 million users: it's a force to be reckoned with. But ultimately, learning is a *social* experience. Harvard is Harvard not because of the buildings, not because of the professors, but because of the *students* interacting with one another."

UNIVERSITIES ARE at the core of an information culture: it is hard to imagine any institution that deals more purely in information than higher education. Yet academies are also famously slow to change—both a strength and a vulnerability in a rapidly evolving world. If knowledge now streams in from everywhere, if universities are no longer the "gatekeepers of information," what essential mission can transcend such technological and cultural change?

"The live classroom is still the best medium for a student to truly be known as an intellectual being and to engage with other such beings," Aladjem says. "You learn from your peers in all walks of life. Students have always hidden in their rooms; social media can keep them in their rooms longer." Perhaps the key is to coax students not only out of their rooms, but into each other's minds. If learning is indeed a social experience, then a "party school"—of a certain kind—just might offer the richest learning environment of all. ▽

Craig A. Lambert '69, Ph.D. '78, is deputy editor of this magazine.

## Active Alternatives

HARVARD OFFERS a panoply of "active learning" opportunities in its various faculties. The new Harvard Initiative on Learning and Teaching (see "Investing in Learning and Teaching," January-February, page 60) will stimulate a wide range of ventures and explorations in this and other areas, which have already begun.

Examples of active learning abound in the curriculum. Here are three:

At Harvard Business School, the Field Immersion Experiences for Leadership Development (FIELD) program in January sent the entire first-year class of 900 M.B.A. students abroad to placements with multinational or local companies. Working in small teams with a faculty adviser, the students were assigned to analyze a new product or service the company might introduce in the country visited—a hands-on immersion that goes beyond the school's traditional classroom case-based method of teaching (see "Educating Business Leaders for a Global Century," September-October 2011, page 73, and "Into India," in this issue, page 46).

The General Education course United States in the World 24: "Reinventing Boston: The Changing American City," taught by Ford professor of the social sciences Robert Sampson, requires students to make three visits to Boston neighborhoods and write descriptive accounts of their observations and experiences. It embodies a specific form of active learning known as "activity-based learning" (ABL) in which students do public service, fieldwork, community-based research, and internships, then connect their real-world exploits with academics (see "Out of Cambridge," January-February, page 64).

Elise Morrison, an associate director of the Bok Center with a Ph.D. in theatre and performance studies, teaches Expository Writing 40: Public Speaking Practicum. Each class member delivers five speeches during the semester, on topics progressing through a gradient of difficulty, starting with a self-introduction and climaxing with an attempt to persuade the audience of something that it disagrees with. Video recordings and feedback from both Morrison and fellow students focus on the speaker's unconscious habits and their communicative consequences.

# Fanny Bullock Workman

*Brief life of a feisty mountaineer: 1859-1925*

by THOMAS H. PAULY

AT A 1907 meeting of the Royal Geographical Society, in London, William Hunter Workman, M.D. 1873, spoke of his recent expedition into the Nun Kun area of the Himalayas. In introducing Workman, the society's president said that only three climbers to date—Workman, his wife, and another RGS member—had pushed beyond 23,000 feet. Because the RGS allowed women into meetings as invited guests, the president explained Fanny Workman's conspicuous absence by noting that she was doing "something more arduous than climbing 23,000 feet": giving 30 lectures on her mountaineering successes in 37 days. Following her seventh and final trip into the Himalayas, the RGS included her in the first group of women to be awarded membership.

The Himalayan expeditions affirmed Fanny Workman's ambition and daring, but it was her numerous publications and their attentiveness to "glaciation" and "other scientific directions" that earned respect from the RGS. Nevertheless, Workman herself was fiercely competitive and intent upon setting records: she believed that the best way to win recognition for her accomplishments was to campaign for a more precise definition of mountaineering achievement and insist upon better monitoring.

Wealth and status had greatly aided young Fanny Bullock's exceptional enthusiasm for sport. (Her father had been mayor of Worcester, governor of Massachusetts, and one of that state's richest men, thanks to his wife's dowry.) After privileged schooling in New York and Europe, she married William Workman, and their combined inheritances enabled them to quit Worcester, relocate to Europe, and undertake a series of bicycle trips that extended ever further afield—initially to cities nearby, eventually to Egypt. From the outset, Fanny Workman resisted expectations that she be a devoted mother; increasingly, she pursued the more fulfilling identity of an adventurer and author. In books jointly written with her husband (but mostly by her), she recounted their bicycle trips to Algeria and Spain and repeatedly denounced the mistreatment of women there.

In 1897, the Workmans embarked upon a two-and-a-half-year circuit of India and neighboring countries. To escape the searing summer heat, they headed north into the mountains and went trekking over several high passes. Undeterred by a disastrous first assault upon a peak, they recruited the finest Swiss guides and mounted more carefully planned expeditions. These earned Fanny several records for the highest elevation achieved by a woman: in 1906, at the then somewhat advanced age of 47, she reached the top of Pinnacle Peak, which she assessed to be 23,263 feet, establishing an elevation record not surpassed until 1934.

Her greatest assets were intrepid persistence and her resis-

tance to altitude sickness. Above 18,000 feet, climbers commonly experience intensifying dizziness, weakness, and the threat of fatal edemas. These effects can fell the strongest yet bypass those with far less stamina, thus diminishing the advantages men routinely enjoy in other sports. Fanny's naturally slow pace made swift ascents impossible, so her assaults had to be carefully planned with routes she could manage and multiple overnight camps, allowing her to acclimate to higher elevations and replenish her energy. Ironically, her own limitations revealed to her this cornerstone principle of high-peak mountaineering.

She then immersed herself in writing her conquests up in books quite different from her previous works in their affectation of scientific expertise. Initially she offered lengthy discussions of the newest scientific instruments she had used, but increasingly she gravitated toward technical aspects of "glaciation." After she and her husband cracked the 23,000-foot barrier, she moved quickly to establish them both as the foremost authorities on thin air. In one article, she attacked a rival's claim to have achieved the highest overnight camp: following an indignant assertion that his aneroid barometer had been smashed, she huffed, "In these days, when a mountaineer is expected to ascertain heights attained by means of instruments used with due regard to recognized scientific methods, how much value has...[a personal opinion] in fixing the altitude of a high point that may have been reached."

Ironically, her determination to prove herself the equal of any man at lofty elevations culminated with a withering attack on an American woman who tried to surpass her. Annie S. Peck was as adept as Fanny at climbing and self-promotion, but had to rely on lectures and newspaper articles to finance her expeditions; her audiences valued drama and daring over science and accuracy. After success in her fifth attempt upon Mount Huascarán, in Peru, Peck claimed that its 24,000-foot summit gave her the world record for elevation. Had she not reported this to the *Bulletin of the American Geographical Society*, Fanny might never have noticed, but her outrage at Peck's unsubstantiated boast spurred her to send eminent surveyors to check it; they found Huascarán a thousand feet lower than Pinnacle Peak. If Fanny Workman ever receives the recognition she deserves for her feminist determination to excel at this then-male sport, she will surely be remembered as much for her insistence upon accurate record-keeping as for the elevations she achieved.

Thomas H. Pauly '62, recently retired as professor of English at the University of Delaware, is the author of a new book, *Game Faces: Five Early American Champions and the Sports They Changed* (Nebraska).

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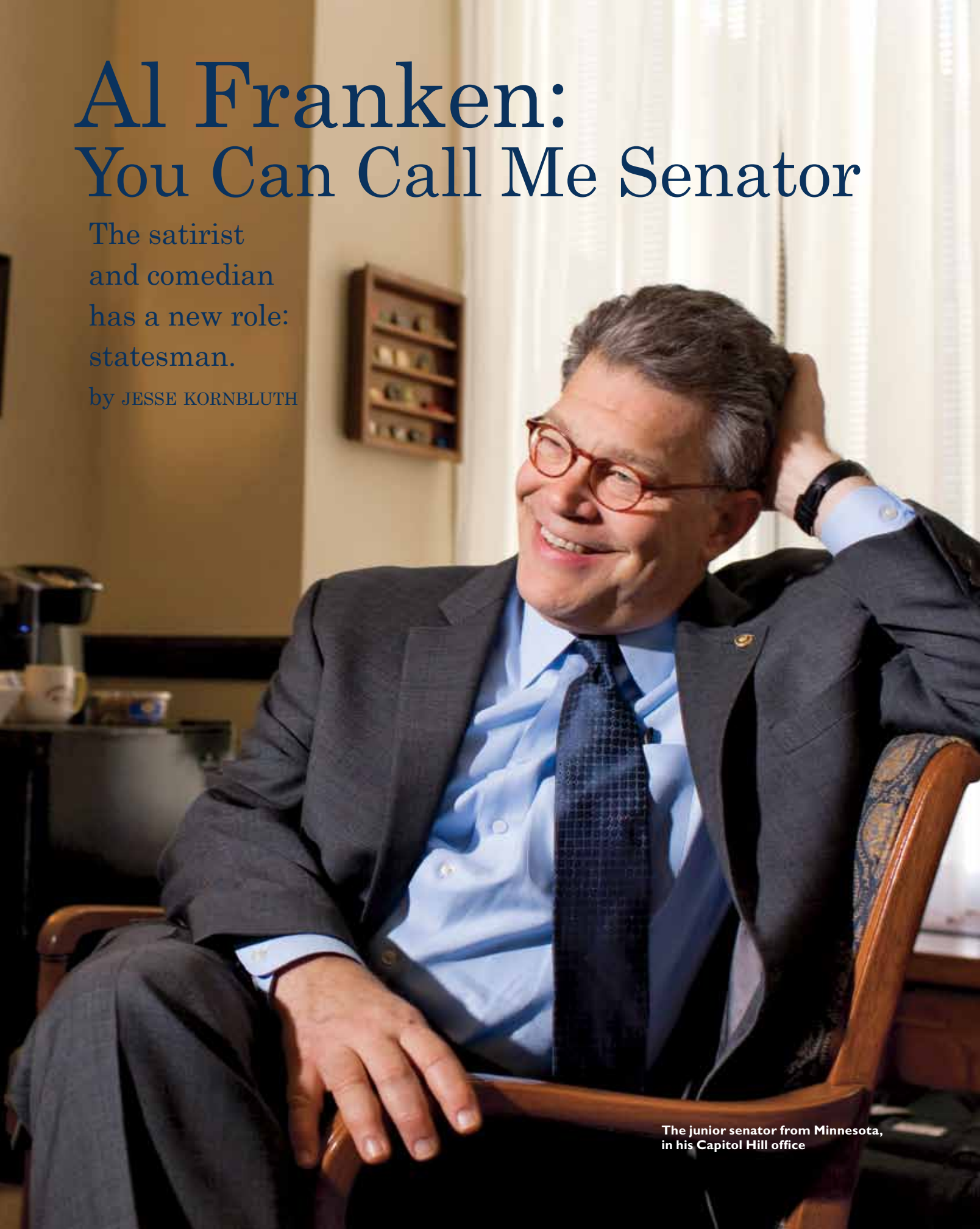
Scaling the heights: Fanny Bullock Workman (left), in an undated image; crossing a bridge over the Indus River in 1908 with her husband, William; publicizing "Votes for Women" on the Silver Throne plateau in "Eastern Karakoram," in an undated image; and posing with William and a guide atop Mount Bullock Workman, in the Karakoram Range, in 1899



# Al Franken: You Can Call Me Senator

The satirist  
and comedian  
has a new role:  
statesman.

by JESSE KORNBLUTH



The junior senator from Minnesota,  
in his Capitol Hill office



**P**AUL WELLSTONE didn't mind taking unpopular positions. In 1990, his first year as junior U.S. senator from Minnesota, he voted against the Gulf War. President George H.W. Bush's reaction: "Who is that chickenshit?" An equal-opportunity offender, Wellstone was the only Democrat to vote against President Bill Clinton's welfare-reform bill. And when the second Bush administration was rounding up votes for an invasion of Iraq, Wellstone said he heard from Vice President Dick Cheney: "If you vote against the war in Iraq, the Bush administration will do whatever is necessary to get you. There will be severe ramifications for you and the state of Minnesota."

Wellstone voted against the war, but Cheney never had to retaliate. On October 25, 2002—just two weeks after the Senate vote—a plane carrying Wellstone, his wife, his daughter, two aides, and two pilots crashed in northern Minnesota. Twenty thousand people jammed into a Minneapolis arena to mourn. The eulogies lasted three and a half hours.

Al Franken '73, who was a friend of Wellstone and had raised money for him, was among the mourners. By then, he had traded comedy for political and media commentary. And there was much to comment on in Minnesota, for Wellstone had died just 11 days before the election and his opponent, Norm Coleman, had not exactly stopped campaigning in the days after Wellstone's death.

Six months after the election, Franken certainly did not fail to note Coleman's hurtful assessment of his predecessor: "To be very blunt—and God watch over Paul's soul—I am a 99 percent improvement over Paul Wellstone. Just about on every issue." And Franken devoted 29 pages of his next book, *Lies and the Lying Liars Who Tell Them: A Fair and Balanced Look at the Right* (2003) to Wellstone and the media coverage that had painted his memorial service as a partisan political rally, rather than a remembrance of a cherished friend. To say Franken was livid would be to understate: "Rush and the Republican Party and the *Weekly Standard* and the *Wall Street Journal* and Fox—and then it was CNN and MSNBC and all the newspapers that wrote hundreds of stories—got it wrong.... Sometimes I wonder why people do what they do for a living and how they feel about their work. What is it about their work that gives them a sense of a job well done? As a comedian, I know I've done my job when people laugh.... What do you suppose gives Rush Limbaugh that warm glow?"

Franken grew up sharing what he calls the "basic Minnesota values" of Hubert Humphrey, Eugene McCarthy, and Paul Wellstone—universal healthcare, fairness for the little guy. Because Minnesota had regularly produced progressive candidates, Franken had never given serious thought to political office. But with Wellstone gone and no charismatic Democrat on the Minnesota horizon, he began to consider the possibility of running against Coleman in 2008.

For an established politician, that would mean endless dinners in small-town community halls—and fending off challengers. For Franken, the bar was considerably higher. It wasn't just that he was a neophyte who lacked a campaign team. And it certainly wasn't that he feared his opponent; Franken had little respect for Coleman, whom he called, in print, "a suit." Franken's problem was his résumé: a long career as a comic, followed by a decade of attacks on the Republican right. In 2008, if he got that far, he would be running not only against Coleman, but also against

Rush Limbaugh, Bill O'Reilly, Sean Hannity, Ann Coulter, and every pundit who thought his candidacy was a bigger joke than any he'd written for *Saturday Night Live*.

ALAN STUART FRANKEN, now 60, was born in New York, but his father, seeking opportunity, moved his wife and their two sons to Minneapolis when Al was young. Joe Franken was a printing salesman, yet Al attended Blake, generally acknowledged as the most exclusive private school in Minneapolis. How did that happen?

There is no better question to ask Al Franken. In his Senate office, settled into the obligatory leather couch, he leaned forward and looked back.

"My brother and I were Sputnik kids," he began. "My parents told us, 'You boys have to study math and science so we can beat the Soviets.' I thought that was a lot of pressure to put on an 11- and a six-year-old, but my brother and I started playing math games in the living room."

Franken turned out to be a whiz in science and math, and when his brother went off to MIT, the family began to look for a better secondary school for Al. As it happened, Blake was looking for kids just like him.

"Blake was a school chartered for Protestants," Franken said. "In the 1950s, it started to lose the ability to get enough kids into top colleges. They needed kids who would score well. And they said... 'JEWS!'"

It was almost inevitable that Blake's Jewish wrestler and honor student glided into Harvard, graduating *cum laude*. His diploma notes a major in government, but his real field of concentration was comedy. In Minneapolis, he'd worked up an act—some improvisation, some sketch comedy—with his Blake classmate Tom Davis. By Franken's senior year at Harvard, Davis was sleeping on his couch.

For Franken, graduation meant migrating to Los Angeles with Davis and doing improv at the Comedy Store. A William Morris agent suggested they assemble material for the kind of show they'd like to be on. "Our 14-page submission was very efficient—I can't believe how brilliantly efficient it was," Franken says. "It wasn't right for any of the big comedy shows. But it was ideal for a show that didn't exist yet: *Saturday Night Live* [SNL]. I think Tom and I were the only writers Lorne [Michaels, the show's creator and executive producer] hired whom he hadn't met" (see "Comic Sutra," July-August 1992, page 24, on Harvard comedy writers and performers).

Franken was with SNL from its launch in 1975 until 1980, and again from 1985 until 1995, among the longest tenures of any of the show's writers and performers. His range was vast. He pranced the stage as Mick Jagger, frequently appeared on the Weekend Update news segment, lobbied for the 1980s to be called "The Al Franken Decade," and invented Stuart Smalley, a stunningly lame self-help guru whose core message was "I'm good enough, I'm smart enough, and doggone it, people like me." Michaels thought so highly of him that he wanted Franken to succeed him as producer; the network's refusal is the main reason Franken left SNL for five years in the early 1980s.

Franken had, for decades, used politics as grist for comedy on SNL. Leaving the show liberated him from the network censor, giving him more freedom to mock what he has described as "conservative Republicans...taking over the country." His method was only slightly subtle. Some people, he observed, "live to find stuff to be indignant about. And it's pretty unattractive."



Left to right: Franken performing on *Saturday Night Live* (SNL), 1978; SNL actresses Jane Curtin and Gilda Radner flank Franken and his comedy partner Tom Davis; Franken as Stuart Smalley in an SNL Daily Affirmation skit, 2002



That's why I decided to take a more likable path and be a wiseass."

He began by getting into pajamas and climbing into bed—on Bill Maher's

*Politically Incorrect* television show—with then-conservative Arianna Huffington. "I remember one night the script called for us to end our segment with a pillow fight," Huffington recalls. "I'm not sure why, but Al really hauled off and smacked me with his pillow. Hard. For a moment, I saw stars...but I recovered in time to deliver my next punch line. I'm not sure if it had anything to do with that fateful Franken wallop, but I soon saw the light and stopped defending Republicans—in bed or anywhere else."

Television meant brief segments. Bigger targets awaited. For Franken, Rush Limbaugh was a dream subject for a book. He was, literally, larger than life. ("I am not one for psychoanalyzing public figures. I wouldn't, for example, attempt to create a psychological construct to explain why a desperately insecure man would weigh three hundred pounds and have difficulty sustaining intimate relationships.") He was a fantasist. ("The man who says Reagan belongs on Mount Rushmore never voted for him.") And he was a stooge for the reactionary rich. ("If Reaganomics didn't work, Rush is the carnival clown hired to distract the crowd while paramedics carry the mangled bodies from the derailed roller coaster.")

Franken had his publisher send Limbaugh an advance copy of *Rush Limbaugh Is a Big Fat Idiot* (1996)—and a note: "Al thinks it would help sales if you talked about the book on the air." Limbaugh didn't take the bait. (Nor did Limbaugh—or, for that matter, O'Reilly, Hannity, Coulter, or Roger Ailes—respond to requests for an interview or a memo detailing Franken's errors in his books.)

For *Lies and the Lying Liars Who Tell Them*, Franken aimed higher: the entire conservative "news" establishment. This was a massive research project, but Franken was then a fellow at the Harvard Kennedy School's Shorenstein Center on the Press, Politics, and Public Policy. ("After my varied and celebrated career in television, movies, publishing, and the lucrative world of public speaking, being a fellow at Harvard seemed, frankly, like a step down.") And, looking around a campus of Bright Young Things, he saw an opportunity to involve a cadre of interns. Thus was born Team

rewarded with weekly dinners at Franken's rented home in Cambridge. "Very collegial," recalls Madhu Chugh, M.P.P. '04. "Like what I imagine a story conference was like on *30 Rock*."

"The work was propelled by outrage and then finding the humor in it," says Ben Wikler '03, who was hired as soon as he told Franken he wrote for *The Onion* and did stand-up comedy. He would go on to accompany Franken to Iraq on one of his seven USO tours. "We'd sit on a bunk writing jokes. It was a blast." Payment was personal; Franken spoke at Wikler's wedding.

*Lying Liars* is a granular, take-no-prisoners effort—Team Franken even deconstructed Ann Coulter's footnotes. Hannity, Paul Wolfowitz, Peggy Noonan, Richard Perle, and Newt Gingrich had cameos, but the real prize for Franken was Bill O'Reilly, M.P.A. '96. "O'Reilly had said he won the Peabody Award, which is the most prestigious honor in television," recalls Liz Topp '98, Franken's secretary during this period. He hadn't. His show had won the Polk Award—also notable, though somewhat less so than a Peabody—and won it the year *after* O'Reilly left the show. "I believe I was the one on LexisNexis when we came upon that fact," says Topp. "It was a *Eureka!* moment that kept on giving."

Literally. In a head-on confrontation at the Los Angeles Book Expo, Franken expounded—at length and in considerable detail—about O'Reilly's "lie" and his refusal to acknowledge anything worse than a "mistake." O'Reilly, who is not known for Zen calm, fired back: "This guy accuses me of being a liar, ladies and gentlemen, on national television. He's vicious, and that's with a capital V, a person who's blinded by ideology. All he's got in six and a half years is that I misspoke, that I labeled a Polk Award a Peabody."

"No, no, no," Franken interrupted.

And then it got really crazy.

"Shut up! You had your 35 minutes! Shut up!" O'Reilly shouted. "We're supposed to be on here for 15 minutes and this idiot goes 35."

"This isn't your show, Bill," Franken retorted.

A few months later, Fox News sued Franken and Dutton, his

FROM LEFT: ALAN SINGER/NBCU PHOTO BANK VIA AP IMAGES; OWEN FRANKEN/CORBIS IMAGES; DANA ED ELSON/NBCU PHOTO BANK VIA AP IMAGES





**Clockwise from above: Dennis Miller and Franken on SNL's Weekend Update, 1986; Franken announces on Air America that he will run for the Senate; in bed with Arianna Huffington, 1996; at home with his book on Rush Limbaugh, 1996**

FROM LEFT: OWEN FRANKEN/CORBIS IMAGES; HARRY HAMBURG/NY DAILY NEWS ARCHIVE VIA GETTY IMAGES; CRAIG BLANKENHORN/CORBIS IMAGES; ANN HEISEN/FELT/ASSOCIATED PRESS

publisher, alleging trademark violation of its “Fair and Balanced” slogan. “This is an easy case, for in my view the case is wholly without merit, both factually and legally,” Judge Denny Chen said as he ruled against Fox. “It is ironic that a media company that should be seeking to protect the First Amendment is seeking to undermine it.”

The publicity could not have been more beneficial to Franken. On the mere announcement of the suit, a month before publication, *Lies* moved from #489 on the Amazon.com sales ranking to #1. It was, Arianna Huffington told Franken, “as if Bill O'Reilly walked up to you and handed you a million dollars.”

ATTACKS FROM conservative pundits may have helped Franken's books reach the top of the *New York Times* bestseller list. They also cemented his image, for followers of Fox News and Rush Limbaugh, as a flamboyant, angry extremist—a clown. On radio, Limbaugh led the attack: “Franken won't quit [the Senate race] because he doesn't know how to get a real job....He's a pathetic figure.” In Franken's home state, Limbaugh's listeners agreed. “I think it's impossible to overstate the hostility Minnesota Republicans feel toward Al Franken,” Carleton College political scientist Steven Schier said. “He will be a very useful fundraising tool.”

But Franken had a magic weapon—his wife.

Franni Bryson met Franken at a Harvard freshman mixer, when she had just started Simmons College and he had just arrived in Cambridge. He asked her to dance, got her a ginger ale, and called the next day to ask for a date—walking the Freedom Trail. Their relationship was seamless; both had grown up in homes where they watched the evening news and talked about current events over dinner, both had a strong commitment to social justice. It didn't hurt that she thought he was funny. They married in 1975.

In 2005, with their two children launched, the Frankens made

two important decisions. They moved from Manhattan to Minneapolis, so Al could begin to explore a Senate run. And he began to host a three-hour daily talk show on Air America, a progressive talk-radio station.

Franken was unquestionably the biggest star on the poorly financed radio network. He was less admired in Minnesota, where “a strain of confrontational, angry politics” and the ascendancy of evangelical politicians seemed to be crowding out the bipartisan

politics of Franken's youth. So when Franken began to campaign in earnest in 2007, his chances looked bleak. “He was very honorable,” says Senator Charles Schumer '71, J.D. '74, of New York, who was then chairman of the Democratic Senatorial Campaign Committee. “He told [Senate majority leader] Harry Reid and me that if he didn't think he would win, he wouldn't run.”

Franni had her own style of campaigning. She baked apple pies and auctioned them wherever she spoke. She knocked on doors in sub-zero weather. And at every gathering, she spoke of her husband as a crusader in the tradition of the state's famous liberal senators.

That was a hard sell.

Many voters remembered Franken mostly as the *Saturday Night Live* comedian. Some knew him as a scourge who lived for the moments when he could prove that O'Reilly, Hannity, and Coulter are factually challenged. Only a relative handful were aware that as the host of the radio show he liked to call “The O'Franken Factor,” he spent much of his time in serious conversation with writers and politicians who shared his deep interest in public policy.

With only a few weeks left to campaign, all signs pointed to a close election, with the comedian probably losing.

So Franni made a 60-second commercial. “We've been married now for almost 33 years and we've been so blessed in so many ways,” she said, looking right at the camera. “But we also had some bad times. And at one point I struggled with alcohol



Visit [harvardmag.com/](http://harvardmag.com/) extras to view various videos of Senator Franken as well as fun facts about his career.

dependency. How could a mother of two fabulous, healthy children be an alcoholic? When I was struggling with my recovery, Al stood right by my side and he stood up for me. After what we went through, Al wrote two beautiful movies [*When a Man Loves a Woman* (1994) and *Stuart Saves His Family* (1995)] that are shown in rehabs all over the country. The Al Franken I know stood by me through thick and thin. So I know he'll always come through for Minnesotans."

What was her husband's reaction when Franni told him she wanted to make this commercial?

"I didn't ask him," she says. "It wasn't his decision."

And the kids?

"It wasn't their decision, either. This wasn't focus-grouped. I went with my gut."

"Unbelievably brave," says Franken's campaign manager, Stephanie Schriock, of the ad. "That moment was the first time we actually started moving ahead."

As it happened, the election was so close—out of almost 3 million votes, Norm Coleman had an initial 215-vote lead—that a recount was mandatory. In January 2009, after the statewide hand recount, the Minnesota State Canvassing Board certified that Franken had received more votes on election day. Coleman challenged the results. A three-judge panel conducted a seven-week trial that cost both sides millions in legal fees and produced a stack of evidence 21 feet high. In April, the panel affirmed Franken's victory. Coleman appealed. In June, eight months after the election, the Minnesota Supreme Court upheld Franken's victory—by 312 votes.

"I know why you dragged this whole thing out," President Barack Obama, J.D. '91, joked when Franken was sworn into the Senate on July 7, 2009. "You like all this attention, don't you?"

"A sad day for America," said O'Reilly on Fox News. "Al Franken is blatantly zealous, a far-left zealot."

Both remarks were predictable. What wasn't was Franken's explanation of the key to his victory. "If it hadn't been for my wife," he said at a victory rally in Minneapolis, with a catch in his voice that suggested tears might follow, "I would have lost—by a lot."

DURING THE LONG MONTHS when he was waiting to learn if he was going to the Senate, Franken adopted "a counterintuitive strategy, totally against my nature"—he kept his mouth shut. This had a curious effect. "Minnesotans' image of me

went up," he recalls. "I like the way you're handling this,' people would say. I wanted to reply, 'But I'm not doing anything.'"

As a senator, Franken has tried to do a great deal, almost entirely behind the scenes. He considers himself "the second senator from Minnesota"—that is, second in seniority to Amy Klobuchar, not the sixtieth Democrat in the Senate—and his media policy proves it: he is generally available to reporters from Minnesota newspapers, but not to national media or the Sunday television shows. And he does not respond to provocation. Republican James Inhofe, the senior senator from Oklahoma, once called him "the clown from Minnesota." In the old days, Franken would have itemized Inhofe's positions and asked who the real clown was; now, not a peep.

His longtime friend Norman Ornstein, resident scholar at the American Enterprise Institute, a conservative think tank, helped devise this low-profile approach to Franken's first few years in the Senate. "If the camera comes to you and you take advantage of that, it will reinforce the view that you're not just a celebrity but a comedian—and an angry comedian at that," he told Franken. "Be a workhorse, not a show horse."

Many were surprised when, just days after being sworn in, Franken—the most junior member of the Judiciary Committee—took his turn asking U.S. Supreme Court nominee Sonia Sotomayor some fairly technical questions. "Al never went to law school, and on this committee, that meant he started with a considerable disadvantage, but he was remarkably effective—and a very helpful ally in combating the spin that a judge isn't in the judicial mainstream if she's not a Republican," says Senator Sheldon Whitehouse of Rhode Island, a fellow Democrat on the committee and, of late, Franken's squash opponent. Franken, in his best senatorial mode, deflects all praise: "Staff. It's all staff."

"Air America was a good career move," an education in public policy, he explains. "A three-hour show, five times a week, heavy on policy, with guests like Elizabeth Warren [the Harvard Law professor now running for the Senate] and Thomas Ricks [who was, in those years, covering the military for the *Washington Post*]—and I read my guests' books, or parts." And he learned to repress most of his natural exuberance. "I used to go on Franken's radio show, all ready to be jocular," *New York Times* columnist Paul Krugman has said, "and what he wanted to talk



**Left to right: Franken entertaining soldiers in Abu Ghraib, Iraq, during a USO tour, 2005; with his wife, Franni (Bryson), 2006; the senator meeting with farmers back home in Minnesota, 2010**

FIRST TWO IMAGES ON LEFT: OWEN FRANKEN/CORBIS IMAGES; AT RIGHT: COURTESY OF AL FRANKEN'S OFFICE



about was the arithmetic of Social Security, or the structure of Medicare Part D.”

Franken has carved out unanticipated areas of interest. His first bill: providing service dogs to disabled veterans. When he learned that companies choose the credit agencies that rate their financial soundness, he drafted a bill, now in committee, to make that impossible. He’s badgered Internet and cell-phone executives about consumers’ rights to privacy. He’s proposed legislation that would deny government money to contractors in Iraq that force employees to agree not to sue them. “And he’s always looking out for Minnesota,” says Charles Schumer, recalling a trade bill that saw Franken defying the president and splitting his vote. “He’s made it clear that Minnesota comes first.”

Minnesotans have noticed. In the state, Franken’s most recent approval rating hovers around a respectable 45 percent. (Klobuchar’s is 59 percent—the highest in the Senate.) He flies back to Minnesota often. (“Coach,” he says. “And cheap motels.”) And he reminds his constituents that if they’re in Washington on a Wednesday morning, he serves a breakfast of Mahanomin Porridge (a rib-sticking blend of wild rice grown in Minnesota, hazelnuts, maple syrup, heavy cream, and dried cranberries and blueberries) in his Senate office.

Then there is his outreach to his colleagues in the Senate. On their birthdays, he sends them handwritten notes, with a postscript: “I know we’re all busy, so when my birthday comes around, feel free to add a few words and re-gift it.” This past Christmas, Franken started a Secret Santa gift exchange in the Senate, across party lines; more than half the chamber participated. “I thought Secret Santa would be a good way to cut through the partisan divide here in the Senate,” he told the *New York Times*. “Who knows, maybe it will create some unlikely friendships.” And Franni has brought her apple pies to Judiciary meetings “on days when we had contentious work to do.”

It is said that the U.S. government is broken, that the people’s business can no longer be done there. Certainly,

Washington is an easy target for a comedian. And there, in the center of the action, is Al Franken, an outburst waiting to happen. Franken has said that the Senate is “not the world’s greatest deliberative body.” But when asked about several senators who might be below the standard of the institution, he resists the temptation to turn his colleagues into punch lines. “Everyone who’s a senator,” he says, with a diplomat’s smoothness, “got here for a reason.”

Still, there was that stunt during the gridlock over the debt ceiling last summer. The government was in danger of shutting down. That would mean no Homeland Security at airports and no border guards. So when Franken took center stage in the Senate, he held up a big sign: WELCOME TERRORISTS. “Before we default,” he said, “we have time to make this sign for all points of entry....”


“I really debated that,” he says. “Instead of reporting the point I was making, the media made the sign the story. In retrospect, I shouldn’t have presented the idea as a sign.”

As for his dealings with colleagues, he says, he prefers to use humor: “It’s a way of getting them to know me and like me.”

“You don’t want to confront them when they lie?” he is asked.

“I do feel a lot of frustration when I hear colleagues say things that I don’t think are thought through, shall we say, and actually aren’t accurate,” he concedes.

“What do you do to relieve that frustration—scream into your pillow?”

“I don’t want to be a scold,” he says, “but I make an effort to have my staff call their staffers and ask for...clarification.” Then he smiles, and, like the Al Franken he used to be, he laughs—very briefly—at his own joke. 

Jesse Kornbluth ’68, a New York-based writer, edits *HeadButler.com*. His profile of blogger Andrew Sullivan was this magazine’s May-June 2011 cover article.

**Left to right: Addressing supporters on election night in St. Paul, 2008; reenacting his 2009 swearing-in (because photography is banned in the Senate chamber itself) with his wife and Vice President Joseph Biden**



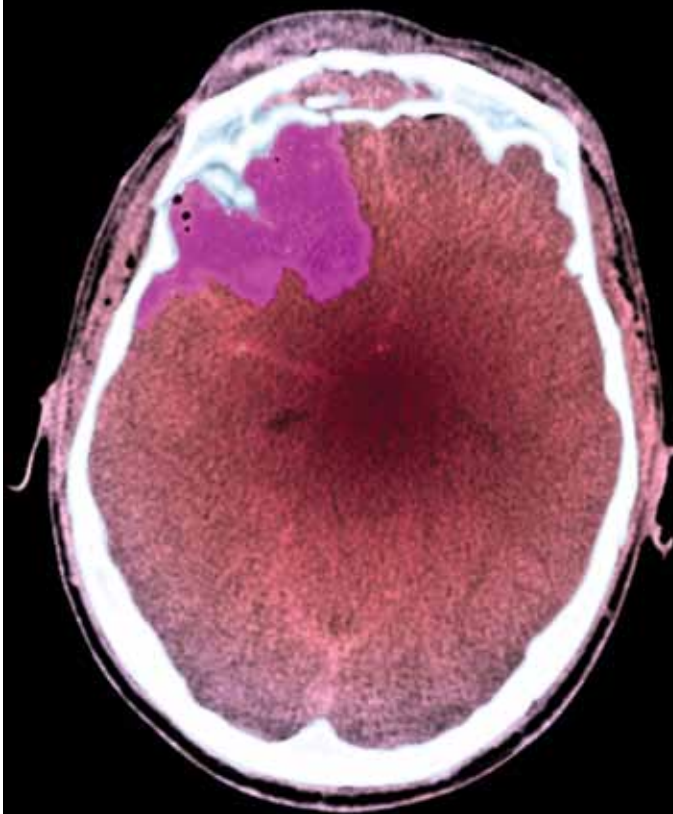
# The Traumatized Brain

AFTER WHAT SEEMED to be mild car accident five years ago, “John” began suffering from a host of symptoms—headaches, fatigue, irritability, difficulty concentrating. At the time of the accident—John was rear-ended by the driver behind him—he was diagnosed with concussion and mild whiplash. But he and his wife had been struggling with the aftermath ever since.

Brain scans showed no visible damage, and during the next few years John saw several doctors and specialists who gave him a haphazard regimen of drugs and recommendations, but no solutions. Apathy, depression, anger, and mood shifts strained his marriage and family life to the breaking point. “It was just an awful situation,” he says. Finally his wife got him an appointment with Beth Adams, a neurotrauma rehabilitation specialist and case manager at Spaulding Hospital North Shore. Adams diagnosed post-concussion syndrome and connected the couple with doctors including Charlton professor of physical medicine and rehabilitation Ross Zafonte at Spaulding Rehabilitation Hospital in Boston.

Seeing the team of specialists there “has completely changed my life around,” John says. He has been on a more systematic regimen of medications for his symptoms, and is receiving cognitive behavioral therapy to learn to manage the mood swings and fatigue.

John is one of more than five million people in the United States living with the long-term effects of a traumatic brain in-



Investigating injury,  
recovery, and repair

by Courtney Humphries

**A falling tree caused the injury seen in this brain scan. Physicians are studying traumatic brain injury (TBI) seeking to understand which therapies do the most to improve recovery.**

jury (TBI) caused by the sudden force of a fall, hit, or blast. Some injuries leave patients alive but unconscious or severely impaired. Others are seemingly mild, yet cause subtle but persistent changes in mood, memory, and cognitive abilities. An estimated 1.4 million Americans sustain a traumatic brain injury every year, and millions more suffer sports or recreation-related concussions. (Most of the latter recover quickly, but some experience symptoms for months or years.) Among U.S. soldiers who have sustained injuries in Iraq and Afghanistan, one estimate puts the rate of TBI at nearly 20 percent.

We tend to think of a traumatic injury as a simple, physical process, like a cut or bruise. But Zafonte, chair of the department of physical medicine and rehabilitation at Harvard Medical School (HMS), says it is more accurate to think of TBI as a disease, because its effects extend well beyond the physical injury and can unfold over long periods of time. Unlike the damage resulting from a stroke, which is often localized to one part of the brain, traumatic injuries often affect many areas of the brain in sometimes unpredictable ways.

TBI has attracted new interest recently, in large part reflecting growing awareness of the problems of soldiers and of such high-profile victims as Arizona Congresswoman Gabrielle Giffords and athletes who have died or developed brain disease after multiple hits to the head. Zafonte says the field was largely quiet when he arrived at HMS several

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years ago, but he now expects Harvard to become a leading center for work on TBI in the next few years. Today, researchers at Spaulding and other Harvard-affiliated hospitals are gathering data about patients and investigating therapies and interventions that could improve recovery from acute injuries or related long-term effects. Using imaging, animal studies, and experiments on cultured cells, they hope to help dispel the mysteries surrounding brain injury.

## The Spectrum of Consciousness

IMPROVEMENTS in medical care have saved the lives of people with some of the most severe brain injuries. But there are consequences of success: the healthcare system now faces the long and complicated challenge of rehabilitating these patients. "Not only are all these people surviving," says Zafonte, "but they're surviving severely disabled."

Joseph Giacino, director of rehabilitation neuropsychology at Spaulding and associate professor of physical medicine and rehabilitation, sees some of the most severely injured patients, those who have often been dismissed as hopeless. He was recruited to the hospital a year and a half ago to lead a program of treatment and research on disorders of consciousness—seeing patients with TBI and other conditions whose injuries have impaired their consciousness in some way.

Consciousness is not simply an on/off state, but a spectrum: at one end are patients trapped in comas in which their movement, awareness, and even respiratory systems are entirely switched off. Those who are awake but show no evidence of awareness are considered to be in a vegetative state. They often transition to what is called a minimally conscious state: awake and sometimes aware of their surroundings, but unable to respond consistently to any but the simplest questions.

This is the state that grips Anthony Adamo now. In a conference

room at Spaulding, Giacino sits with physiatrist and instructor in physical medicine and rehabilitation Ronald Hirschberg and several residents and nurses to discuss Adamo's case and assess his progress. A man in his fifties who owned a construction business and has a wife and two children, Adamo suffered a fall on the job that caused a severe brain injury. Now, three months later, he sits in a wheelchair, moves fitfully with only half of his body, and is wearing a helmet to protect his skull, which still has an opening after a brain surgery. As occurs in many patients, the events *after* his injury damaged his brain as much as the initial trauma. Bleeding and swelling made it necessary for surgeons to remove brain tissue. Before meeting with him, Giacino and Hirschberg reviewed MRI images of his brain that showed in stark relief a gap on one side.

Now, Giacino stands next to Adamo and attempts to communicate with him. He asks Adamo if he knows where he is, and asks him to touch his nose. The patient seems confused and mumbles answers that trail off. Giacino holds Adamo's hand, which has been moving distractedly.

"Who's your favorite football team?" Giacino asks. "The...."

There's no reply. Giacino persists. "New England...."

"Patriots," Adamo responds softly.

"Who's their quarterback?"

Tom....."

"Brady."

**Joseph Giacino (left)  
and Ross Zafonte**



For Adamo's doctors and nurses, progress comes in these small victories. Severely impaired though he is, Adamo has improved dramatically. But he still doesn't consistently answer yes and no questions correctly, and when Giacino gives him a plastic cup and asks him how it's used, he doesn't respond. Tasks like recognizing an object's use require multiple brain areas working together and clear thinking—but at this point in his recovery, Adamo seems too distracted. When he can accomplish at least one of these two tasks, he'll be classified in a higher state of consciousness, called the post-traumatic confusional state, in which higher functions remain impaired but basic activities of daily living reemerge.

Though this classification system is helpful, injuries like Adamo's are very hard to categorize and track. Patients seem to get better and then lapse. Whether abilities like language are damaged by an injury or simply hampered by confusion, distraction, or incapacity to attend to questions is difficult to know.

After the examination, Giacino and Hirschberg discuss Adamo's progress, medications, and possible therapeutic strategies. Hirschberg says it is not yet clear how far he will ulti-

mately progress, but that he has the potential to make a meaningful—if not complete—recovery. Giacino says that while many patients in this situation have been dismissed as unsalvageable, “we now have long-term data that patients get better”—vital evidence in making the case to treat them.

Giacino has been a leader in efforts to establish standards of care for patients with disorders of consciousness. In addition to treating them, he is gathering a wealth of information about their condition and progress and has helped create a consortium of 10 centers in the United States and Europe that has amassed a large data set and will begin releasing its initial findings this year. “We have no gold standard for measuring consciousness and very little evidence concerning treatment effectiveness,” he says; part of his goal is to bring more rigorous definitions and standards to this slippery concept, to better track which interventions work.

He is also involved in studies to look for drugs that could speed recovery. Currently, he says, “There is not a single proven treatment for promoting recovery from brain injury.” Instead, physicians manage medical symptoms and rely on rehabilitation to help restore cognitive and motor functions.

Giacino has also been involved in brain-imaging studies which have, in the past few years, revealed surprising activity in patients who appear to be unconscious, suggesting that even in the case of devastating brain injury, there may be a residual capacity for the brain to function, which might be aided by therapies. He is now working to use functional MRI imaging as a window into the minds of unresponsive patients. Perhaps looking into the brain will help clinicians make better decisions about how to help them.

## Comprehending Concussion

CONCUSSIONS, the most common brain injuries, occur when a rapid rotational acceleration to the head—such as a hit or fall—causes a temporary loss of brain function. It doesn't cause detectable *structural* damage, but its symptoms can range from headaches to loss of consciousness to seizures. New research has raised puz-



**William Meehan (left)  
and Mark Proctor**





FROM LEFT TO RIGHT: AP PHOTO/KEVSTONE, JEAN-CHRISTOPHE BOTT, MIKE HEWITT/GETTY IMAGES, MIKE HEWITT/SPORT/GETTY IMAGES, DREAMTIME IMAGES

zling questions about these incidents.

Concussions related to sports are common among children and teenagers, and probably more widespread than records indicate. Studies have found that one-third of athletes don't recognize their symptoms as concussion (most concussions don't involve a loss of consciousness) and many athletes ignore or avoid reporting any symptoms they may have (see "Hits, Heads, Helmets," January-February 2010, page 58). Nevertheless, awareness has grown: "There's much more understanding of the severity of the injury," says neurosurgeon and associate professor of surgery Mark Proctor, who leads the Brain Injury Center at Children's Hospital.

Yet "concussion" is still frequently used to mean a mildly traumatic brain injury, and barely a decade ago, says pediatrician William Meehan, director of the Sports Concussion Clinic at Children's Hospital, the idea that concussion could cause more than temporary problems was controversial. "People thought you just got better," he explains—and because most concussions do resolve quickly, people who complained of long-term symptoms were sometimes dismissed as malingerers.

But studies of athletes who have experienced concussions show a measurable drop in cognitive function after a single incident. Most subjects recover, but as they sustain additional injuries, the declines become more pronounced, and even permanent. Meehan and colleagues decided to explore the issue in animal studies ("Mice don't mangle," he says). By developing a system for inducing a concussion in anesthetized mice, the scientists have been able to study the injury's effects in much more detail than could be done in humans. The research affirms what has been seen in athletes: even when concussions don't cause visible structural damage to the brain or individual brain cells, they can still impair performance on memory tests.

The model has also facilitated study of the effects of multiple concussions—a common experience for athletes. The investigators find that repeat injuries cause cumulative impairments, particularly if there's little recovery time between episodes.

One puzzling aspect of concussions is why they affect people differently. Roughly 98 percent of those who suffer such an injury are symptom-free within a month. Meehan says the question is, "Is there a way to predict who will fall into that 2 percent?" Researchers seek to determine if certain people are susceptible to severe or long-term effects of concussion because of a genetic predisposition or some other factor. Using genetically altered mice, the team is testing the effect of one possible genetic connection,

**The dangerous sporting life: Snowboarder Kevin Pearce, shown here in 2009, is still recovering from a head injury sustained two years ago; Irish rugby players Brian O'Driscoll and Gordon D'Arcy after a collision; boxer Bradley Stone in the last fight of his life—he died two days later; third- and fourth-graders playing tackle football in Oregon**

a variation in the gene apolipoprotein E that has been linked to a worse outcome after brain injuries. It's not yet clear whether the same gene has a role in concussion.

Meehan hopes that these models will help answer other questions, such as whether concussion's effect on the still-

developing brains of children and adolescents differs from its impact on the brains of adults. Another concern is a rare event called second impact syndrome, which occurs when an athlete returns to play too soon after a concussion and suffers another, leading to severe and life-threatening swelling of the brain. Not surprisingly, Meehan and Proctor advocate for better awareness of the dangers of concussion, better medical attention for athletes who suffer injuries, and stricter rules about return to play and contact in school sports. They also collaborate with the Center for the Study of Traumatic Encephalopathy at Boston University, which is studying whether multiple concussions can cause chronic traumatic encephalopathy (CTE), a devastating degenerative brain disease that can cause dementia and depression.

## "TBI on a Chip"

ALTHOUGH TBI BEGINS with a physical trauma, it quickly leads to a series of chemical and structural changes in the brain—some immediate, others unfolding slowly over time. For Kevin "Kit" Parker, McKay professor of bioengineering and applied physics in the School of Engineering and Applied Sciences, this interface between physics and chemistry represents a potential therapeutic opportunity. Parker's research usually focuses on the heart (see "Life Sciences, Applied," January-February 2009, page 34), but he and other researchers in his lab have begun to take on the question of TBI at a cellular level. Their interest is personal: nine lab members are military veterans (including Parker, a major in the U.S. Army), so they have seen how improvised explosive devices can devastate the lives of soldiers who survive such attacks.

During a blast, a quick pressure wave rips through the air; the question is what happens when that wave meets brain tissue. Parker says many people assumed that blast-induced TBI damages the brain by ripping small holes in brain cells, causing them to die. He had a different theory: that the mechanical forces of a blast might trigger a chemical shake-up within the cells, initiated by proteins called integrins at the cell surface. (He had previously studied these proteins in other types of cells.)

Parker first outlined this hypothesis in a 2006 conversation with Borna Dabiri '07, now a graduate student in SEAS. During

the next few years, Parker's team at the Disease Biophysics Group at SEAS and the Wyss Institute for Biologically Inspired Engineering developed a way to study blast-like forces affecting individual cells. This past July they published papers in the *Proceedings of the National Academy of Sciences* and *PLoS One* showing that their original hunch was correct.

Integrins help anchor cells' inner "skeletons" to the outer tissue in which they are embedded, but they also activate chemical changes inside cells. The studies provide evidence that integrins may translate mechanical blast forces into cellular damage in both neurons and blood-vessel tissues. The team placed rat neurons on a plastic surface and then subjected them to brief, abrupt stretching forces, using a highly controllable, piston-like device developed by graduate student Matthew Hemphill and staff engineer Josué Goss, a U.S. Marine with two combat tours in Iraq who used his knowledge of explosives to mimic the forces passing through

**McKay professor of bioengineering and applied physics**  
**Kevin "Kit" Parker with some**  
**members of his TBI research**  
**team (from**  
**left): postdoc-**  
**toral fellow Leila**  
**Deravi, doc-**  
**toral candidate**  
**Borna Dabiri**  
**'07, Parker, doc-**  
**toral candidate**  
**Matt Hemphill,**  
**lab engineer**  
**Josué Gross, and**  
**doctoral**  
**candidate**  
**Sam Felton**



the brain in a blast. As a result, Parker's team found it possible to induce TBI-like injuries in cells without physically ripping them.

To study integrins in more detail, they also attached tiny magnetic beads to neurons coated with a protein that binds specifically to integrins. They found that applying an electromagnetic force to beads attached to the axons—the long tails—of neurons could injure them, and that forces stressing one bead propagated through the cell's skeleton down another axon, causing that distant axon to break or be injured. Parker says the propagation of forces through neurons explains why physical damage in human brains may appear far from the original injury site.

The researchers used a similar technique to study mechanical forces in the cells that line blood vessels, creating artificial vessels from sheets of smooth-muscle cells. High-speed pulses of stretching, they found, caused the blood vessels to con-







tract and the sheets to fold, inducing chemical changes in the cells. That result suggests that integrins mediate another medical phenomenon that occurs in brain injuries but is particularly common to blast victims: cerebral vasospasm, a dangerous narrowing of the brain's blood vessels that can emerge days to weeks after the initial injury. Treating damaged neurons and blood-vessel cells with a drug that inhibits a protein activated by integrins lessened the effect of the injury. Parker hopes that by isolating a chemical process involved in the pathology of TBI, the team will find a drug that can be given to soldiers before or immediately after an injury to lessen its damage to the brain.

These cell studies are the first step in what Parker calls a "TBI on a chip," a highly simplified model to screen for drugs to treat brain injury. He wants "to build a one-cubic-millimeter piece of brain" that he could then grow in dozens of tiny wells in microfluidic chips suitable for high-throughput screening of possible drugs. Parker's team is now at work on growing different types of cells together, which would mimic the multiple cell types found in the brain. The chips would be subjected to forces that simulate a blast, and then screened for chemicals that prevent damage. Developing this kind of tool, he hopes, could entice pharmaceutical companies to direct resources into a search for TBI drugs.

**Head injuries figure prominently in news images: an anti-government protestor in Cairo after a clash with supporters of then-president Hosni Mubarak, in February 2011; a woman with a traumatic brain injury sustained during an earthquake that rocked Jiangxi Province, China, in 2005; a fireman using the Jaws of Life to rescue victims of a car accident, 1989; U.S. Marine Joseph Sandoval, who suffered a concussion when his vehicle struck an improvised explosive device in Afghanistan last November**

## "The Most Complicated Disease"

ZAFONTE CALLS TBI "the most complicated disease in the most complicated organ known to man." This complexity explains why the disease has so vexed scientists and clinicians, and why so many clinical trials for treatments to improve recovery have failed. Traumatic brain injury remains a puzzle on many levels, from the events unfolding in brain cells to the complex and varied way those events play out in a human life.

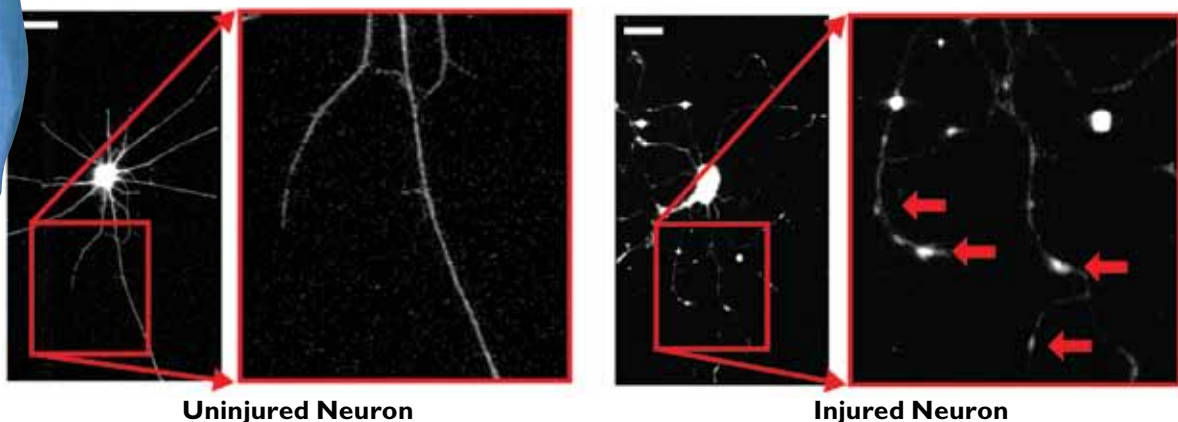
Efforts to solve those puzzles vary as well, from Parker's pared-down, engineering approach to the collection of data about real patients at Spaulding and other Harvard-affiliated hospitals. Zafonte leads a program on TBI and Neurotrauma for the Center for Integration of Medical Innovation and Technology (CIMIT), a nonprofit consortium in Boston that funds new techniques for monitoring and treating brain injury. Its research aims to understand the biological processes underlying mild and severe brain injuries, why individuals respond differently, and whether clinicians can better detect and monitor injuries through novel imaging techniques or even chemical changes in the blood.

Today, treating TBI patients is still a matter of trial and error, so Zafonte's goal is a more scientific set of treatments. With all these efforts, he says, he hopes to offer his patients proven ways to help the brain heal: "It's the way our colleagues went in cardiac therapies, in HIV, in all these other areas where there have been huge successes."

*Contributing editor Courtney Humphries is a freelance science writer in Boston.*

**A comparison of healthy and injured neurons, from research by the Parker team.**

**Injured neurons show localized swellings, as indicated by red arrows in the magnified image at far right.**



KIT PARKER

FROM LEFT TO RIGHT: PETER MACDIARMID/GETTY IMAGES; CHINA NEWS/PHOTO/REUTERS/ CORBIS IMAGES; BOB KRIST/CORBIS IMAGES; BEHROUZ MEHR/AF/GETTY IMAGES

# Renewing Civic Education

*Time to restore American higher education's lost mission*

by ELLEN CONDLIFFE LAGEMANN and HARRY LEWIS

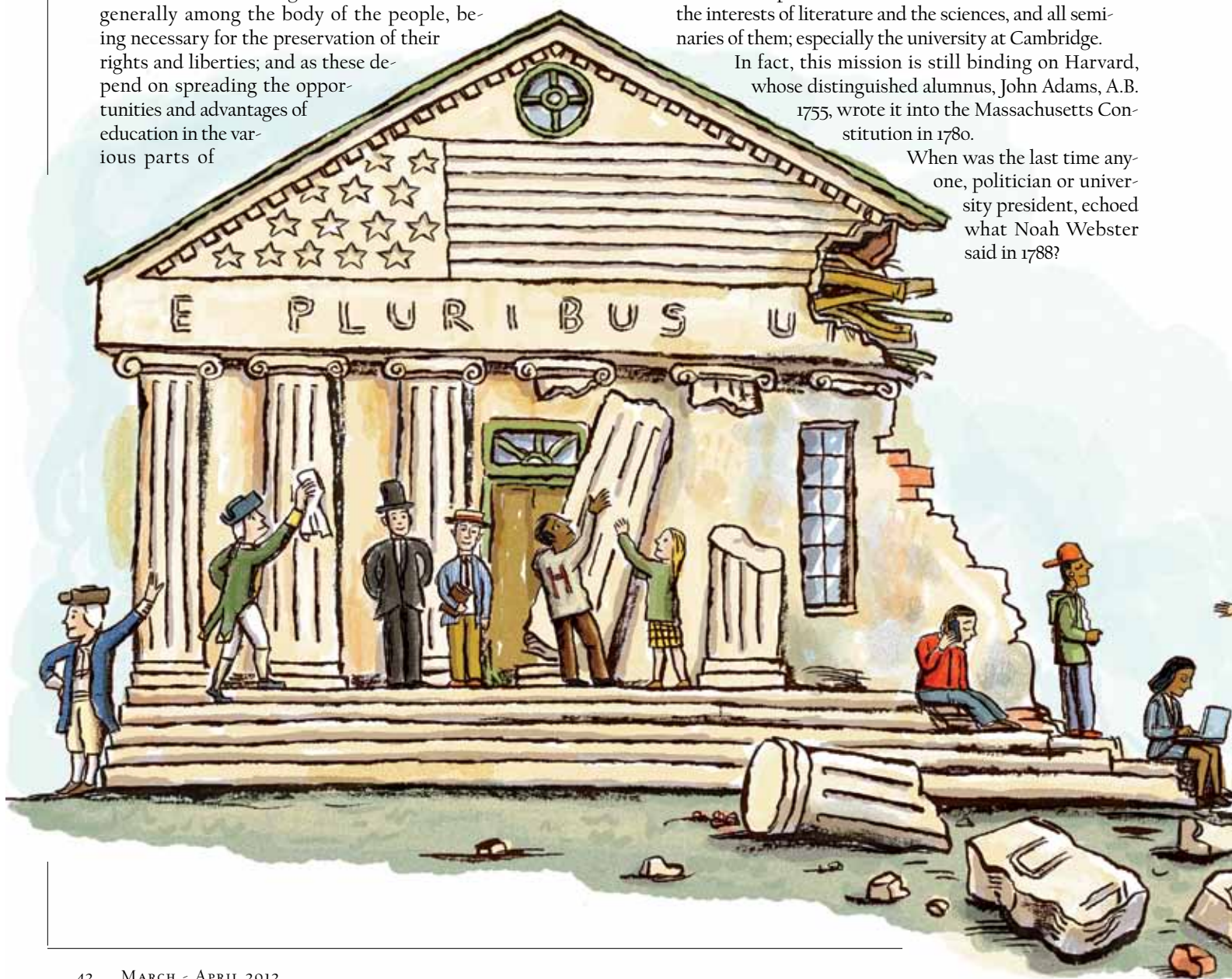
DOES THIS SOUND even vaguely like what is now understood to be the purpose of higher education?

Wisdom, and knowledge, as well as virtue, diffused generally among the body of the people, being necessary for the preservation of their rights and liberties; and as these depend on spreading the opportunities and advantages of education in the various parts of

the country, and among the different orders of the people, it shall be the duty of legislatures and magistrates, in all future periods of this commonwealth, to cherish the interests of literature and the sciences, and all seminaries of them; especially the university at Cambridge.

In fact, this mission is still binding on Harvard, whose distinguished alumnus, John Adams, A.B. 1755, wrote it into the Massachusetts Constitution in 1780.

When was the last time anyone, politician or university president, echoed what Noah Webster said in 1788?





It is an object of vast magnitude that systems of education should be adopted and pursued which may not only diffuse a knowledge of the sciences but may implant in the minds of the American youth the principles of virtue and of liberty and inspire them with just and liberal ideas of government and with an inviolable attachment to their own country.

What strikes us about these passages is not their antiquity, but their wisdom. Today, many Americans have lost pride in their government. At a time when universities trumpet their place in the world—and within Facebook—but say little about their place in the Republic, these calls to educate citizens who will sustain the nation have new and vital meaning. It is time to reimagine higher education's civic mission.

Higher education is now justified almost entirely by economic returns and the concomitant social returns. To be sure, as a government website proclaims, “Education Pays.” But the *public* purposes of education go beyond aggregated benefits to *individuals*. Colleges and universities are repositories of culture as well as wellsprings of creativity. They are positioned not only to foster innovation, which is essential to national prosperity, but also to teach the public responsibilities associated with invention and entrepreneurship. They should give students the skills they need for personal success as well as the values, ideals, and civic virtues on which American democracy depends.

The need for civic education is urgent because so many aspects of our civic life have become dysfunctional. “A Republic, if you can keep it,” as Benjamin Franklin described our form of government, will not persist through momentum alone. What might colleges and universities do to reinvigorate their commitments to their public mission? As Harvard celebrates its 375th year, what might this great university do to breathe new life into civic education?

In what follows, we frame the problem and suggest approaches to a solution. As former Harvard deans, we hope to spark a conversation across the University's schools and departments and, beyond Harvard, among colleagues at other institutions of higher education.

We see civic education as the cultivation of knowledge and traits that sustain democratic self-governance. The synergistic components of civic education in American colleges and universities are a tripod of intellect, morality, and action, all grounded in a knowledge base of American history and constitutional principles. *Intellect* means the capacity to analyze public problems with the dispassion of the scholar—curious about current events and able to subject them to rational analysis. *Morality* is the capacity to make and explain value judgments about concepts such as fairness, social justice, freedom, and equality, conceived as both democratic ideals and lived commitments. Finally, civic education instills the willingness and competence to take effective *action* on matters of public concern. Civic education

cannot flourish if intellect is privileged over morality and action, as is usual today. The time has come for universities again to embrace all sides of their public mission.

## The Inadvertent Decline of Civic Education

AT OLD COLLEGES like Harvard, moral philosophy, with civic education a major component, was once a capstone course required of all seniors. But the subject went into decline after the Civil War, as science became ascendant and universities gave preeminence to research. As science either marginalized or helped transform other subjects, citizens' responsibilities for the public good were squeezed out of the mission of higher education. Moral philosophy became a marginal specialty within philosophy departments. At Amherst College, for example, the president still taught moral philosophy to all seniors in 1895; by 1905, it was but a single elective offering.

At the same time, professionalization in the academic disciplines splintered formerly unified interests in social problems. Sociologists might study the neighborhood origins of poverty, while economists investigated ways to measure it. Social *science* also became increasingly separate from social *work*, the former being reserved for (usually male) scholars, the latter for (usually female) field workers. In the academic pecking order, deliberately amoral scientific fields dominated deliberately altruistic service fields. In a university of specialized professors, nobody was left to instill in students a sense of the common good.

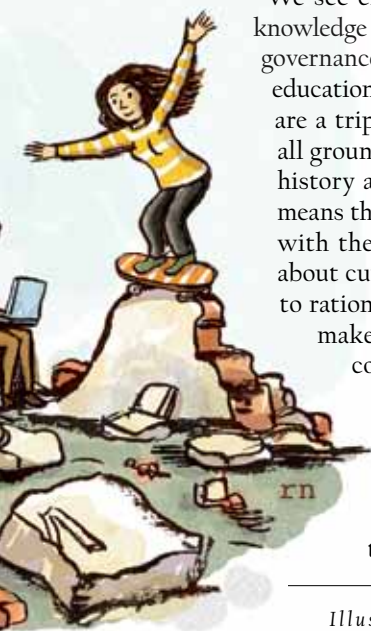
As knowledge fragmented, professional expertise empowered the professoriate. Faculty members came to identify less with their institutions and more with their academic guilds. Their disciplinary specialization trumped their educational roles. Even when colleges like Harvard tried to push back by fostering teaching centers and small seminars, the real rewards were for subject-centered expertise, not for civic mentoring. As national and international networks of academics developed, professors' power rivaled that of presidents and trustees. A market for top talent developed as professors became mobile. By the late 1960s, American higher education had become the envy of the world, preeminent in science and invention—but at a price: colleges no longer met or even recognized their once central responsibility for the moral development of their students.

## Four Reactions to the Civic-Education Vacuum

DURING THE PAST CENTURY, four very different movements have reasserted civic ideals in academia.

*General education* was intended to advance common values and defend liberal learning in the face of demographic diversification and academic professionalization. Distinct models developed, first at Columbia, then at the University of Chicago, and, after World War II, at Harvard, all involving the study of “great books” or synthetic approaches to the humanities, sciences, and social/behavioral sciences.

The *student movement* of the 1960s—although on the surface antagonistic to “general education”—expressed alienation widely felt among young people about injustice and commercialization in American society. Students found their university education



shallow and soulless. Its antiauthoritarian agenda and tactics notwithstanding, the student movement sought to reassert the educational importance of common values and social mission.

The so-called *culture wars* began with publication of Allan Bloom's *The Closing of the American Mind* in 1987. Bloom, a philosopher at the University of Chicago, and critics on the right, notably Lynne Cheney (then chair of the National Endowment for the Humanities) and Dinesh D'Souza (a journalist and policy analyst), argued passionately that preoccupations with diversity and academic fads had eclipsed old values and traditions of learning. From the left, philosopher Martha Nussbaum, historian Lawrence Levine, and others faulted the evidence and logic of these defenders of "the canon," claiming that college curricula should

## Outside our houses of worship, the subject of morality causes discomfort on most college campuses. Academic professionalization drove the subject out of the portfolio of professors.

co-evolve with American culture. Gerald Graff of the University of Illinois, in his influential book *Beyond the Culture Wars*, may have carried the day when he urged teaching the conflicts themselves as a means to foster an "informed citizenry."

In the mid 1980s, yet another movement to promote civic engagement began to appear on campuses across the country. *Service learning* flourished mostly as an extracurricular encouragement to civic activity among undergraduates. Organizations such as Campus Compact, which supports community service at more than a thousand institutions, and City Year, which offers volunteer work before or after college, have helped build a strong culture of youth volunteerism.

Each of these movements embodied admirable commitments to public purposes. Some, such as the "culture wars," faded quickly. Others were overwhelmed by the very forces they were intended to oppose. General education continues in its classic form at Columbia and St. John's, but elsewhere devolved into distribution requirements under pressure from faculty disciplinary priorities. Service learning helped recruit a large number of undergraduates into volunteer work, but professors continue to occupy a parallel universe largely untouched by calls to service. And the immediacy of service experience may not always result in a lasting, thoughtful commitment to social progress, as this incident, reported in a 2003 Carnegie Foundation study, suggests:

A student volunteering at a soup kitchen...very much enjoyed the experience and felt that it had made him a better person. Without thinking through the implications of his statement, he said, "I hope it is still around when my children are in college, so they can work here, too."

### Finding a Way Forward

How CAN CIVIC EDUCATION be given new life? We propose no course syllabus; we pitch no new campus civic center. In fact, universities may already be over-supplied with *ad hoc* gestures toward civic enlightenment. Neither designated courses in ethical reasoning, nor presidential bromides when freshmen arrive and

seniors graduate, suffice to "inspire them with just and liberal ideas of government." Indeed, such episodic nods to civics may only foster cynicism. Instead of a prescription, we offer a framework for conversation about the intertwined roles of intellect, morality, and action. We hope this framework will be useful at a variety of institutions, including Harvard.

*Intellect.* Colleges and universities are defined by their commitment to study. Although extracurricular and residential experiences can be highly valued, activities with an academic dimension are most respected in academic circles. They "count." Nor can effective civic education be relegated to a corner of students' academic experience. To be embraced as a primary purpose of the college experience, civic education needs to be spread across the curriculum.

Natural opportunities arise everywhere. Every academic, professional, or vocational field of study can stimulate reflection on issues of political or social importance. Every sociology course raises questions about the nature of civil society. The dramatic arts

have always had a role in fostering and criticizing national ideals. Every class in biological science points toward questions of human welfare and destiny. The politics of the Roman republic still offer lessons for our own. Without compromising the mechanisms that ensure scholarly excellence, universities can reward professors for nourishing the practical, applied, "relevant" dimensions of their subjects.

*Morality.* Outside our houses of worship, the subject of morality causes discomfort on most college campuses. Academic professionalization drove the subject out of the portfolio of professors. Although every college and university has standards (academic and behavioral), transgressions are likely to be treated legalistically, rather than as teachable moments. Institutional leaders avoid discussing difficult matters of principle, where values come into conflict. For an official to favor one side of an issue when the community is divided could, it is said, discourage free speech on the other side. But in the interest of graduating fewer scoundrels and having to discipline fewer faculty members, colleges need to find ways to bring their standards (written and implicit) to life. They should talk openly and repeatedly about what kinds of people they want as members of their community—and also which institutional values take precedence in cases of conflict among them.

*Action.* Civic learning is about the effect of human decisions on other people and on society at large. The so-called outside world will become a natural laboratory for civic concepts discussed in classrooms. This already happens regularly in professional schools—faculties of public health, medicine, and law all run clinics, schools of education offer internships and outreach programs, and engineering and business schools engage their students in *practica*.

Universities are themselves important agents in American society. University leaders can use announcements of important policies and decisions as vehicles for civic education. Students should be as important an audience as alumni, donors, the media, and Washington when universities explain what they are doing and



why. Moreover, universities can teach by commenting openly on institutional news that is being discussed anyway—even when it is embarrassing. Silence signals that a university can't tell right from wrong, or doesn't care which it is advancing; awkward spin control suggests that academic speech is no more credible than commercial or political advertising.

As we have indicated, we do not believe there is “one best way” forward. However, we offer three suggestions to begin restoring civic education as a central purpose of higher education.

- *Integrate civic education into core requirements and concentrations or majors.* In every field, faculty members care most about the subjects in which they were trained and are expert—and the university's culture of expertise is far too valuable to compromise. Professors will best offer civic education when it is fused into the courses about their specializations. That is where they can speak from experience about the relation of their work to the problems of the world. Senior members of departments might explore and model for their junior colleagues the integration of academic and civic teaching within their field. Like any other educational reform, this one will not be successful without adjustments to the incentive and reward system for faculty in order to recognize their contributions to the institution's civic mission.

- *Long-term, global thinking as a university-wide aim.* It is not enough for great universities to talk grandly of a “global mission.” Students today, especially undergraduates, are focused on next steps, especially getting a job and paying off student loans. Without trivializing those concerns, universities can balance them with frequent university-wide and department-specific lectures, discussions, exhibitions, and credit-bearing classes that teach one clear lesson: *You are responsible not only for your own future, but also for the future of the world.* A grand challenge to higher education today is to give powerful, personal meaning to the clichés rephrasing that lesson. How can colleges and universities translate “Think globally, act locally” into terms that will move every graduate?

- *Modeling civic engagement throughout the institution.* Institutions teach through their policies and practices, their governance and organization—through everything they do, every day. No college will be successful in renewing its civic mission unless its operations embody its values. At Harvard, this would entail scrutiny of accountability mechanisms for administrative centers, from the governing boards through Massachusetts Hall to the allied offices. Decision-making can be made more educational by making it more transparent, for everything from endowment management to wage structures, promotion decisions, and disciplinary procedures. Discrepancies between and among schools and departments that suggest priorities at odds with stated values will teach lessons if they are acknowledged, and either explained or remedied.

Implementing these recommendations would be contentious. Legal liabilities can limit institutional transparency. Secrecy is necessary sometimes, if not nearly as often as it is practiced. More often than not, open discussion of the difficulties would be constructive. The arguments about specifics would expose to healthy debate latent disagreements about the ultimate purposes of a university.

Failing to reinvigorate the civic mission of our colleges and universities carries a high price: it will put at risk the well-being of our nation and the world, perhaps not tomorrow but in decades to come. We believe that like-minded people among us, at Harvard and elsewhere, can come together to mobilize change. With the support

and example of higher education, current dismay over political polarization and skepticism about human progress can give way to the civic idealism that has always characterized the American experiment at its best. ♥



Ellen Condliffe Lagemann is the Levy Institute Research Professor at Bard College, and a Distinguished Fellow at the Bard Prison Initiative. Harry Lewis is Gordon McKay professor of computer science at Harvard. Both are former Harvard deans, Lagemann of the Graduate School of Education and Lewis of the College. Together they have edited *What Is College For? The Public Purpose of Higher Education*, published last November by Teachers College Press. This article is adapted from their essay in that volume, “Renewing the Civic Mission of American Higher Education.”

# JOHN HARVARD'S JOURNAL



## Into India

AT 8 IN THE MORNING, the sidewalks of Mumbai's Nariman Point neighborhood are thick with pedestrians, getting in a morning run or stroll with a view of the Arabian Sea before starting their workday.

About a mile away, in the Machhimar Nagar (fishing village), the day's work is already ending. Two small children with their mother scan the water for their father's boat; fisherman who have already returned huddle around an open fire, cooking lunch, following the centuries-old way of their families.

These two neighborhoods tell the story of South Mumbai. Surrounded on three sides by water, the city's main business district is reachable by car only from the north. Those who work here commonly commute two hours each way; those who can afford to live here now occupy one of the city's most





**Opposite, top: The Rajpath, or King's Way, in New Delhi runs from the federal government complex to the India Gate monument (seen through morning fog in the distance). It is the route for the annual Republic Day parade. Opposite, bottom: Residents of South Mumbai's Machhimar Nagar (fishing village) wait for fishermen to return with the day's catch. This page, at left and below: In Machhimar Nagar, an ages-old way of life survives alongside Mumbai's modern skyscrapers; fishermen prepare to cook lunch. Most head out early, and finish their day's work by 8 A.M. Below left: The Aspiring Minds office outside Delhi buzzes with activity well into the evening. Companies rely on the start-up to help them find highly qualified technology workers.**



exclusive residential areas. Still, the fishing village and several slums have not made way for more skyscrapers. Old and new have existed in an uneasy balance for decades, and now many of these areas are so controversial—for reasons political, cultural, or environmental—that no one dares propose new development.

This silence has long fascinated professor of urban design and planning Rahul Mehrotra, a Mumbai native. Last March, he took a group of 40—Graduate School of Design (GSD) students, business and government graduate students, midcareer Loeb Fellows at the GSD—to his hometown for a weeklong design studio,

the centerpiece of a semester-long studio course.

The students focused on the Backbay Reclamation, an area that includes both Nariman Point and the Machhimar Nagar. These neighborhoods and surrounding areas were built on backfilled land in a project that began in the 1930s, but was halted in the 1970s due to corruption and flagrant violations of the original land-use plan. Today, the map of South Mumbai shows a gap in the western side of the shoreline, as if the city is missing two teeth. These are the two sectors of the project that were never completed.

The Harvard group's conclusions—a grab bag of ideas covering landscape, trans-

## IN THIS ISSUE

- |    |                                |    |                   |
|----|--------------------------------|----|-------------------|
| 49 | Harvard Portrait               | 57 | Brevia            |
| 51 | Lyonel Feininger, Photographer | 59 | The Undergraduate |
| 53 | Yesterday's News               | 61 | Sports            |
| 54 | A Blossoming Centennial        | 63 | Alumni            |
| 55 | A Long Way from Longwood       | 68 | The College Pump  |





**President Drew Faust visited India for the first time in January. During her time in Mumbai, she visited the J.B. Petit High School for Girls and also received an architectural tour of the city from Rahul Mehrotra, chair of the department of urban planning and design at the Graduate School of Design.**

portation, infrastructure, and environmental issues, including proposals for creating more space through landfills and for making better use of existing space—have become a book, which was to be presented at a symposium in Mumbai in February, during a visit by Mehrotra and the students of this year's studio course (focused on a different area, the eastern port lands of Mumbai). The students hope that, because they are not affiliated with any corporation or with the government, their recommen-

dations will be perceived as neutral, and might help the Backbay area lose its status as a conversational third rail. With any luck, says Zhuorui Ouyang, a GSD master's candidate from last year's group who is focusing on Mumbai in her thesis, "our presence opens up the conversation."

HARVARD EMISSARIES were opening many conversations across India in January. Students came for between-semester academic projects. Professors visited to check

in on research, NGOs they have started, and companies they advise. And President Drew Faust made her first visit, with stops in Mumbai and Delhi.

India's recent rapid economic growth, and resulting social changes, have made for fertile scholarly ground. Business students can study some of the many innovative companies being launched. Public-health students take on the challenge of improving conditions for people migrating in massive numbers to urban slums, and for those still living in desperately poor rural areas.

In the past several years, the University's involvement in India "has come to some maturity," says Rothenberg professor of the humanities Homi Bhabha, a Mumbai native who directs the Mahindra Humanities Center (funded by a gift from Anand Mahindra '77, M.B.A. '81, a senior executive at the Indian conglomerate Mahindra Group).

Faust, in explaining the significance of her visit to India, noted the widening scope of activities in the country, and across South Asia. Tarun Khanna, Lemann professor at Harvard Business School (HBS), concurs: "We have extraordinarily greater reach in the region now," compared to a few years ago. Khanna just finished his first year as director of the University's nine-year-old, interdisciplinary South Asia Initiative (SAI), which last year supported research by 24 undergraduates, 28 graduate students, and two professors; last spring, a symposium in Cambridge on the future of South Asia drew 200 people. But "more than the numbers," says Khanna, "I think it's the diversity of

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### The End of Occupy Harvard

Citing safety hazards, University personnel dismantled the movement's weatherproof dome. [harvardmag.com/occupy-removed](http://harvardmag.com/occupy-removed)

### Learning to the HILT

The new Harvard Initiative on Learning and Teaching highlighted innovative approaches. [harvardmag.com/hilt-symposium](http://harvardmag.com/hilt-symposium)



### Subramanian Swamy's Courses Canceled

As President Faust prepared to go to India, the Faculty of Arts and Sciences declined to reappoint a controversial summer-school teacher who is a polarizing figure in that country's volatile politics. [harvardmag.com/swamy](http://harvardmag.com/swamy)

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the people who have come together” that gives the initiative its richness.

The University has historically focused more on East Asia, a fact Khanna attributes in part to India being part of “the British embrace,” with weaker ties to the United States. (That hasn’t stopped other U.S. schools: Yale president Richard Levin, for instance, has traveled to India four times since 2005, and plans annual visits.) But as the United States has received more South Asian immigrants, and as their children become curious about their roots, demand has risen for courses on the region. At the same time, India’s booming economy has created jobs for recent graduates like the two now spearheading the growth of an alumni club in Mumbai: Russell Mason ’10, who works on low-income housing for a real-estate division of the Mahindra Group, and Gaargi Ramakrishnan, M.S. ’10, co-founder of EkSMS.com, a website and text-messaging service focused on Mumbai dining and nightlife. (HBS has long had an active alumni group in the city, and an alumni club in Delhi has a long history, but the Mumbai club was incorporated only last November. President Faust’s reception, which drew 160 registrants, was its second official event.)

Faust is the fourth sitting president to visit India, where Lawrence H. Summers went in 2006, Derek Bok in 1987, and Nathan Marsh Pusey in 1961. She emphasized the importance of liberal-arts education in a speech at the University of Mumbai (see [harvardmag.com/faust-indian-welcome](http://harvardmag.com/faust-indian-welcome)) and at a SAI-sponsored symposium in Delhi on higher education in South Asia. (For his part, University of Mumbai vice chancellor Rajan Welukar called the occasion of Faust’s visit “the happiest day in the history” of that institution.) The president also toured the office SAI shares with the HBS India Research Center, established in 2006; visited a high school for girls; and met with Prime Minister Manmohan Singh, with whom, she said, she also underscored the importance of access to higher education.

SOME HARVARD-INDIA CONNECTIONS go way back. Barry Bloom, Distinguished Service Professor and Jacobson professor of public health, first traveled there in 1970 to conduct research on leprosy and teach the first course on immunology in the country. That experience kindled an interest in

## HARVARD PORTRAIT



Joseph Aldy

**When Joseph Aldy** trekked up Mount Kilimanjaro with his father in 2000, he was a long way from the farm in Kentucky where he grew up—but close to the things that matter to him. Aldy is an economist who works on energy and climate-change policy. He loves to hike. On Kilimanjaro’s 19,341-foot peak, he got to see the last vestiges of the 11,000-year-old glaciers there—they are expected to disappear within the next decade or so. An assistant professor of public policy at Harvard Kennedy School (HKS), he is faculty chair of the regulatory-policy program at its Mossavar-Rahmani Center for Business and Government. He got his start in environmental economics in Washington, D.C., where he became jet-lagged working on the Kyoto Protocol in 1997, even though he didn’t go to Japan: he was the economist who stayed home and crunched U.S. emissions numbers from 7:30 P.M. to 6:30 A.M. for the Bureau of Economic Analysis. In the Clinton administration, he rose from a presidential management internship to posts as staff economist, and then senior economist for the environment and natural resources, for the Council of Economic Advisers. After earning a Ph.D. from Harvard in 2005, he returned to government service under President Obama as special assistant to the president for energy and environment, deferring his appointment at HKS to work on the clean-energy package of the American Recovery and Reinvestment Act, among other initiatives. “The political world can get hung up on trivial things,” he says, but experience gained by “working in Washington can help you understand what really is a relevant policy question. Scholarship needs to be informative.”



A new required course places all 900 first-year M.B.A. students in one of 10 foreign countries for a weeklong project; the largest contingent went to India. In Mumbai, one student team worked with a chain of “hypermartets” trying to win business from small neighborhood grocery stores. Left: Alex Pak, Parilee Edison, and Evan Sketchley analyze store displays. Below, left: Kara Scarbrough, Alma Donohoe, and Edison examine the many varieties of rice for sale. Below: Another team advised a company on introducing a line of hair-care products. Back at their hotel, the students (from left)—Thomas Lydick, Steven Pearson, Frederic Dijols, Chris Bruce, Jeff Suer, and Nafis Atiqullah—regroup to consider what they will recommend.



her University of Mumbai speech: the modern history of South Asia, taught by Lamont University Professor and Nobel laureate Amartya Sen and Gardiner professor of oceanic history Sugata Bose (SAI's first director); “Love in a Dead Language,” in which professor of religion and Indian philosophy Parimal Patil, chair of the department of South Asian studies, introduces

global health that led to 30 years of work for the World Health Organization. When Bloom became dean of Harvard School of Public Health (HSPH) in 1998, he desired to give back to the country that had so influenced his career. He has spent the years since working with the Indian government and philanthropists to open a set of four schools of public health there through the Public Health Foundation of India. (Its president, K. Srinath Reddy, currently has a visiting professorship at HSPH.)

Recent donations from Indian citizens have created other lasting links. There is the Murty Classical Library of India book series (which will complement the Loeb Classical Library, I Tatti Renaissance Library, and Dumbarton Oaks Medieval Library); the Mahindra Humanities Center; and HBS's Tata Hall (funded by the charitable arm of the Tata Group, famous internationally for the cheap and tiny Tata Nano automobile).

Meanwhile, professors from business fields to the humanities say they have noticed increasing student interest in courses about India. Faust mentioned three general-education offerings by name in

students to classical Sanskrit work; and “Contemporary South Asia: A Survey of Intractable Problems and Innovative Solutions,” in which Khanna presents companies, nongovernmental organizations (NGOs), and public initiatives that have solved lingering problems in education, health, telecommunications, and finance.

One of the companies students consider is Aspiring Minds, a startup based outside Delhi whose founders Khanna has advised since one of them (then a graduate student at MIT) approached him after a lecture in Cambridge. (Khanna was also a founding investor.) With its proprietary, computer-adaptive standardized tests, the company aims to help employers more easily find employees

who are good matches—sorely needed, given that in the IT field alone, India's top three companies annually hire between 10,000 and 30,000 engineers *each*. The company has grown fast: it now tests 25 percent of India's new graduates in engineering, the field it entered first. And there is plenty of room to grow further: the Indian government has set a goal of doubling the proportion of youths who attend college by 2030.

The superhumanly busy Khanna also advises mDhil (founded by Nandu Madhava, M.B.A. '06), a mobile-health-technology company based in Bangalore, and Chai Point (founded by Amuleek Singh Bijral, M.B.A. '06), which operates more than a dozen small shops where even low-paid workers can escape the hustle and bustle of Bangalore's streets and enjoy a cup of tea in peace.

The students learn as well about PRS Legislative Research, a Delhi-based non-





## Harvard's links to India, from business to health, are spreading across the country.

profit founded by C.V. Madhukar, M.P.A. '04. (Khanna has an advisory role.) The organization—aware that India's members of parliament lack a publicly funded research staff, and cognizant of the risks when legislators vote on issues they know little about, or get information from those with vested interests—sends each of India's 790 MPs a brief analysis of every bill before them each session. (This is only a few dozen bills per year.) The group treasures its reputation as strictly nonpartisan; in India's divisive political climate, Madhukar is heartened that members of the two largest political groups, the Congress and Bharatiya Janata parties, contact PRS in numbers proportional to their seats in Parliament.

Khanna's portfolio mirrors a larger trend: Harvard-India links, largely focused on business and Mumbai, are diversifying in terms of geography and subject matter—and University scholars are making a mark on the country from the highest reaches of government down to the grass roots.

Undergraduates arrive in Bangalore each summer to work in life-sciences labs, in a program led by professor of molecular and cellular biology Venkatesh Murthy. Sen and Bose participate in an advisory group to guide their alma mater, Kolkata's Presidency College (a prestigious institution that dates from 1817) as it makes the transition to a full-service, English-language, liberal-arts institution. Atul Gawande, associate professor of surgery at Harvard Medical School and associate professor in the department of health policy and management at HSPH, is influencing maternal and newborn health, administering a \$14-million grant from the Bill & Melinda Gates Foun-

dation to test a safe childbirth checklist in 120 Indian hospitals. And Jacqueline Bhabha, Smith lecturer on law and executive director of the University Committee on Human Rights Studies (and wife of Homi Bhabha), in 2009 founded the Shanu Project to work on human-rights issues affecting girls and women—education, early marriage, employment prospects, domestic violence—in five villages in Gujarat state in northwest India. (The NGO was named for a Gujarati girl who hanged herself around the time the project began.)

WHEN WALKER PROFESSOR of business Krishna Palepu joined the HBS faculty in 1983, he was only the second faculty member of Indian origin. How many are there now? "I don't know," says Palepu, who was just appointed President Faust's senior adviser for global strategy. "I've stopped counting."

His early research, focused on mergers

and acquisitions and corporate disclosure, had little to do with his native country. But as India's economy began to grow, Palepu became curious about what made for success—leading, ultimately, to a 2010 book titled *Winning in Emerging Markets*, co-authored with Khanna.

One key concept: it is hazardous to assume that what works for the middle class in a country with a high standard of living can simply be copied wholesale for use in a developing country with a burgeoning middle class. Palepu notes that the average revenue per user for a cell-phone company in the United States is \$70 a month; in India, even middle-class customers can afford an average of just \$5 a month. This means tremendous pressure to cut costs, and figure out what features consumers can live without, without sacrificing quality. (This is the approach behind the Tata Nano.)

## Lyonel Feininger, Photographer



**American-born Lyonel Feininger (1871-1956)** was an illustrator and cartoonist active in Germany who in 1907 gave up his commercial work and rose to prominence as an artist who exhibited with the expressionists. Much of his formal work was heavily influenced by cubism, to which he was exposed in Paris in 1911. His resulting "prismatic" style was applied most frequently to architectural subjects—in 1919, Walter Gropius chose Feininger as his first appointment to the teaching staff of the Weimar Bauhaus—but also to figures and seascapes. Though best known for his drawings and watercolors, Feininger took up photography at the age of 57, going out at night to experiment with avant-garde photographic techniques. A selection of his rarely seen photographs, along with drawings and watercolors, will be on display from March 30 to June 2 at the Sackler Museum, and an online collection of his photographic works is accessible at [www.harvard-artmuseums.org/feiningerphotographs](http://www.harvard-artmuseums.org/feiningerphotographs).



From top: *Untitled (Night View of Trees and Streetlamp, Burgkühnauer Allee, Dessau), 1928; and Bauhaus, March 26, 1929.*



Visit [harvardmag.com/extras](http://harvardmag.com/extras) to view more examples of Feininger's work.

Reaching those middle-class consumers was the focus of many of the MBA students in India for a January international experience, part of a new mandatory first-year course. Called FIELD—Field Immersion Experiences for Leadership Development—the course comprises three modules, each focused on a skill that is difficult to teach in the classroom: effective leadership; global and cross-cultural understanding; and the integration of multiple skills and concerns involved in starting a real-world business. For the global experience, students were placed in one of 10 countries, with the most (192 in all) going to India.

The six-person student teams performed test runs of their projects beforehand, imagining how they would advise an American supermarket chain or research hair-care products for the Boston market. Still, much of what they learned during the week abroad surprised them. “The things you imagined, from Boston, would be problems aren’t at all, and the things you thought would be inconsequential are huge issues,” says Evan Sketchley, a member of the team that worked with an Indian grocery-store chain.

The group expected that the stores’ supply chain would be unreliable and they would have trouble keeping items in stock, given the decaying roads and choking traffic in the urban areas where the stores are located. Instead, the students learned that companies simply accept these aggravations and plan accordingly.

A group that worked with the Mahindra First Choice Wheels used-car dealership chain found that owning a secondhand car was less of a stigma for customers than expected, but one factor they thought *would* work in dealerships’ favor turned out to be questionable. At one location, the students commented on how spotless the store was, and learned that employees wash the cars three times a day to keep them free of the reddish dust that inexorably covers all surfaces during the Indian dry season. But they also learned, during a customer interview, that this hard work might backfire. When a dealership looks shiny and new, the man



Visiting a Mahindra First Choice Wheels used-car dealership in Mumbai to advise the chain on better connecting with its customers, first-year M.B.A. students left no detail unnoticed. Above and below: Mike Diverio gets behind the wheel of a Tata Nano being washed by a worker; Nick Phoutrides and Diverio tour the car lot. At left: Josh Petersel, Nyssa Liebermann, and Phoutrides interview a customer.



told them, “I personally think it’s very expensive”—and that he might get a better deal at someplace a bit shabbier.

The international experience, and FIELD as a whole, is “a 360-degree experience that doesn’t end after 80 minutes,” explains Youngme Moon, David professor of business administration, senior associate dean, and chair of the MBA program. In their placements abroad, the students grapple with issues of language and culture, logistics and jetlag, in addition to the usual business concerns. “It’s intellectual. It’s emotional. It’s physical.” (For more on the FIELD course, see [harvardmag.com/HBS-field](http://harvardmag.com/HBS-field).)

THE MUMBAI SLUM known as Cheeta Camp is small in size—less than half a square mile—but has 117,000 residents, according to a recent census: a population density four times that of Manhattan. More than half of Mumbai’s 22 million residents

are believed to reside in slums like this one.

Cheetta Camp was created when the government relocated the population from nearby land to make way for a nuclear research facility. Today, those inhabitants who were given land in the 1970s are comparatively wealthy; their houses have wooden doors and satellite dishes, and some have indoor plumbing. But the population continues to grow. Hundreds of migrants arrive in Mumbai from the countryside weekly, and Cheeta Camp, with its reputation for interreligious harmony, is considered a desirable location. Hindus and Muslims live side by side, and during the Bombay Riots of 1992-93, which



Visit [harvardmag.com/extras](http://harvardmag.com/extras) to see more images of Harvard student, faculty, and alumni projects in India.



killed 900, this area remained peaceful.

A team of HSPH students spent three weeks in January studying water and sanitation in Cheeta Camp, where health and safety conditions are understandably a concern, especially among the rows of shacks that have risen on garbage fields at the slum's edge. The team's work included an exercise to map the slum's public toilets, used by the vast majority of residents. The students hoped the resulting map, provided as a resource to the government and NGOs, would guide the siting of new toilets in underserved areas.

The students were supervised by Richard Cash, a senior lecturer in the department of global health and population who was one of the inventors of Oral Rehydration Therapy (which the *Lancet* called one of the most important medical discoveries of the last century). They had worked with partners at Mumbai's Tata Institute of Social Sciences (TISS) to identify issues to study during their three weeks in Mumbai; other teams examined access to water and mental-health services.

The TISS partnership proved pivotal: the group working in Cheeta Camp heard from residents that researchers came over and over, but nothing ever changed; they seemed heartened to learn of the involvement of an institution with an enduring local presence. TISS also provided referrals to translators and guides; travel is disorienting in the slum's narrow alleyways, even with a map. On the first day, the students walked the entire slum in what they thought was a comprehensive survey, but located just 14 toilets; later in the week, with the help of local guides, they mapped a total of 48 (comprising 701 stalls in all).

The students' primary objectives were practicing field methods and learning firsthand the challenges inherent in conducting such research. For example, they expected residents to be reluctant to answer questions about their bathroom habits, but didn't consider how logistics might come into play. On the first day, when they at last found a man willing to complete their survey, they conducted it outside his door—and suddenly he was discussing this sensitive topic in front of 30 neighbors. The group subse-

## Yesterday's News

From the pages of the *Harvard Alumni Bulletin* and *Harvard Magazine*

**1917** With the country at war, Harvard's Committee on Military Affairs advises alumni and undergraduates: "Rather than enlist as a private, try to qualify as an officer...or as a specialist." Universities, notes the *Bulletin*, are best qualified to provide men with special training "above the ears."

**1927** The Faculty of Arts and Science implements a new academic schedule with two lecture-free "reading periods." The reform is intended partly to free students "from a minute and continuous supervision of their studies" and to relieve teachers "from part of their excessive burden of teaching."

**1932** The College redivides some suites in the Houses to accommodate more men and bring down the price of rooms per capita, a measure designed to aid "men of moderate means."

**1952** Ralph Bunche, Ph.D. '34, regrettably resigns his two-year-old appointment as professor of government. His U.N. duties as director of trustee-

ships and mediator between Arabs and Israelis have prevented him from holding even one class.

**1967** The Undergraduate decries the stereotype of the Harvard radical as someone with an unkempt beard, wearing the same shirt five days in a row and carrying a protest sign. "The Harvard man may be bearded and unwashed (on weekdays)," the column asserts, "but he is probably in Lamont Library studying."

**1982** Anticipating federal and state cuts in student aid, Harvard announces plans to increase tuition costs by 15 percent. The increase of \$1,560 will not only attempt to alleviate the cost of lost aid, but also increase the salary of junior faculty and pay for classroom renovations.

**2002** The first *Women's Guide to Harvard* is published, featuring everything from a directory of female faculty to information on gynecological exams. The book also includes accounts from Radcliffe alumnae, detailing styles, stereotypes, and even sexual harassment.



Illustration by Mark Steele





**A group of public-health students practiced field methods by studying sanitation in Mumbai's Cheeta Camp slum. Clockwise from top left: Rosemary Wyber maps the locations of toilet buildings with guidance from local residents; a crowd gathers as Wyber and Jennifer Weaver explain their project; Azalea Ayuningtyas (bottom right) and Joyce Gitangu (sunglasses on head) interview a man about sanitation and water access as Lavina Fernandez (left) translates; and Muhammad Farid Abdul Rahman, Jimmy Potter, and Gitangu stop outside after surveying a public toilet building and interviewing the desk attendant about the bathroom's cost and cleaning schedule.**

quently resolved to interview people either inside their homes or in narrow alleyways that limit the number of bystanders.

The team learned about an entire culture centered on an activity that most Americans rarely give a second thought. Cheeta Camp residents who can afford it visit the bathrooms that cost one or two rupees, rather than using the free, government-administered lavatories, because the private facilities tend to be cleaner and have running water. Everyone knows the cleaning schedule of favored bathrooms: far better to visit just afterward than just before. Residents ration their liquid intake in the evening; if the need arises to go during the night, young women enlist friends to go with them for safety's sake.

As the students worked in Cheeta Camp,

President Faust was describing the new Harvard Initiative for Teaching and Learning to her audience at the University of Mumbai, voicing her faith in innovative teaching strategies to transform education and equip students to address the problems of the twenty-first century. Interna-

tional connectivity and mobility, Faust noted, do not automatically confer understanding; one responsibility of a university is to help its students understand diverse points of view—ever more necessary when it may, falsely, appear that globalization has erased differences. As she spoke, dozens of Harvard students, in unconventional classrooms around the city, were learning that very lesson.

—ELIZABETH GUDRAIS

*Elizabeth Gudrais's reporting in India was supported by an anonymous donation for international reporting. Future issues will contain additional reporting from her trip.*

## A Blossoming Centennial

ONE BY ONE, in the course of a decade, the masterpieces emerged, each as brilliant as the last—intricately detailed nature paintings as idiosyncratic and complex as any the world has ever seen. Ducks plunge from icy branches into a winter pond. Schools of sweetfish dart between the submerged roots and stems of lotus flowers. Roosters, a recurrent obsession, flare their combs in front of brilliant hydrangeas and shady palms alike. Small blue birds perch on the slender limbs of a red-

dening autumn maple. Thirty such paintings of inimitable craft and artistic passion ultimately coalesced into the *Colorful Realm of Living Beings*, an ensemble that forms the crowning achievement of the eighteenth-century Japanese painter Itō Jakuchū.

Jakuchū (known not by his surname, Itō, but rather by his artistic sobriquet) is not a name that many people outside Japan would recognize. But Yukio Lippit, professor of history of art and architecture, says, "Jakuchū is probably the most recognized premodern artist in Japan." Lippit, who specializes in Japanese art and architecture (see "Works and Woods," September-October 2008, page



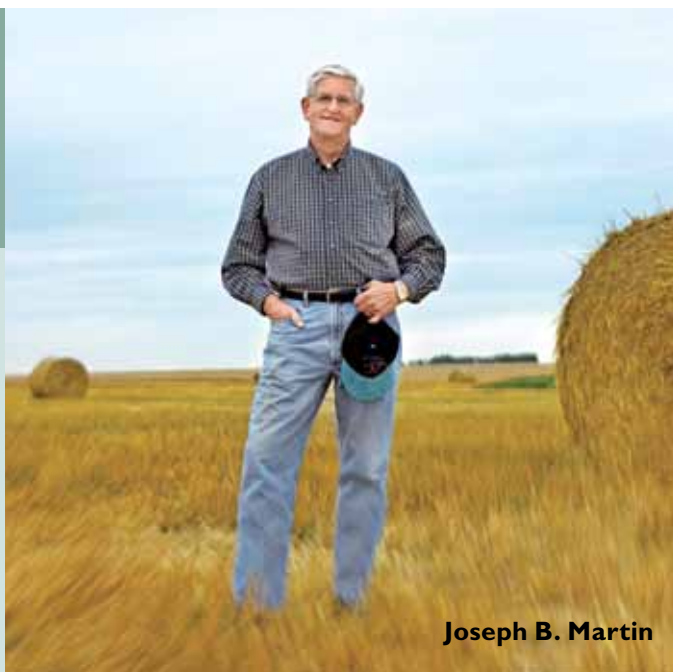
# A Long Way from Longwood

Joseph B. Martin, dean of Harvard Medical School (HMS) from 1997 to 2007 and now Lefler professor of neurobiology, has written a memoir of Crimson interest on several levels. The title, *Alfalfa to Ivy*, refers to Martin's journey from his roots on the family farm in Duchess, Alberta (where he is shown, blue-jeaned, in the cover photograph and at right; the publisher is University of Alberta Press), to the helm of HMS. It offers, in its author's characteristically steady voice, inside dope on, among other topics, the state of academic medicine in recent decades; major decisions—such as funding HMS's New Research Building, Harvard's role in the start-up of the Broad Institute to pursue genomic science, and rescuing the failing Beth Israel Deaconess Medical Center; and the alternately warm and chilly relations between the HMS dean and Harvard presidents, and between HMS and Faculty of Arts and Sciences deans.

Those enticements aside, Martin has something serious to say about the medical school within the University constellation. Much of what he writes may be principally of historical interest—but it would be well to keep in mind the ebbs and flows in the relationship between research and education in the realms of arts and sciences, on the one hand, and of professional medical research and training, on the other. The following excerpts come from chapter 9, “Working with Larry Summers,” and begin with the transition to Derek Bok's return to Massachusetts Hall in mid 2006 (following Summers's resignation as Harvard president).

ON THE EVE of his interim term, I sent Derek a somewhat arrogant and, in retrospect, probably unnecessary missive making the case that the medical school was in a strong position at the end of Larry's term and that as it moved forward, the University might benefit from looking at some of our accomplishments....

In the letter to Bok, which I also shared with Jamie Houghton, the senior fellow of the Harvard Corporation, I lamented the fact that the Corporation knew very little about the inner workings and complexity of HMS and that most of the members of the Corporation had never set foot on our campus and had held very few meetings with me and my fellow deans. I was especially concerned that the planning strategies for the development of cross-university science that Larry had initiated in January 2006 were about to be implemented by taking away commitments made to HMS, such as the support for the new department of



Joseph B. Martin

systems biology. I was also concerned that the Allston planning process as proposed by the University Planning Committee on Science and Engineering, an interfaculty committee that Larry had charged just six weeks before his announced resignation and that made its report public in June 2006, sought to take away many HMS initiatives and relocate them to Allston without concern about their impact on our planning....

We will never know what might have become of Larry's dream for a twenty-first-century Harvard, focused on life sciences and the contribution that new interfaces between the academy and industry might have produced.

The economic disasters that have ensued [including the 2007–2008 financial crisis and the resulting sharp decline in the endowment's value] came to trump any such ambition under Harvard's new administration. And so, in the spring of 2011, the Allston initiative was put on ice and the building of the first science Quad was on hold, unlikely to be resurrected in the next five years. The stem-cell institute headed for relocation to the northwest corner of the Harvard campus, as far from the medical school and its hospitals as it could possibly be. The initiative on bioengineering is located in a space at the medical school on the Longwood campus, a good location for those of us here in the medical world, but, once again, keeping separate the activities that Larry hoped would integrate our communities across the University.

44), is curator of the exhibition *Colorful Realm: Japanese Bird-and-Flower Paintings by Ito Jakuchū (1716–1800)*, on display from March 30 to April 29 at the National Gallery of Art in Washington, D.C., as part of the centennial celebration of the Cherry Blossom Festival. (Visit [www.nga.gov/exhibitions/jakuchuinfo.shtm](http://www.nga.gov/exhibitions/jakuchuinfo.shtm) for more details.) A product of several years of planning

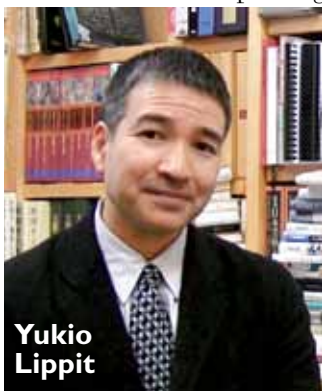
between the National Gallery and the Imperial Household Agency of Japan, the exhibition will present Jakuchū's complete series outside Japan for the first time, along with the Buddhist triptych that accompanied it in its original home at Shōkokuji Monastery in Kyōto.

Jakuchū was born into a prominent family of grocers who ran a large wholesale

market in downtown Kyōto. As head of his family, following the death of his father, his business prospered to such an extent that he was able to retire at the age of 40 and, already an accomplished artist, devote himself to painting full-time—which proved important for establishing his artistic legitimacy. “There was no higher form of praise in the sphere of the literati,”

says Lippit, “than to describe someone in terms that marked him as a lofty amateur,” —someone who “practices an art not for profit or commercial transaction, but who paints purely as a form of expression of interiority, for oneself or one’s friends, and who paints as a kind of spiritual vocation.”

That sense of spiritual discovery was also important to Jakuchū’s development. In his thirties, he began to practice Zen Buddhism under the guidance of a well-known monk named Daiten, who was not only a spiritual leader, but also a respected intellectual active as a poet, a writer, and even a diplomat. Daiten introduced Jakuchū to the intellectual and cultural elite of Kyōto, from whom the merchant-artist gained extensive knowledge of the artistic and literary traditions of East Asia. Daiten in time became the abbot of Shōkokuji Monastery, with which Jakuchū himself became closely linked, producing several major projects as gifts for the temple.



Yukio Lippit

HARVARD MAGAZINE

But nothing that Jakuchū had previously done approached the complexity or ambition of the *Colorful Realm*. He began the series in 1757 and worked on it continuously until 1766, at an average pace of three paintings per year. Given the detail and technical sophistication of the paintings, this rate is remarkable. These are not the abbreviated, spare ink paintings that so many amateurs pursued, Lippit remarks, but “very highly crafted, polychrome works on silk that meticulously depict their subjects using expensive materials and laboriously executed techniques that are associated, if anything, with professional painters.” Each painting is quite large—on average, about four and a half feet tall by two and a half feet wide. In addition, Jakuchū frequently employed a technique called verso coloration, which involved painting both the front and the back of a silk scroll, allowing the pigment on the back to subtly highlight the tones on the front through the weave of the silk.

Lippit believes that Jakuchū initially planned the first paintings as either individual works or a smaller set, only later expanding his vision. “At some point, under the influence of Daiten, Jakuchū began to conceive of the series as a grand backdrop for a very important ritual at Shōkokuji, and he began to adjust the scrolls of the *Colorful Realm* accordingly,” he explains. The early paintings hew closely to the conventions of a major East Asian genre known as bird-and-flower painting, but later works become more experimental in their subject matter and treatment for reasons closely tied to an important Buddhist ceremony called the Kannon repentance ritual.

The ceremony—performed annually at Shōkokuji—describes the appearance of the Bodhisattva, or enlightened spiritual guide, Kannon in 33 different manifestations that he assumes in order to accommodate the various spiritual stages of advancement of different believers. There are only 30 paintings in the *Colorful Realm*, but Jakuchū complemented it with a triptych featuring Śākyamuni, the historical



*Nandina and Rooster* (c. 1761–1765)

Buddha, flanked by two Bodhisattvas, Mañjuśrī and Samantabhadra, for a total of 33. “What’s interesting about the *Colorful Realm* is that when it’s displayed in situ, the main Buddhist triptych is actually not the Bodhisattva Kannon, but Śākyamuni,” Lippit notes. “That’s because the chapter in the Lotus Sutra that describes the 33 manifestations of the Bodhisattva Kannon is actually being explained in a sermon by the Buddha—so the *Colorful Realm* creates a *mise en scène* of a lecture by the Buddha himself, to which all the birds and the animals are congregating in a Noah’s Ark-like summons.”

It’s this conjunction of both the triptych and the *Colorful Realm* in an approximation of their original arrangement that makes the National Gallery exhibit so exceptional, he adds: “It will combine, for only the second time in over 100 years, all 30 scrolls with the Buddhist triptych in the center, so that you really experience the scenography of Jakuchū’s entire set.” Shōkokuji gave the paintings to the Japanese Imperial Household in 1889 in re-



Visit [harvardmag.com/extras](http://harvardmag.com/extras) for an original video Q&A with curator Yukio Lippit and additional images from the exhibit.



THE MUSEUM OF THE IMPERIAL COLLECTIONS, THE IMPERIAL HOUSEHOLD AGENCY

*Mandarin Ducks in Snow* (1759)



# Brevia

## House Renewal: Old Leverett

Faculty of Arts and Sciences dean Michael D. Smith announced in early December that, following renovation of Old Quincy (scheduled to begin this June), the College's next pilot project for renewal of all undergraduate Houses will be McKinlock Hall—a 1925 neo-Georgian structure that is now the older nucleus of Leverett House. The work, to begin in June 2013, would involve not only student rooms, as in Old Quincy, but also Leverett's dining room and master's residence. As reported earlier, the comprehensive House renovation depends on future fundraising.

## U.S. Competitiveness

Harvard Business School (HBS) has unveiled the U.S. Competitiveness Project, aimed at generating ideas to enhance the ability of U.S. companies to compete globally, thereby raising American living standards; see [hbs.edu/competitiveness](http://hbs.edu/competitiveness). Research findings and other initial work will appear in the March *Harvard Business Review*. A survey of HBS alumni, released this January, revealed broad concerns about education, U.S. workers' skills, and the political system; for a detailed report, see [www.harvardmag.com/hbs-competitiveness](http://www.harvardmag.com/hbs-competitiveness). Lawrence University Professor Michael E. Porter, a leading scholar of competitive strategy, and Rauner professor of business administration Jan W. Rivkin, chair of the school's strategy unit, direct the project.

## Admissions, Early and Otherwise

In the first admissions season since the College reinstated an early-action option, after four years without, Harvard received 4,231 applicants for nonbinding early admission to the class of 2016. Of these, 772 were notified on December 15 that they had been granted admission, 546 were denied, and 2,838 were deferred for regular action (with the remaining applications withdrawn or incomplete).

announced that 34,285 applications had been received, early and regular, to study at the College starting next fall—the first decline after five years of steady growth.

## Animal Welfare Violations

The U.S. Department of Agriculture in January cited Harvard Medical School's New England Primate Research Center (NEPRC) for the death of one primate and for the condition and suitability of the animal enclosures. A statement from the school—its only comment on the matter—noted that “last summer we identified and self-reported incidents of noncompliance” at the primate center. A review involving outside experts “identified a need for a reorganization of our

scientific, administrative, and veterinary leadership,” which is under way. “We take the USDA findings seriously and deeply regret the situation that led to this report,” the statement continued, and “in tandem with new NEPRC leadership” seek to ensure “stringent compliance that enables us to exceed the highest standards of animal welfare and veterinary care.”

## Encouraging Innovation

New Enterprise Associates (NEA), a venture-capital fund, is backing the Experiment Fund (<http://experimentfund.com>), an independent enterprise based at the School of Engineering and Applied Sciences (SEAS). It intends to provide seed-stage funding to student start-ups and to innovations created locally or by people educated locally, through an undisclosed volume of investments of up to \$250,000 each—initially in Cambridge and environs but ultimately throughout the East Coast. The fund will focus on information, healthcare, and energy technologies; it arose from collaborative discussions among SEAS dean Cherry Murray, NEA's Patrick Chung '96, M.B.A. '02, J.D. '04, McKay professor of the practice of biomedical engineering David Edwards, and Hugo Van Vuuren '07, now a fellow



**ACADEMIC ARMS RACE:** As Harvard pursues a commercial “enterprise business campus” on 36 acres it owns in Allston near the Massachusetts Turnpike (above; see “Allston Agenda,” November–December 2011, page 57), competing sites are expanding. MIT’s Kendall Square properties are slated for \$700 million of investment, including offices, housing, retail space, and more laboratories, totaling 1.1 million square feet of new facilities. Nearby, Pfizer is building a 230,000-square-foot building, and Alexandria Real Estate Equities is proceeding with a \$500-million, seven-building complex. Closer to lower Massachusetts Avenue, Novartis has approved a \$600-million, three-building laboratory expansion, designed by Maya Lin, Ds ’83, Ar.D. ’96. And in the Longwood Medical Area, Brigham and Women’s Hospital has advanced plans for an adjacent \$450-million, 12-story clinical and research building and a separate 360,000-square-foot laboratory. Harvard’s Allston plans are to be submitted to the Boston Redevelopment Authority by this December.

The pool of early applicants exceeded the number in prior years, but fewer were admitted than before, reflecting the need to adapt to the overall growth in applications in the intervening period (to a total of 34,950 last year). In January, the College

of Harvard's Berkman Center for Internet and Society.

### Cornell 1, Stanford 0

New York City announced on December 19 that Cornell, partnering with Technion-Israel Institute of Technology, had been selected to develop an applied-engineering campus on Roosevelt Island, besting Stanford, long considered the front runner. Cornell plans a campus for 2,500 students and 280 faculty members. New York envisions economic benefits from entrepreneurship similar to those that have reshaped Stanford's neighboring Silicon Valley. Cornell's bid was bolstered by a \$350-million gift from alumnus Charles F. Feeney, founder of a duty-free shopping chain. He is reported to have given his alma mater nearly \$1 billion, along with large gifts to the University of Pennsylvania, the University of California, San Francisco, and other institutions.

### On Other Campuses

Hedge-fund manager James H. Simons—who formerly chaired the mathematics department at State University of New York at Stony Brook—and his wife, Marilyn, an alumna, made a \$150-million gift to the campus, following earlier gifts totaling \$100 million. The new funds will support medical research, endowed professorships, and student scholarships.... MIT launched MITx, offering a portfolio of full courses online, through an interactive learning platform that will enable users to earn “certificates” of completion.... The University of California, Berkeley, facing declining public support and rising tuition costs, enhanced financial aid for students from middle-class families, with caps on family costs at 15 percent of income for certain cohorts. The program echoes elements of the program offered by Harvard, Yale, and other private institutions, but is unusual among public ones, whose finances have come under pressure from deteriorating state budgets. Berkeley also announced a graduate engineering program in Shanghai, with substantial financial sup-

port from that city's government and the developer of a high-technology park.

### Nota Bene

RHODES SEXTET. Joining the four undergraduates and one alumnus whose selection as Rhodes Scholars was previously reported (see “Six Student Scholars,” *Brevia*, January-February, page 61), second-year Harvard Medical School student David Obert, originally from Canada, has also been so honored.

BOUND FOR BATES. A. Clayton Spencer, A.M. '82, Harvard's vice president for policy since 2005 and a senior member of the Massachusetts Hall team since 1997, has been appointed president of Bates College, effective July 1. She played a crucial role in formulating the Harvard Financial Aid Initiative, which dramatically increased support for students from lower- and middle-income families. A Williams College graduate, she has served as a trustee there and at Phillips Exeter Academy, and is a presidentially nominated member of the Harvard Magazine Inc. board of directors.

INTERNATIONAL ADVISER. President Drew Faust has named Walker professor of

business administration Krishna G. Palepu (who is also the Business School's senior associate dean for international development) senior adviser for global strategy (see also “Into India,” page 46). He will work with Faust, Provost Alan Garber, and others to “create a more intentional framework” for Harvard's international strategy and “develop a more effective and coordinated approach to international fundraising” and alumni engagement.

MISCELLANY. The Harvard Kennedy School's Guggenheim professor of the practice of criminal justice, Christopher Stone, who is also director of the Hauser Center for Nonprofit Organizations, has been appointed president of the Open Society Foundations, founded by financier George Soros; the move is effective this July.... The National Human Genome Research Institute has launched a four-year, \$416-million research program intended to focus genome sequencing on medical applications. Harvard-associated participants include the Broad Institute (\$35.9 million in the first year), as one of three national large-scale sequencing centers, and Brigham and Women's Hospital (\$2.4 million per year), as one



Krishna G. Palepu

KRIS SNIBBE/HARVARD NEWS OFFICE



A. Clayton Spencer

STEPHANIE MITCHELL/HARVARD NEWS OFFICE



DETAIL FROM THE REPORT

**TENURED WOMEN, THROUGH TIME:** The 2011 report of the office of the senior vice provost for faculty development and diversity (see [www.faculty.harvard.edu](http://www.faculty.harvard.edu)) includes an elaborate timeline documenting the first appointments of tenured women professors in each of Harvard's faculties (beginning with historian Helen Maud Cam in 1948), and in the decanal and senior administrative ranks.

of five clinical exploratory research centers.... Margaret H. Marshall, Ed.M. '69, Ed '77, L '78, who was Harvard's vice president and general counsel from 1992 to 1996 and then justice and chief justice of the Massachusetts Supreme Judicial Court, is rejoining her former law firm, Choate, Hall & Stewart LLP, as senior counsel and the Law School faculty as a senior research fellow and lecturer—and will receive the Radcliffe Institute Medal on May 25, the institute has announced. (She is an Incorporator of Harvard Magazine Inc., as is her husband, Anthony Lewis '48, NF '57, the former *New York Times* columnist.)



turn for funding for the preservation of the monastery, and the *Colorful Realm* has made occasional public appearances since then. But even the home of the series—the San-nomaru Shōzōkan, the Museum of the Imperial Collections, in Tokyo—does not exhibit the paintings all the time, and never with the accompanying triptych, as it would have been originally displayed at Shōkokuji. “All of our Japanese partners,” Lippit says—the list includes the Imperial Household Agency, the Japanese embassy, and Shōkokuji itself—“really wanted to participate in this celebration of the Cherry Blossom Festival, and of long-standing historical ties between Japan and the United States.”

Dodge Thompson, M.B.A. '80, chief of exhibitions at the National Gallery, observes that Lippit himself played crucial roles in bringing the Jakuchū exhibit into existence. “Yukio is the consummate diplomat. He is exceptionally thoughtful, a world-class listener, and very respectful of other people’s opinions.... At every level, Yukio was involved in discussions.” Thompson invited Lippit, a Mellon Fellow at the gallery from 2002 to 2003, to guest curate the exhibition at the suggestion of Yoshiaki Shimizu '63, Marquand professor of art and archaeology at Princeton, who is Lippit’s mentor. The gallery often needs guest curators when showing art from outside Europe and the Americas, and Lippit was, in Thompson’s words, “exceptionally well qualified for this project because he has a rich understanding of pedagogical and scientific developments in modern Japan, including a botanical and horticultural awareness—and, of course, knows a lot about the work of Itō Jakuchū.”

But Lippit highlights the exceptional dedication and commitment of the many Japanese institutions involved in mounting the exhibition as the truly indispensable element in making the project work—particularly in the wake of the March 11, 2011, tsunami that devastated Japan. “Many of



JOTENKAKU MUSEUM, SHŌKOKUJI MONASTERY, KYŌTO

**The Buddha Śākyamuni  
(from Śākyamuni Triptych,  
c. first half of the 1760s):  
one of a set of three  
hanging scrolls**

us involved in the show thought there was a real possibility that it might be canceled,” he remembers. “But after a little bit of a pause, our Japanese colleagues expressed a desire to go forward—they really wanted this to happen more than ever. So I think it’s important to note that the exhibition will take place just after the first anniversary of the disaster in Japan, and it’s a very moving thing to

work with people such as my counterpart at the Imperial Household Agency, Ms. Aya Ota, and others as they are dealing

with the aftermath of the disaster.”

The *Colorful Realm* loan is a remarkable artistic event, on the scale of assembling all extant Vermeers or all Monet’s paintings of water lilies in one gallery, and its presence will give the Cherry Blossom Festival an added poignancy this year. “This exhibition exemplifies our strong friendship. We Japanese are so grateful to Americans for showing solidarity and friendship with us after the Great Earthquake of March 11,” stated the Japanese ambassador, Ichiro Fujisaki, in a press release from the National Gallery. Lippit explains, “These are widely considered to be the most important and remarkable bird-and-flower paintings in the history of Japan, and possibly all of East Asia. The *Colorful Realm* went from being a kind of monastic treasure to an imperial treasure, and has become a tremendous ambassador of Japan’s ‘culture of nature’ in the present moment.”

—SPENCER LENFIELD

## THE UNDERGRADUATE

# New Life Lessons

by ISABEL RUANE '14

**I** LOVE ROUTINE. I think a lot of us do. We feel comforted knowing our lives are ordered, regular, and predictable, that we will wake up tomorrow and do what we always do on Tuesdays, what we always do in February, or what we always do at Harvard. But sometimes we need a break if we are to think and grow. Real thinking—thinking about life—differs from hard, intellectual reasoning, but it is no less important. In fact, we may need it more. If we can’t learn from experience and from other people, we have no place trying to learn from books.

In November, I had an adventure that got me thinking about life in new ways. One of my favorite cousins lives with her husband and family just outside Boston. This fall, their first daughter, Lucy, was born at Beth Israel Deaconess Medical Center, just a quick T ride from Cambridge. The day after Lucy was born, a Sunday, I took off after brunch—not for the library, but for Beth Israel.

I was a little nervous—I’d never visited a newborn before, let alone by myself, and I could count on one hand the number of times I’d even set foot in a hospital—but what could go wrong? I thought it would be nice to arrive with a little something, maybe flowers and a stuffed animal for the baby’s big brother, but once in the Square, I found the florist closed and the toy store out of business! I took off toward the T at a run, now empty-handed and late. Of course, the T took longer than expected, too. By the time I finally arrived at the neonatal reception desk, I was tired, harried, and frustrated.

It was magical how, the moment I stepped into my cousin’s hospital room, everything changed. Mother and child were lit only by the soft, milky sun of a late-fall afternoon. Lucy was snoozing, still and peaceful in her bassinet, and Sarah was smiling up at me from mounds of white bedding. The room was spacious, quiet, calm, and soothing. In an instant, my frus-

tration melted away. I looked down at Lucy and felt something in my world click into place. Yes, growing up teaches us that life is not always kind, that people cannot always be trusted, and that history is full of evil and tragedy, but when Sarah said, "Would you like to hold her?" and I scooped up that tiny mass of rose-bud lips, fisted hands, and crinkled eyes, I felt warm, centered, and hopeful. This sweet little baby renewed my confidence in life's goodness.

On the T ride back to Cambridge, I tried to piece together what I'd just felt and why it had felt so special. I thought about priorities: in day-to-day life, for most people, school or work stands at or near the top. But some events outweigh the daily grind. When a child is born, parents must permanently alter their lives. This process is natural—it feels right. I thought again about how centered I felt when holding Lucy. I realized it always feels right to prioritize human connection over private, individual existence. And, moreover, I discovered that afternoon a model for continued learning. Visiting Sarah and Lucy—people out of my day-to-day life and age-group—taught me a lesson I couldn't have learned at Harvard. I realized that, if I'm to understand the big picture, I need to pay attention to children and new parents, to the middle-aged and the elderly—to people of all other ages—in addition to my books and peers.

A RESIDENTIAL school like Harvard can seem like a closed world for the 18- to 23-year-

old set. Most other communities include people of all ages. But at school we're in our own world of young adults. And not just any old young adults: almost everyone is at the same point in life—between high school and that first full-time job, unmarried and childless. Despite the diversity of this community, we are still living in a world of "likes," and we cannot possibly be learning about life's full spectrum.

From what I know of other colleges, many are indeed exclusively the province of young adults. Except for professors, students interact only with people their age—they live in apartments off campus or on campus with student resident advisers. We are lucky at Harvard, though, to have older proctors, tutors, and House masters living among us. Recently I shared my thoughts about the importance of learning from people of all ages with a Yale graduate. He told me it had been essential to his college years that he had spent time with and learned from his resident dean and her family. I know many Harvard students have built and are building similarly fruitful relationships.

Wherever they are—at school, among neighbors, or with family—these relationships with nonpeers can be true anchors. They keep us in touch with the full sweep of humanity; they yank us out of ourselves and out of the present. They remind us to look up from,

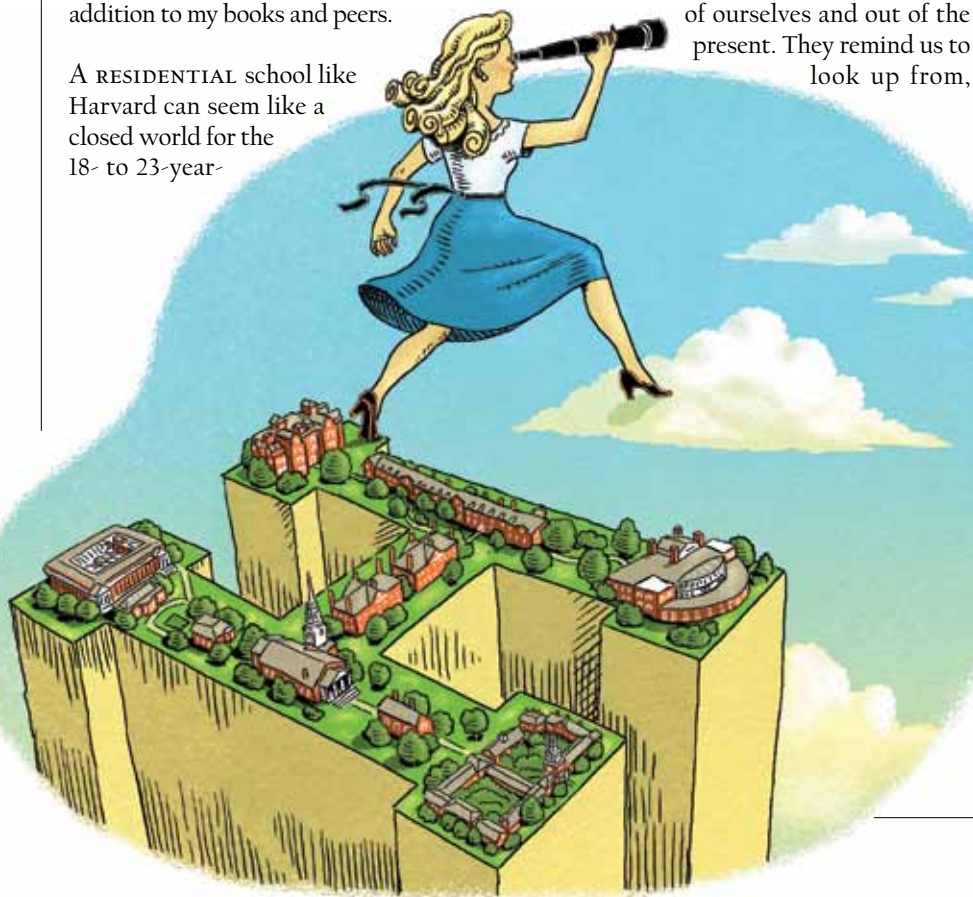
and beyond, our classes and academic obligations. And they teach us that life isn't just about the ups and downs of the daily college routine. I find that each time I visit with and listen to older and younger friends, I gain a nugget of wisdom. As I gather these pieces, I fit them into a giant puzzle of understanding. Maybe I'll never complete the project, but with each new experience, the picture grows clearer.

Over Thanksgiving and Christmas breaks, I paid attention to what I learned from family and friends during travels all around New York, Boston, and New England. Both sides of my family are extensive and close—I know many of my parents' cousins and their families well—so it was not unusual that we did so much visiting.

And boy, did I learn. Sarah and Lucy taught me about the pure, natural joy of the birth of a child. Several pairs of great-aunts and -uncles taught me about long-lasting, joyful, fruitful marriage. Visiting my grandfather in his new apartment at an Alzheimer's care facility forced me to confront the inescapable loneliness of sickness and old age, but it also taught me that love and loyalty—which his friends, children, and grandchildren indefatigably exude—make tragedy manageable. That same afternoon, playing Santa's elf at a Christmas party among gleeful children reminded me of the power of small joys. Their zeal spread like a contagion: it renewed my morale, and, in juxtaposition with my upsetting afternoon, helped me accept the natural yin and yang of human experience. Of course we all know that life goes up and down, but sometimes you need to see it yourself to believe it.

I hope that all college students touched base with and learned from family and friends over break. As rich as it is, our narrow undergraduate experience does not fully prepare us for the vicissitudes of life at large. What prepares us is getting off campus, out of ourselves, and into the world. We need to observe, think about, and participate in lives of those younger, older, and different from ourselves. Only then can we take our book learning and apply it to the wider lives we hope to lead. ♥

*When she wrote this column, Berta Greenwald Ledesky Undergraduate Fellow Isabel Ruane '14 was also looking forward to a reunion with her books and peers at Harvard.*





# Twice, with Alacrity

*Lacrosse and soccer star Melanie Baskind scores with synergy.*



**M**ELANIE BASKIND '12 stands five feet, three inches, tall, “but I look younger than I am,” she says. “So people think I’m five-one.” Whatever the reason, it’s a mistake to underestimate her stature, especially on the playing fields, where Baskind is a modern rarity—a two-sport varsity athlete who excels in both soccer and lacrosse. “Excels” might be an understatement: last fall, the Ivy League unanimously named Baskind its Player of the Year in women’s soccer after a season in which the Crimson forward tied for the league scoring lead and spearheaded her team to an Ancient Eight title. The previous spring,

**Triple image of a double threat: Baskind stands between her two sports’ goals**

the midfielder was First Team All-Ivy in lacrosse. As a senior, she has co-captained both Harvard squads, and is now in her second year as lacrosse captain.

Baskind is a full-blooded athlete. Her Quincy House suite of 12 roommates includes nine varsity players plus an Ultimate Frisbee captain. Her mother, Dianne, still plays soccer and her father, Carl, basketball; both are over 50. (Her mother’s family runs an ice-hockey shop in upstate New York.) Older sister Julie played club lacrosse at Michigan. And in high school in

Framingham, Massachusetts, Baskind was so outstanding in both soccer and lacrosse that the *Boston Globe* named her its secondary-school female athlete of 2008.

Baskind likes multiple sports partly because she appreciates having “that many more days of competition.” She does not see the two-sport path as a disadvantage: “I never want to hear someone say, ‘She had a bad soccer season because she played lacrosse,’ or vice versa,” she says; instead, she finds a synergy between the two. “My soccer coach [Ray Leone] tells me that he likes seeing me play defense in lacrosse, and wants me to bring some of that to soccer,” she notes. “And in lacrosse, our coach [Lisa Miller] is always making side remarks to me like, ‘I’m sure this is the same in soccer.’”

Switching to a different kind of ball also means “You don’t get bored with the sport,” Baskind explains. “Mentally, it gives you an edge because you’re so excited to return after playing something else. Physically, it’s healthy because you are building certain muscle groups and giving other ones a rest. That’s made me a better player. Lots of things transfer from one sport to the other—three-on-two situations, transition opportunities, and just understanding the positional aspects of the game: the way you use peripheral vision, how you see the field, is transferable knowledge.”

There may be a nascent drift at Harvard toward two-letter women. Four of Baskind’s lacrosse teammates also play field hockey, and a soccer cohort swims for the water-polo squad. Ivy League rules, which limit practices and off-season play days, make dual citizenship more manageable. “More people are doing it recently,” Baskind says. One reason might be head women’s lacrosse coach Lisa Miller, now in her fifth season. Miller came to Harvard from Syracuse, where she prospered with two-sport athletes; she strongly supports the multisport option. “It’s good for kids to have different teachers,” Miller says. “Every coach has a personal style and it helps them to hear the same—and different—messages from various coaches.”

Lacrosse and soccer have similarities—two teams, each trying to get a ball past a goalie and into the opponents’ goal—but there are distinctions, too, beyond the matter of lacrosse sticks. The lacrosse

field has lines that clearly separate offensive from defensive play, and when a midfielder crosses such a line she switches from one to the other. The soccer pitch has no such hard lines, so offense and defense often mingle. Both sports include lots of running, but “you get more long sprints as a midfielder in lacrosse,” says Baskind. “Soccer is more endurance running. You’re changing direction a lot—there are more turnovers. You might have the ball for only a few seconds in soccer; it’s pretty common to switch back and forth. In general, lacrosse has longer possessions.”

Many talents make Baskind a dominant athlete, though speed is her most obvious gift. “I’m quicker than I am fast,” she says, meaning that her first steps—as she accel-

erates from zero—are especially snappy. This helps her be first, for example, to pounce on a loose ball. Less tangible skills include leadership ability and the plain fact that, as she says, “I’m an intensely committed person.” Lisa Miller notes that one of Baskind’s assets is “her sense of humor. She can make me laugh at a tough spot in a game, and can make her teammates laugh, too. That’s probably one reason she was elected captain so early [as a junior]. Melanie also has a knack for making big plays at critical times—like scoring game-winning goals.”

A neurobiology concentrator, Baskind plans a career in medicine; if given the opportunity, she’d like to get to Africa next year. Meanwhile, she has some

lacrosse to play. Harvard, which dominated the Ivies in women’s lacrosse from 1980 until 1993, has not captured the league title since then, though under Miller the program has moved up from sixth place to fifth to a tie for third in 2011. (With Penn, Princeton, Dartmouth, and Harvard ranked in the top 20 in Inside Lacrosse’s preseason poll, the league is a strong conference.) The Crimson lost to Princeton, 12-10, in the Ivy tournament final last spring, with Baskind making the All-Tournament team.

She’d like to graduate as a double champion. Given her endowment of talent, commitment, and competitiveness, and her track record as a teammate, don’t bet against it.

—CRAIG LAMBERT

## Fenway Park’s First Pitch

FENWAY’S FIRST FAITHFUL shivered as a wicked wind whipped down Jersey Street. Though it was early April, the freezing temperatures and snow flurries were better suited for football. But nothing could deter the hard-core baseball fans huddled outside the ticket windows from getting their initial glimpse of the 1912 Boston Red Sox and their new, state-of-the-art ballpark.

On April 9, 1912, just 11 days before their regular-season home opener against the New York Highlanders (who became the Yankees the following year), Boston’s team christened Fenway Park with the help of

another squad sporting red socks—the Harvard Crimson. The brick façade that greeted ticket-buying fans looked much as it does today, but inside, Fenway was a work in progress. The left-field wall was still being erected, and crews were riveting wooden seats into the grandstand.

The clubhouse wasn’t complete either, so players were forced to walk to the ballpark in uniform after dressing at the Park Riding School on the corner of Ipswich and Lansdowne Streets. The sparkling green diamond must have been a welcome sight for the Harvard varsity, finally released from the indoor cage in which they had practiced for most of the prior month.

Despite the raw conditions and a late

arrival from Cincinnati the night before, the Red Sox lineup included most of its regulars, including the fabled “Golden Outfield” of Duffy Lewis and Hall of Famers Harry Hooper and Tris Speaker. When the Sox took the soggy field at Fenway for the first time, there was no special ceremony, just enthusiastic cheers for Boston’s new manager/first baseman Jake Stahl and his squad.

Red Sox management had hoped to sell at least 10,000 tickets for the exhibition, but only 3,000 fans braved the snow and cold to witness history. According to the *Boston Herald*, the fans “rattled around like a squadron of lima beans in a number eight hat.”

Pitcher Casey Hageman, fighting for a spot in the Red Sox rotation, started for Boston. At 3:30 p.m., third baseman Dana Joseph Paine Wingate, A.B. 1914, a Harvard sophomore, stepped up to the plate and into the history books as Fenway’s first batter. Hageman promptly fanned Wingate for the first of his nine strikeouts and retired the Crimson in order.

Burly Sam Felton, A.B. 1913, a star kicker and end on Harvard’s powerhouse football team, shed his heavy, full-length fur coat and took the mound. After Hooper led off with a fly-out, second baseman Steve Yerkes followed with a single to right for Fenway’s first hit. The Red Sox loaded the bases in the bottom of the first but, in what would be a recurring pattern, failed to score.

After setting down Harvard in order in the second inning, Hageman singled home shortstop Marty Krug to score Fenway’s

## Lingua Branca

**The Brooklyn Dodgers** All-Star pitcher Ralph Branca, whose name became a synonym for *goat* after he gave up a pennant-losing home run in 1951, might appreciate *Baseball as a Second Language: Explaining the Game Americans Use to Explain Everything Else*, by inveterate sports buff Harry Lewis, Gordon McKay professor of computer science and former dean of Harvard College. In the slim (74 pages) volume Lewis collects classic words and phrases associated with the great game, defines them as baseball terms, and describes how Americans, at least, apply those diamond-tempered meanings to describe, well, most anything.

Lewis has clearly gathered notes and clippings on the subject for some time; he documents these usages with colorful examples from news items, television, and movies.

*Rhubarb*, for example, means a lively argument on the ball field, but Governor Arnold Schwarzenegger got into a “political rhubarb” in California. A *grand slam* is a home run hit when all bases are occupied, but a dermatologist has declared that stopping hair loss is a home run, while “Growing more hair is a grand slam.” Newbie investors *swing for the fences*—trying for huge financial gains. And even Vladimir Putin can throw a threatening *brushback pitch*, not from the mound, but the podium.





**Harvard's 1912 baseball team. Wingate (front at left, holding cap) was Fenway's first batter.**

first run. In the fifth, the Red Sox starter struck another RBI single to give his team a 2-0 lead. Meanwhile, the Crimson's bats stayed as cold as the weather, giving the Harvard fans few opportunities to remove their hands from their coat pockets (except possibly to take surreptitious nips from flasks buried inside).

Harvard finally got to Hageman in the fifth when captain Robert Potter, A.B. 1912, struck a well-placed single between short and third, but that would be the team's only base hit of the afternoon. The closest the Crimson came to scoring occurred in the sixth when the centerfielder was cut down at the plate attempting to reach home on a double steal.

By then, dusk was settling in, and the mud-caked ball became more difficult for fielders to pick up through the snowflakes. Fans were beginning to leave, and Hageman had the Harvard boys at his complete mercy as well. After the Crimson were retired in the seventh, Stahl signaled the umpire, and the game was called on account of the freezing temperatures, with the Red Sox besting their Cambridge guests 2-0.

Against a professional team destined for a World Series victory that fall, Harvard made a respectable showing in its first game of the year, particularly given Sam Felton's erratic performance. In five innings, the Crimson starter walked 10 men but, remarkably, allowed only two runs as Boston managed just four singles and stranded 12 base runners. "It was an extraordinary game in this respect," the *Harvard Crimson* reported the next day, "for rarely does a pitcher hold his opponents

to two runs when giving passes at the rate of two an inning. Felton kept the Red Sox hits well scattered and twice retired the side when the bases were full."

Fenway Park's inaugural game was not the only time

a Harvard nine has taken to its turf. The Crimson played exhibitions against the Red Sox in 1913 and 1916, when they actually defeated the reigning world champions 1-0. In 1943 the Sox took revenge, shelling Harvard 21-0. The Crimson also

squared off at Fenway against the Boston Braves, Princeton, and Yale in the 1910s and 1920s, and during the past two decades has played there regularly during the Baseball Beanpot. (The men's ice hockey team has played at Boston's baseball cathedral as well, skating there against Union College in January.)

More recently, the Red Sox have regularly started their spring-training schedule by playing against Boston College and Northeastern. Perhaps it's time for a rematch with Harvard as well. And this year the Red Sox are planning a range of celebrations for Fenway Park's centennial, a milestone no other major league park has reached. There, on April 9, an event will commemorate the historic game with Harvard played a century ago.

~CHRISTOPHER KLEIN

*Christopher Klein is a freelance writer and the author of The Die-Hard Sports Fan's Guide to Boston (Union Park Press).*

## ALUMNI

# A Green Empire

*How Anthony Malkin '84 engineered the largest "green" retrofit ever*

**W**HEN IT OPENED in 1931, the Empire State Building was not only the biggest building in the world, it was—with the tallest elevators ever created—an exemplar of the mechanical age. But recently, the landmark had begun to show its years. In 2006, the current majority owners, the Malkin family (prominent investors in New York City commercial real estate), faced a decision: either sell the iconic structure or take on massive infrastructure upgrades likely to cost half a billion dollars or more. Anthony Malkin '84 and his father, Peter Malkin '55, J.D. '58, decided to take the riskier course while simultaneously making the building an energy-efficient exemplar of the green age.

People tend to focus on vehicle emissions as a principal source of the heat-trapping carbon dioxide that propels global warming. But building operations actually

account for a much greater share of carbon emissions—about 40 percent—and are therefore the single most important contributor to climate change. And buildings, unlike vehicles, are also an *enduring* capital investment. Tony Malkin points out that three decades from now, approximately 80 percent of current structures will still be in use. "If you want to turn back carbon emissions," he says, "you have to deal with existing buildings."

Beyond an undertaking that he hoped would be both environmentally and economically sound for his own building, Malkin aspired to something much larger: creating a reproducible, scalable process for energy-efficiency retrofits that could be adopted worldwide in other big buildings, in hospitals, and on campuses. "If we could put all the best minds together on this particular task," he reasoned, "it could fulfill all of my objectives in life, ranging

from making money to making the world a better place." It was a green synergy.

In 2007, meanwhile, New York City began discussing legislation designed to drive down energy costs by reducing waste. (Mayor Michael Bloomberg, M.B.A. '66, ratified four such laws in December 2009.) One statute requires that every building of more than 50,000 square feet must make public how much energy it uses per square foot. In that context, Malkin calculated that his business objective—to replace the hundreds of small tenants in his 2.2 million-square-foot skyscraper with fewer, larger businesses that would occupy whole floors (new tenants now include Skanska, LinkedIn, and even the Federal Deposit Insurance Corporation)—would benefit from a green rebranding that would also appeal to brokers. "I am a capitalist," he says forthrightly. "I wanted to make money. This is not charity; that's separate."

When he got a call from the mayor asking if he would light up the Empire State Building in green in honor of an event co-sponsored by the Clinton Climate Initiative (CCI), Malkin said, "Sure—if I can attend the event." There, by chance, he ran into Jamie Russell '97 (the younger brother of his College roommate, Andrew '84, now duke of Bedford), then working for CCI, and CCI head Ira Magaziner. They eventually persuaded him to push beyond simple "green" rebranding and instead to undertake a potentially risky "deep energy retrofit" intended to result in energy savings exceeding 10 percent. This was a leap for Malkin: the structure was his largest single real-estate asset, representing almost a third of Malkin Holdings' total square footage in the city. Initially, in fact, he offered to retrofit a property at 1333 Broadway, but

Magaziner demurred: "If we succeed at 1333 Broadway," Malkin recalls him saying, "no one's going to give a damn. We want the Empire State Building."

To make that work, Malkin brokered a nearly risk-free deal for himself: if the extra money he spent on the energy retrofits was *not* recouped in three years, the engineering firm that projected the savings would have to pay him the difference. With CCI's help, he assembled a team for the project in 2008: the engineering firm Johnson Controls; property manager Jones Lang LaSalle, which wrote the guidelines for outfitting tenant spaces; and the nonprofit Rocky Mountain Institute (co-founded by Amory Lovins '68), a "think and do tank" that promotes sustainable use of resources. Malkin persuaded each of them to work as partners—and in secret, in case the effort failed. They also agreed to forgo payment for the legwork involved in devising the integrated engineering approach, get-

ting paid only for their other work. Most important, they agreed when Malkin told them they would have first-mover advantage in the marketplace, but "we don't patent this process...we want everybody to copy this. If we succeed at the Empire State Building alone, we have failed."

The team quickly got to work. In the course of 12 months, of the nearly 70 energy-saving measures considered, just eight were chosen. Among those, "the biggest energy-savings contribution is 9 percent, the smallest is 2 percent, and the other six are between 6 percent and 3 percent of the total benefit," reports Malkin. But these small numbers add up to one big number: a total anticipated reduction in energy use of 38.4 percent—a remarkable benchmark that he says will make the project "the most energy-efficient building retrofit in the world."

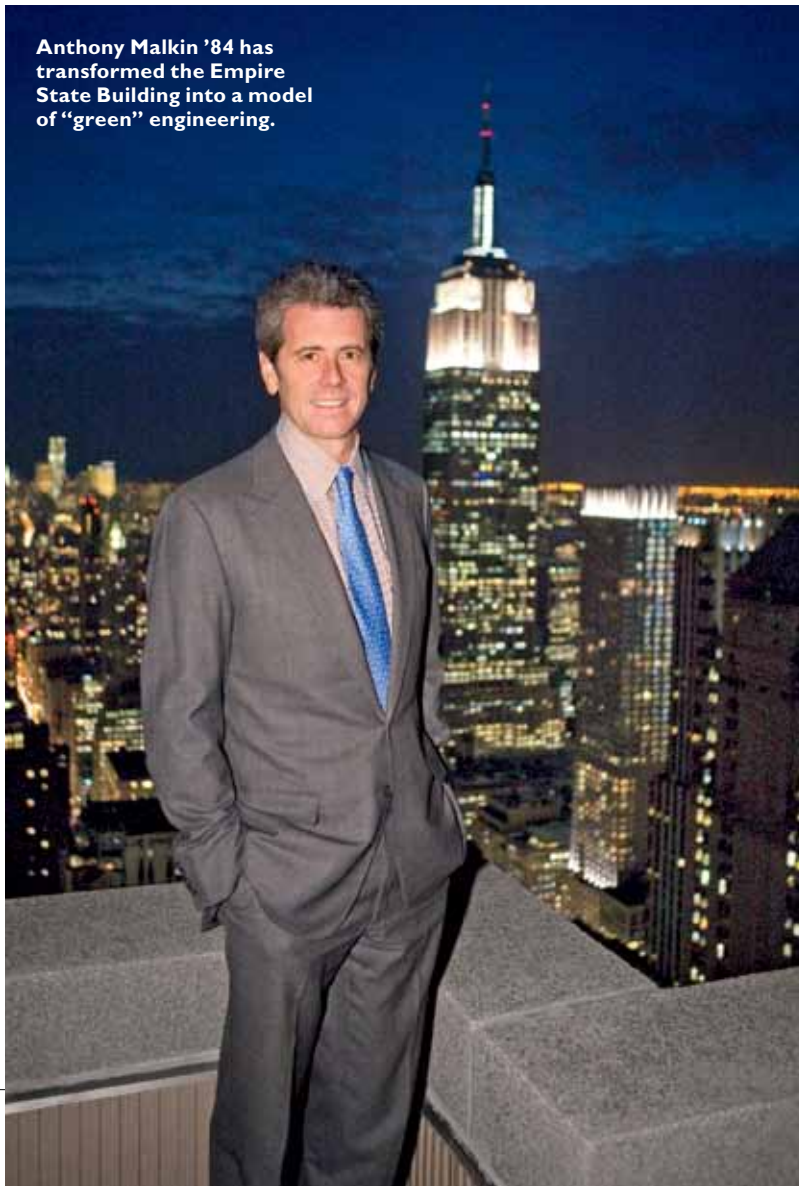
Perhaps even more surprising is how relatively little the added energy-efficiency measures cost—about \$13 million. "But we spent \$93 million *differently* than we had planned to spend it," Malkin reports. "The point is, by building the measures in...you just spend that \$93 million more intelligently."

Take the decision to upgrade all 6,514 windows. When the project team priced the cost for upgrading, they found that the payback time for that \$4-million expenditure was 10 years, double what was acceptable. But one of Malkin's priorities was to secure full-floor tenants, and the removal of many small offices meant that previously unheated and unventilated hallway space near the elevators and staircases at the building's core was recaptured. That meant the leasable square footage would increase—but the recovered space



Visit [harvardmag.com/](http://harvardmag.com/) extras for videos of Malkin discussing the Empire State Building retrofit.

**Anthony Malkin '84 has transformed the Empire State Building into a model of "green" engineering.**





would add to the building's cooling and heating load, requiring the purchase and installation of a new chiller to meet the building's cooling needs, at a cost of \$27 million. The engineers quickly realized that the *extra* load from the additional square footage was equivalent to the load *reduction* that would be realized if the windows were upgraded. The *integrated* payback was 3.3 years, not 10 years. (For more information on energy-saving techniques used, see "Green Engineering," below.)

Malkin says the most important lesson learned is that "energy efficiency is not something you *add*, it's something you *build in*." The savings from all the measures adopted at the Empire State Building now total \$4.4 million annually. The additional \$13 million spent, in other words, will be recovered in just three years. Moreover, the

retrofit has also led to "an improvement on the top line," he reports. Where the average rent in 2006 was \$26.50 a square foot, "We're now signing new leases averaging from the high \$40s to the low \$60s with better-credit-quality tenants."

He appreciates that the significance of the project extends beyond his own bottom line. (For years he and his wife, Rachelle Belfer Malkin, have been involved with environmental causes, including the Natural Resources Defense Council.) For one thing, he says, retrofits create local jobs. "If you install wind or solar energy," he asserts, "60 percent to 70 percent of the money involved goes overseas" because such projects require expensive foreign components. He



**More than 3.5 million observatory visitors yearly learn about the benefits of energy-efficient retrofits to buildings.**

envisioned massive investments in building retrofits that emphasize load reduction and energy efficiency and have the ad-

## Green Engineering

**"Feel that?" asks engineer Paul Rode**, straining to open a steel door to a stairwell on the sixtieth floor of the Empire State Building. "That's a seven-and-a-half-mile-an-hour wind." The steady blow is caused by the stack effect, the natural tendency of a building to act like a giant chimney, creating a draft that draws air upward. "We installed automatic dampers to control the airflow, so that the building is ventilated" naturally, explains Rode, of Johnson Controls, which oversaw engineering for the recent retrofit of the iconic skyscraper.

Opened and closed mechanically, dampers modulate the airflow of the entire building depending on outdoor temperatures. That enabled removal of electric-powered fans that did the same thing. But the key to making a building energy efficient, he emphasizes, is not the specific retrofits chosen, but rather taking the right steps in the right order. Rode calls it "design priority," and says it is true for every building.

The first step is load reduction: reducing a building's energy consumption. "You [do it] the same way you would at home," he explains: "insulation, better windows, caulking in the joints." Turning lights off when you have plenty of sunlight is another method. At the Empire State Building, dropped ceilings were removed so more sunlight could reach the core office spaces, reducing the need for artificial lighting. Every desk now has a window in view. Straightening pipes is another load-reducing strategy, as is installing radiative barriers behind steam heaters so that heat is reflected into the building rather than out through the exterior wall. Such measures, Rode explains, mean "your power plant doesn't have to supply as much energy that gets dissipated along the way."

Next comes a focus on energy efficiency—the "classic area everyone gets stuck on and likes to talk about," he says: "more efficient heaters and pumps and lights and air conditioning and LCD monitors, and offices with sensors that dim the lights when

natural light is sufficient." All these measures were incorporated into the retrofit, along with tenant guidelines that result in energy-efficient outfitting of newly leased office space.

Awareness is the third, and continuing, contributor to increasing efficiency. Everyone in the Empire State Building, from occupants to operators, now knows how much energy they are using per square foot, how that compares to the energy used by other people doing similar work in similar circumstances, and what steps they could take for optimal efficiency. Information is based on software calculations; the building's operations staff gets daily reports on energy use so they can make any adjustments needed to have an immediate effect. "Over time," Rode says, "these signals can get people to change their habits."

For the Empire State retrofit, Johnson Controls considered not only all these logical steps, but every other upgrade the combined project team could think of, many of which never saw the light of day. An egg-beater-like wind turbine on the building's spire that might have generated power was rejected, for example, because of the impact on the skyline relative to the small amount of electricity (25 kilowatt hours—enough to power a typical home) it would have produced. Solar panels on the building's setback roofs were deemed too costly, and capturing rainwater for use in toilets proved uneconomical because water is relatively cheap in Manhattan.

The idea was to create "a list of projects that would result in the theoretical minimum energy use of the building," Rode explains. "That concept is important, because until this job, people have approached energy projects in buildings from the perspective of how much they can drive energy use *down*: 5 percent savings, 10 percent savings." By starting instead with the minimum energy use and then letting "economic constraints and business constraints push that bar up, I have a much more rational design process. I know how much money I have to invest. I know what the endpoint is. And I very quickly understand when I reach that point."

vantage of keeping American dollars and jobs at home. Beyond the cost savings of reduced energy consumption, he says, retrofits represent “capital-cost avoidance”—money otherwise expended to develop new sources of energy—“because a watt saved is so much less expensive through this process than a watt generated by solar or wind.” He has taken this message to Congress, addressing the joint Senate and House economic committee, as well as the staffs of the Senate’s energy and natural resources, finance, and ways and means committees. “We’re also doing a brainstorming session with the Environmental Protection

Agency,” he reports.

Meanwhile, the Empire State process is being replicated in cities from Los Angeles to Melbourne, and Malkin is telling his story around the world, from Chicago to London to Beijing, as he hoped. (At home, the Port Authority of New York and New Jersey is redoing several buildings this way.) Businesses need economic incentives to be green, he says—and they need to answer a simple question: “What are the *right*



**All 6,514 windows in the Empire State Building were upgraded. Injecting insulating gases between the panes and adding a heat-reflective film layer made them four times as efficient.**

things you can do that are going to make more money—and result in a more effective deployment of capital?” Creating bike

parking “is nice,” but “energy efficiency” is what’s going to change the world.”

—JONATHAN SHAW

## Vote Now

THIS SPRING, alumni vote for five new Harvard Overseers and six new elected directors of the Harvard Alumni Association (HAA). Ballots, mailed by April 1, must be received back in Cambridge by noon on May 18 to be counted. The results are announced at the HAA’s annual meeting on the afternoon of Commencement day, May 24. All Harvard degree-holders except Corporation members and officers of instruction and government, may vote for Overseer candidates. The election for HAA directors is open to all Harvard degree-holders.

For Overseer (six-year term):

**Scott A. Abell** ’72, Boston. Retired chair and CEO, Abell & Associates Inc.

**James E. Johnson** ’83, J.D. ’86, Montclair, New Jersey. Partner, Debevoise & Plimpton LLP.

**Michael M. Lynton** ’82, M.B.A. ’87, Los Angeles. Chairman and CEO, Sony Pictures Entertainment.

**Tracy P. Palandjian** ’93, M.B.A. ’97, Belmont, Massachusetts. CEO and co-founder, Social Finance Inc.

**Swati A. Piramal**, M.P.H. ’70, Mumbai, India. Director, Piramal Healthcare Limited.

**Stephen R. Quazzo** ’82, M.B.A. ’86, Chicago. CEO and co-founder, Pearlmark Real Estate Partners.

**William H. Rastetter**, A.M. ’72, Ph.D. ’75, Rancho

Santa Fe, California. Partner, Venrock.

**Kathryn A. Taylor** ’80, San Francisco. Co-chair, One PacificCoast Bank Board of Directors.

For elected director (three-year term):

**John F. Bowman** ’80, M.B.A. ’85, Santa Monica. Executive producer, Disney Company.

**Yvonne E. Campos**, J.D. ’88, San Diego. Superior Court Judge, State of California.

**John H. Jackson**, Ed.M. ’98, Ed.D. ’01, Cambridge. President and CEO, The Schott Foundation for Public Education.

**Michael T. Kerr** ’81, M.B.A. ’85, Canyon Country, California. Portfolio counselor

and senior vice president, Capital Research Company.

**Sabrina Fung** ’93, Hong Kong. Executive director and brand managing director, Trinity Ltd.

**Susanna Shore Le Boutillier** ’86, Larchmont, New York. Director, corporate communications, Colgate-Palmolive Co.

**E. Scott Mead** ’77, London. Fine-art photographer and financial adviser.

**Brian Melendez** ’86, J.D. ’90, M.T.S. ’91, Minneapolis. Partner, Faegre Baker Daniels LLP.

**Loulan J. Pitre Jr.** ’83, J.D. ’86, New Orleans. Attorney, Gordon, Arata, McCollam, Duplantis & Eagan, LLC.

## A Special Notice Regarding Commencement Exercises

Thursday, May 24, 2012

### Morning Exercises

TO ACCOMMODATE the increasing number of those wishing to attend Harvard’s Commencement Exercises, the following guidelines are proposed to facilitate admission into Tercentenary Theatre on Commencement Morning:

- Degree candidates will receive a limited number of tickets to Commencement. Parents and guests of degree candidates must have tickets, which they will be required to show at the gates in order to enter Tercentenary Theatre. Seating capacity is limited, however there is standing room on the Widener steps and at the rear and sides of the Theatre for viewing the exercises.

*Note:* A ticket allows admission into the Theatre, but does not guarantee a seat. Seats are on a first-come basis and can not be reserved. The sale of Commencement tickets is prohibited.

- Alumni/ae attending their reunions (25th, 35th, 50th) will receive tickets at their reunions. Alumni/ae in classes beyond the 50th may obtain tickets from the College Alumni Programs Office by calling (617) 496-7001, or through the annual Tree Spread mailing sent out in March with an RSVP date of April 13th.

- Alumni/ae from non-reunion years and their spouses are requested to view the Morning Exercises over large-screen televisions in the Science Center, and at designated locations in most of the undergraduate Houses and graduate and professional Schools. These locations provide ample seating, and tickets are not required.

- A very limited supply of tickets will be made available to all other alumni/ae on a first-come, first-served basis through the Harvard Alumni Association by calling (617) 496-7001.

### Afternoon Exercises

THE ANNUAL MEETING of the Harvard Alumni Association convenes in Tercentenary Theatre on Commencement afternoon. All alumni and alumnae, faculty, students, parents, and guests are invited to attend and hear Harvard’s President and featured Commencement Speaker deliver their addresses. Tickets for the afternoon ceremony will be available through the Harvard Alumni Association by calling (617) 496-7001.

—Jacqueline A. O’Neill, University Marshal



## Return to Harvard Day

THE HAA invites all reunion-year alumni and their families to return to the College to experience an undergraduate's academic day on April 5, 2012. Attend classes and lectures, have lunch in the House dining halls, tour the campus, attend a student-led panel discussion on undergraduate life, then join students for a reception. For details, contact the HAA at 617-496-7001.

## Alumni Awards

THE HAA Clubs and SIGs [Shared Interest Groups] Committee Awards honor individuals who provide exemplary service to a Harvard club or SIG, and recognize clubs and SIGs that have organized exceptional programming. Awards were to be presented to the following recipients at the HAA Board of Directors winter meeting on February 2.

Eugenio (Henny) G. Herbosa, M.M.Sc. '85, of St. Louis. Herbosa has served for many years as secretary to the Harvard Club of St. Louis, rising from note-taker to organizer and promoter of club events, satisfying the needs of speakers and guests alike. He was honored as a committed and "extraordinary team player," often taking on the jobs that no one else wants, ensuring that club life and relationships run smoothly.

Flint A. Nelson, M.P.A. '77, of Vista, California. Now treasurer of the Harvard Club of San Diego, Nelson has held every officer position available and has been a member of the club's board since 2005. As president, he instituted several new annual events: polo outings, Harvard-Yale telecasts, and an after-hours art-museum tour. These have routinely sold out (as has the club's annual dinner, organized by a committee he has chaired), drawing new attendees and potential members. He has also successfully managed the club's finances and helped institute the HAA's new online system for clubs.

The Harvard CityStep Alumni Alliance. Founded in 1983, CityStep sends Harvard students into public schools to help promote the performing arts. This past year, CityStep graduates led a very successful workshop with 30 undergraduates in Cambridge in the fall. The SIG has also created a strong network among CityStep graduates around the country and those who run the program with the help of a new alumni graduate board.

## Winter Service Session

**As a social entrepreneur,** Be The Change CEO Kevin Jennings '85 has sometimes found government service frustrating. Why? Because he's used to "having an idea and getting it done, not having 47 meetings about the idea."

Jennings was among those who talked about his experiences and doled out advice to undergraduates during this January's Wintersession series on service and political careers, organized by the Kennedy School's Institute of Politics. Between 1,500 and 3,000 undergraduates participated in the "J-term" activities, which ranged from career-networking clinics, writing workshops, and sessions on how to do qualitative research or found a start-up to a variety of classes on topics that included food and wine, yoga, filmmaking, sculpture, and dance. Jennings was one of more than a hundred alumni who engaged with the 500-plus undergraduates participating in programs run by the Harvard Alumni Association, extending from public service to book talks by notable authors.

A former high-school history teacher and founder of GLSEN (the Gay, Lesbian, and Straight Education Network), Jennings also recently served as assistant deputy secretary in the U.S. Department of Education and head of its Office for Safe and Drug-Free Schools. Be The Change, which he joined last year, creates national issue-based campaigns; it is currently focused on public service—it played an active role in the 2009 enactment of the Edward M. Kennedy Serve America Act—and its Opportunity Nation effort, which seeks to "promote opportunity, social mobility, and access to the American Dream."

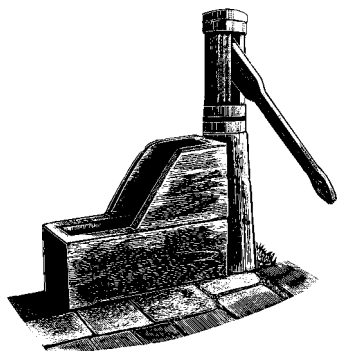
Jennings told students not to worry about choosing between direct, hands-on service and policy advocacy: "They are not mutually exclusive: do both!" But he urged his audience to consider their skills, strengths, and expectations realistically in terms of effecting change over time. Those who want to make an immediate, tangible impact on individuals should not become the head of a nonprofit, a policymaker, or an elected official, he counseled. Laws such as the Americans with Disabilities Act take decades to pass. "People who start a nonprofit with a cause they care about get frustrated because they're not delving into the services themselves," Jennings said. "If you want to do the work itself, then become the director of programming, or some title other than CEO." It may not be as public or glamorous, but it will be more fulfilling, he added. "If you're not doing something you find truly rewarding, you're not going to like it—and you're not going to be very helpful," he explained. "I *had* to go into public service because it was the only thing that kept me interested all day long."

Recognize what service jobs actually entail, he warned. Elected officials and CEOs of nonprofits, for example, "are consumed with fundraising; they spend three to four hours a day on the phone, talking to raise money." And be prepared for the hard work ahead. When Jennings was head of GLSEN, he said, one of his board members told him, "Kevin, you're fun and charismatic and smart—but you don't know how to run anything." That prompted Jennings to return to school for an M.B.A., and now he urges "anyone who wants to get things done in the public sector to consider getting one, too." Why? As Jennings put it bluntly: "We think because we're right, we'll win.... But being right only gets you so far." ~N.P.B.

The Harvard Club of Beijing has engaged alumni and students through a series of innovative ideas. The organization recently established a scholarship fund "to encourage and support outstanding Chinese students" admitted to Harvard and give back to the Harvard community; the first recipients, selected in 2011, will attend the Graduate School of Arts and

Sciences and the School of Public Health. The club also hosts events and programs for the many undergraduates who spend time in Beijing during the summer. A new "Golden Circle" program has also been established to recognize members who give significant gifts to support club ventures, helping to sustain and expand programs.

# Cold Meets Flame



"Your wooden arm you hold outstretched to shake with passers-by."

**B**ACK IN THE 1960s, many wedding ceremonies Primus attended that weren't of a high-church sort involved the reading of a passage from Kahlil Gibran's *The Prophet*, perhaps this one: "Love one another but make not a bond of love:/Let it rather be a moving sea between the shores of your souls," and so on.

Originally published in 1923 by Knopf, *The Prophet* achieved cult status, has never gone out of print, and is said to have sold more than 100 million copies. Indeed, Gibran has been cited as the most widely read poet in history apart from Shakespeare and Lao-Tzu. One might have imagined him as a bearded sage on a mountaintop in Lebanon, but no, he emigrated to the United States in 1895 at the age of 12 with his mother, sisters, and brother, settled in Boston's South End, and soon began training to be a graphic artist. Writing came later.

At an exhibition of his drawings and designs in 1904, he met schoolmistress Mary Haskell, who would be his lifelong friend,

patron, and who knows what. In 1908 he went to Paris for two years of formal art study, supported financially by Haskell. He returned, found Boston provincial after Paree, and moved to New York City the next year. But before he went, he spent a

Will you allow me the privilege of drawing you also?" Gibran asked for 30 minutes, but in the event spent a couple of hours talking with Eliot. The meeting was "delightful," Haskell reported Gibran saying, but four years later the artist revised his opinion. "I realized he was cold & dead," she quotes

him in a journal devoted to Gibran, "and that I who had listened to him as to a big man, and admired him, was a little flame, a little bit of real life."

Gibran warms Eliot up a touch in his drawing, published for the first time with Wright's

article. "The mouth seems a bit more sensuous than one might expect," Wright judges, "the nose a bit more sculpted, and most notably, the neck and shoulder are depicted as bare rather than buttoned up in a high collar, cravat, and dark suit."



**From left: Gibran c. 1909-10, his likeness of the president, and Eliot c. 1910**

morning with the 76-year-old, recently retired president of Harvard, as Paul M. Wright relates in "The President Meets the Prophet: Charles W. Eliot's 1910 Encounter with Kahlil Gibran" (in the *Harvard Library Bulletin*, volume 21, number 3).

"I am making a series of drawings of the big men who represent the art and knowledge of this day," Gibran wrote the president. He enclosed a letter of introduction from a cousin of Eliot's to whom Haskell had introduced him. "I have already drawn Rodin, Debussy, Rochfort [sic] and others.

**CENTENNIALS:** In 1912 the *Titanic* sank several Harvardians, Fenway Park opened (see page 62), and the Arnold Arboretum sprouted the *Bulletin of Popular Information*, later to grow into the estimable *Arnoldia*. Peter Del Tredici chronicles the periodical's history in the current issue (<http://arnoldia.arboretum.harvard.edu>). Its original mission, its editor wrote, was to meet the complaints of people who "...do not know when the trees and shrubs in the Arboretum bloom and therefore miss flowers which they want to see." To be safe, go at once.

~PRIMUS V























*Eat (and bleed) medievally.*



warm food.) February: Avoid frost, and let blood flow from the thumb. March: Eat roasted meat and take baths. April: Fill your belly with fluids and drain the foot of blood. May: These seven things are useful for good spices. June: Eat lettuce leaves with apples, and drink from fountains. July: Do not slash the veins, moreover avoid them altogether. August: Avoid warm food, this month you have no need of it. September: Blood-

Hamburger writes that illustrated medical manuscripts “would appear to remain very rare” and guesses that the book may have belonged “to a wealthy patient or perhaps to a monastic library.”

The double issue of the *Bulletin*, edited by Hamburger and entitled “Piecing Together the Picture: Fragments of German and Netherlandish Manuscripts in Houghton Library,” came about in this way. In March 2010, a “group of colleagues,” most from Germany, got together at the Radcliffe Institute for a colloquium on German manuscript illumination. The speakers visited Houghton Library, where librarians had spread out for examination virtually all of the German illuminated manuscripts the library has. These treasures knocked the socks off the assembled academics, who, Hamburger tells us, decided “on the spot” that each would choose one of the fragments before them as the subject of a short essay. Hence this special issue, the serendipitous outcome of a gathering of stimulated scholars. ~C.R.

**I**N THE MIDDLE AGES, as now, following rules could give comfort in the chaos of life. Shown here are all six pages of an illuminated manuscript offering medical and dietary advice month by month for a year, mapped by the signs of the zodiac. It begins with an embellished headline, "*Kalends Ianuarii*," and a drawing of Aquarius. Throughout, the names of the months are given in Hebrew and Greek, as well as Latin. The core of the manuscript consists of a series of Latin hexameters embedded within a scattering of dicta on how to lead a healthy life. Thus:

January: *Escas per Janum calidas es sumere sanum.* (In January, it's healthiest to eat

letting is good, and then you ought to eat spices. October: Drink cattle or curdled sheep's milk. November: At this time spices with cinnamon are useful to man. December: In the month of December, warm things are good for your limbs.

The manuscript is explicated by Jeffrey F. Hamburger, Francke professor of German art and culture, in an essay, "Rules to Live By: A Late Thirteenth-Century *De Regimine mensium*," published last July in the *Harvard Library Bulletin*, volume 21, numbers 1-2. The manual is complete, but it is only a fragment of a longer manuscript on a topic and by an author unknown, created one doesn't know precisely where or when.



*Does your monthly mortgage payment have you*

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