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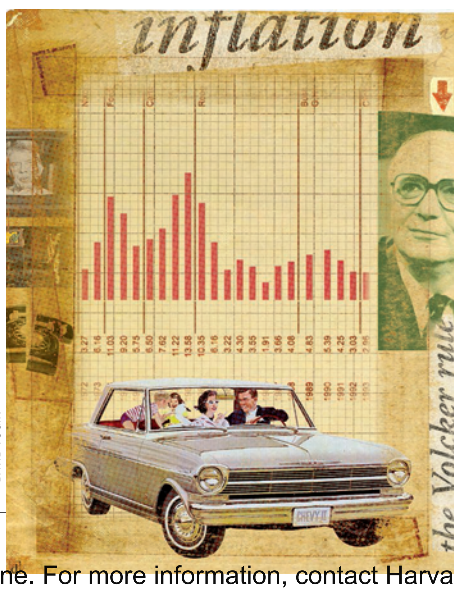
On the cover: David Butler at work at the Harvard Depository. Photograph by Jim Harrison



DAVID VOGIN

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Malaria, civic engagements, longtime Game-goers

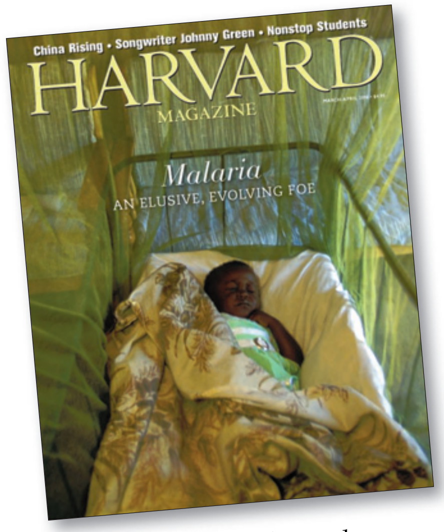
CHALLENGING CHINA

The roundtable ("Changing, Challenging China," March-April, page 25) is the best many-sided introduction to this subject I have seen anywhere. I hope people in positions of responsibility and shapers of opinion will take note, read it several times, and seek permission to distribute it widely.

John E. Wills Jr., Ph.D. '67
Professor emeritus of Chinese history
University of Southern California
Pasadena, Calif.

Some salient realities on China's rise emerged from the roundtable discussion among your seven experts—including Bill Kirby, whose work I have long admired: (1) China's political development lags far behind its economic progress and military buildup. (2) Rejecting the democratic path Japan, Korea, and Taiwan followed, China has regressed from the relative liberalization of the mid 1980s to a more closed political system. (3) Unlike the other Asian models, China does not accept the West's "universal" standard of political openness in governance but insists on imposing its own authoritarian model. (4) To maintain domestic legitimacy, China uses economic progress and monolithic control over the nation's education to foment an ideological sense of aggrieved, "prideful," and "triumphalist" nationalism. (5) In international affairs, China will not play by the rules set by the West, but seeks to "reset" the table at which it now has a seat, leading, e.g., to damaging Chinese policies in Africa.

China scholars and Western officials must reassess the optimistic premise underlying 30 years of engagement—that economic opening would surely lead to political evolution and policy moderation. Has the approach followed by every U.S. administration since Nixon's brought



us instead an economically and militarily powerful China that has abandoned Marxism but retains Leninism and remains as fundamentally opposed to Western interests and values as it was under Mao? Given Beijing's designs on Taiwan, the South China Sea, and other territories and waterways, the roundtable's comparison of China's potential direction to the paths taken by Japan and Germany before World War II is sobering.

Joseph A. Bosco '60, LL.B. '65
Washington, D.C.

NONSTOP STUDENTS

Wow ("Nonstop," March-April, page 34)! Am I glad my kids and grandkids didn't go to Harvard!

Ken Fradin, LL.B. '50
Sarasota, Fla.

It was with much dismay, pity, and concern that I read Craig Lambert's article. These kids and the future of the country are in serious trouble. My generation may have invented the mid-life crisis, but this generation of undergrads will certainly overachieve in that area.

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What is developing is a generation of people whose focus is completely outward-directed, protected from life and from finding their own way. More importantly, people who avoid silence and inner questioning at all costs. One must ask, what are they running from?

When I was a kid, a boomer, we got home from school and we went out to play, usually with the admonition, "Be home in time for dinner." Going out to play meant having adventures. Testing ourselves against others, the environment, life. Taking responsibility and making decisions, and yes, often making bad decisions, and learning from them. No, I didn't grow up in Mayberry, but in a partly urban, partly suburban tapestry of a city in New Jersey of very diverse ethnic, cultural, and economic threads. Learning to accept others, the value of independence as well as friendship, and how to navigate through life with an inner compass were lessons that cannot be taught in the classroom.

Most parents encouraged such activities. They knew that adventuring was all part of what was called "growing up," just like boys having fights, learning how to deal with bullies, and coming home with bloody noses. Denying a child his own unique, self-chosen experience is trying to protect him from his own life.

Somehow, the boomers were able to do all this and still have time for homework, Cub Scouts, and Little League, and to pursue outside interests from model rocketry to spiritual activities. What are the helicopter parents so afraid of? We do not do our children a service by making them unable to make decisions for themselves. By denigrating the value of just *being*, rather than always *doing*, we are depriving them of a precious source of creativity. Kids need to test themselves against life and see that you don't always win. Without the ability to fail out of one's own resources, there can be no inner freedom. And without inner freedom, one's life may be busy and accomplished, but also meaningless.

JEFFREY ANTMAN, M.T.S. '79
Newark, N.J.

I READ WITH INTEREST about the frantic life of current Harvard undergraduates who seek to build multidimensional résumés and fill every moment of the day and night with purposeful activities. Harvard should ask whether this is the best

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Charles Toder '60, M.B.A. '62
New York City

MALARIA

Thank you for describing the scourges of malaria ("An Evolving Foe," by Courtney Humphries, March-April, page 42).

One minor update to this otherwise excellent article should note that there are at least five, not four, species of single-celled plasmodium protozoans known to cause malaria in humans. The five known strains are *Plasmodium falciparum, P. vivax, P. ovale, P. malariae,* and *P. knowlesi. Knowlesi* malaria infects monkeys, and was found to cause fatal human malaria blood infections recently in Malaysia and Thailand. *P. knowlesi* parasites look like *P. malariae* on blood smears under the microscope. However, *P. knowlesi* exhibits higher levels of red-blood-cell parasitemias than *P. vivax.* Over time, still more *Plasmodium* strains may emerge, adapt, and subsequently infect the human host.

Kathy Murray Leisure, M.D. '78
Lebanon, Pa.

I read with fascination most of the article about the latest inroads against the health devastation due to malaria. I say "most" because the author makes one important error. "Newly developed drugs" contributed but little to the widespread eradication of malaria from the developed world and the near-eradication from Africa and Asia: it was DDT that accomplished that feat. We have drugs now that are much better than those of the 1950s and 1960s, yet malaria takes over one million lives each year, mostly children under five years old. Malaria regained its foothold after DDT was needlessly and cruelly banned by our EPA in 1972 out of groundless fear of adverse human health effects, of which there are none when used in the approved manner. Malaria did not recur due to resistance to DDT, as it was no longer being used anywhere after 1972, thanks to the anti-DDT campaign engendered by Rachel Carson's *Silent Spring* and carried on by her "environmentalist" acolytes. Since then, tens of millions have died needlessly. Now DDT is again being used, safely and effectively, in small amounts via "indoor residual spraying," and where those campaigns are ongoing, malaria is receding.

Elizabeth M. Whelan, S.M. '68
President, American Council on Science and Health
New York City

Dyann F. Wirth replies: DDT was banned for large-scale use because of its negative effects on wildlife. It is still in limited use to control malaria, along with such strategies as bed nets and drug treatments. None of these obviates the need for research on the *biology* of malaria—the subject of this article. For the WHO position paper on DDT, visit: http://whqlibdoc.who.int/hq/2007/WHO_HTM_GMP_2007_eng.pdf.

SPEAK UP, PLEASE

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CIVIC ENGAGEMENT

In a sidebar of the January-February Harvard College Fund insert on the new undergraduate curriculum, General Education is said to be designed to "prepare students for civic engagement—teaching them to respond to real-world situations with intellectual rigor, cultural awareness, and a firm understanding of the ethical implications of their choices."

This sounds like exactly what students need—and what the University needs. I propose that students practice these skills on the current "real-world" situation at Harvard. Among the big questions they might consider:

Through its recent investment focus on China and India, is the University supporting humane working conditions, individual freedom, living wages, and environmentally sound industrial practices?

With the continuing cuts to academic departments, staff, and libraries, is the education of Harvard students being held harmless?

What are the ethical implications of cutting custodians' hours and pay by more than 12 percent while only temporarily freezing the salaries of the University's highest-paid personnel?

How well does Harvard's "cultural awareness" extend to its neighbors in Allston, where *(please turn to page 81)*

Right Now

The expanding Harvard universe

DECIPHERING SEA LEVELS

The Gravity of Glacial Melt

Part of the Greenland Ice Sheet. The ice boulders (foreground) were left behind after a lake overflowed near the town of Kangerlussuaq.

In the popular imagination, sea levels rise in response to a warming climate in the same way water rises in a bathtub when the tap is turned on: evenly and uniformly around the globe.

Until nine years ago, many scientists also assumed the same thing. That's when professor of geophysics Jerry X. Mitrovica (then at the University of Toronto) and collaborators including Harvard College Observatory associate James L. Davis reported in *Nature* that incorporating glaciers' gravitational pull into the equations used to describe sea-level changes would help explain the extreme variation scientists were already seeing around the world. The equations then in wide use accurately described the trend in *average* sea level worldwide—a rise of about two millimeters per year in the twentieth century—but couldn't explain why actual observed conditions in many places did not conform to that average. Nevertheless, as long as the observed average rise was consistent with their equations, scientists tended to ignore the outliers, recalls Mitrovica (mi-tro-VI-tsa). "*We* were saying, 'Those are really important.'"

In fact, some places on Earth could find the local sea level *falling*. This is because the sheer mass of glaciers generates gravitational pull and draws water closer, raising the sea level nearby. As glaciers melt, though, this pull weakens and the adjacent sea level falls. At locations far from a given glacier, the most noticeable effect of its melting will indeed be the increased volume that meltwater has added to the sea; closer in, though, decreased gravitational pull becomes the predominant effect.

In a 2009 *Science* paper, Mitrovica and collaborators including doctoral student Natalya Gomez presented a "fingerprint" of future polar ice-sheet collapse.

Much depends on *which* ice sheets melt.

Photograph by Uriel Sinai/Getty Images

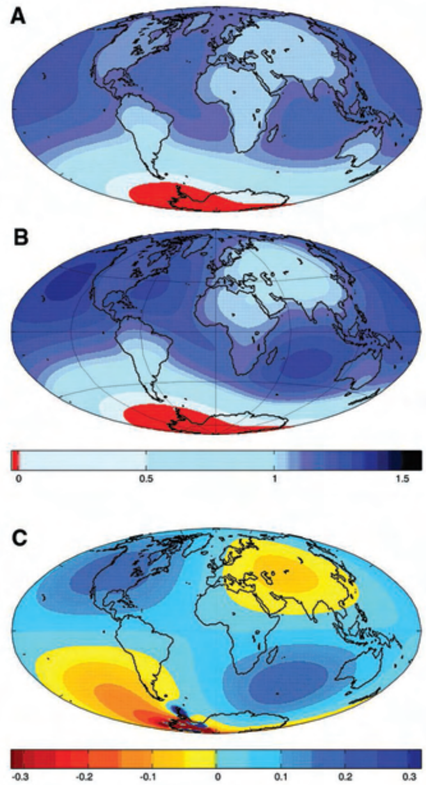
If glaciers near only one pole collapsed entirely and those near the other pole didn't melt much, the gravitational effects (and resulting sea-level drop) would be concentrated at that end of the world; if glaciers near both poles melted, sea levels at high latitudes would fall, while seas near the equator would rise at a much greater rate than the global average.

If only the Greenland Ice Sheet melted, sea levels would fall along the shores of Scotland, and the Netherlands would see only one-fifth the average sea-level rise worldwide. ("Of course, that's what they're hoping for, even as they plan for the worst-case scenario," says Mitrovica. "But if you're Australian, you have a very different hope.")

Conversely, if the West Antarctic Ice Sheet melted and Greenland's did not, "Tierra del Fuego on the southern tip of Chile might see sea levels fall," says Mitrovica. This wouldn't affect many local human residents—the Antarctic glacier is far from populated areas—but the United States might find itself in hot water. In all locations far from the Antarctic ice sheet—that is, in most of the Northern Hemisphere—sea levels would rise more than average, and more than older models have predicted.

But that's not all. When glaciers melt, the redistribution of their mass causes changes in the earth's rotational axis. "The earth isn't a perfect sphere," Mitrovica explains. "It's flattened because it's rotating. If you move the pole, the flattening adjusts." If the West Antarctic sheet collapsed, the pole would move such that sea levels would rise *even more* in North America. If this ice sheet—but none of the others—were to collapse, water levels at Boston, Washington, D.C., and other sites along the east and west coasts of the United States would rise *30 percent more* than the global average. Given a worldwide average rise of 5 meters in sea level, these cities would face seas higher by 6.5 meters.

Alarming though these projections may be, they are not immediate. "We're talking a scale of hundreds of years before this could ever happen," says Mitrovica. Predictions of what *will* happen are not his bailiwick; he leaves that to climate scientists and focuses instead on what he compares to "detective work." He and others working on the same problem start with the equivalent of four "fingerprints"



In 2001, Jerry Mitrovica and colleagues reported that the impact of glacial melting would not be distributed evenly around the world, because each glacier's individual gravitational pull affects the sea level nearby. These figures show the "fingerprint" of the melting of the West Antarctic Ice Sheet; sites in the Northern Hemisphere would see sea levels rise more than the worldwide average (Figure A). In 2009, Mitrovica's team updated their equations to include a shift of the earth's axis of rotation and other geological changes that would follow the glacial melt. The results show an even bleaker situation for the United States: Figure B shows the new distribution of sea-level rise (the scale indicates the factor of multiplication against the worldwide average); Figure C shows the difference between A and B (the scale represents percentage difference).

all laid down atop each other: they know how much sea levels have risen during the past century—or in some cases, several centuries—at various inhabited locations. From these observed changes, their work is to isolate the distinct impact—the individual fingerprint—of the melting of the West Antarctic Ice Sheet; the Greenland Ice Sheet; other glacier systems including that in Alaska; and thermal expansion (the seas' increasing volume as temperatures rise, an effect that would fade into the background if glacial melt, with its more severe effects, were to speed up). In this way, they are able to make an indirect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observation of precisely how much volume and mass each ice sheet has lost. These calculations aid predictions of how the process will unfold in the years to come.

In climate science and throughout earth and planetary science, these "fingerprints" and the complex mathematical methods behind them have gained wide acceptance. But even now, when Mitrovica talks with scientists from other fields about the finding that sea levels will fall in some places, he is reminded that the idea is "so counterintuitive that sometimes they don't believe it. Or they think it must be dependent on some weird model parameter. But it isn't. It's just Newton sitting under the tree and the apple hitting him on the head."

~ELIZABETH GUDRAIS

JERRY MITROVICA E-MAIL ADDRESS:
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ELECTION BY ENCRYPTION

Secret Ballots, Verifiable Votes

Ben Adida

THE TYPICAL VOTER experience, as Ben Adida sees it, involves too much trust. "There is a disconnect the moment you drop off your ballot," says the fellow of Harvard's Center for Research on Computation and Society and faculty researcher at Harvard Medical School. After a ballot is cast, voters can only wait for the results to appear on their smart phones, or on the evening news. Whether their own votes have been counted is never known, because they have entrusted a series of poll workers with their ballots. But "In voting, you cannot trust any other party," says Adida. "And you have to be able to be confident that everyone's voice has been heard."

His solution is an online voting system called Helios that allows voters to track their ballots and opens the results for public auditing. Adida, a self-described "tech and policy geek," began building voting systems in 1997 as part of an undergraduate research project, well before "hanging chads" entered the American lexicon. He has been working on Helios—named for the ancient Greek sun god as a nod to the system's intended transparency—for nearly two years, and is on his third version of the open-source system, which will be made available to the public this summer.

A typical vote via Helios requires filling out an online ballot and then clicking a button that encrypts the vote, masking its content. Voters then receive individual tracking numbers—'fingerprints' of their votes; finally, they submit their votes by verifying their identities. In most cases, this is done by logging into an external platform that is appropriate for the election: voting for a Facebook group president, for instance, might require a Facebook login; electing Harvard's student body president, a University PIN system login. To double-check that their ballots have been counted, voters can then go to the election's ballot-tracking website, which allows them to match their specific tracking number to their name.

There is another layer of confirmation: a crowd-sourced verification measure called open auditing that allows anyone access to the election data. "We're not expecting every voter to be able to handle the auditing—you'll need someone who knows some college-level math to do it," says Adida, who admits that this is one of the chief criticisms of any such system. "But you expect every candidate, at least, to have access to one person whom they trust who is able to do the math."

Adida notes that Helios in its current form is not ready to handle elections for public office, even at the local level. "A government election is something that you don't want to do over the Internet," he says, citing both the potential for computer viruses to corrupt the voting and the possibility of voter intimidation. "I don't have an expectation that Helios ever becomes the system for government elections," he explains, "but I hope it paves the way for the open-audit system to become the standard in 10 to 15 years."

For now, he is happy to demonstrate Helios where the stakes are a bit lower. The campus-wide election of a president for Belgium's Université Catholique de Louvain last March offered a perfect opportunity. Because of preexisting tensions, a significant number of blank ballots were cast as protest votes, and neither of the two candidates won the majority needed to claim the presidency, though one fell short by just two votes. "We're pretty sure that in any other voting system, [the electorate] could have said, 'Oh, you didn't count right' or 'You lost a couple ballots,'" he says. But when third parties—including one affiliated with the candidate who fell just short—verified the election, there was little room for dispute.

Photograph by Toni Gauthier

"Nobody argued and nobody complained," Adida reports. The high level of precision in the system forced the university to run another round of voting.

Helios played a similarly useful role in Princeton's student-government elections last fall. On the second day of voting, a second official e-mail went out reminding all students to participate. When one of the candidates for president, a sophomore, realized that very few of his friends had received that message, Adida began to graph the voting patterns by class year. He saw a large spike among all classes after the first e-mail reminder, but a much smaller spike, comparatively, for the sophomores after the second. An internal investigation found that the administration's e-mail database had been corrupted, resulting in reminders being sent to only 15 percent of the sophomore class. "We were able—in the middle of an election—to determine that something had gone wrong in notification, and that it was indeed unfair to one of the candidates," Adida says now. After a quick rebuilding of the e-mail database and another notification, the sophomore candidate won by 41 votes.

Besides offering greater precision, Helios is about getting people comfortable with a new way of voting, says Adida. "My long-term goal is to introduce a different process of voting, where people are used to having a tracking number for their vote and checking it online," he notes. "Until people see the power of that in their elections for, say, the board of the condo association and at their place of worship, they're not going to be clamoring for it."

Adida sees his work as enhancing individual citizens' control—a goal equally important in his medical-school research: he is the lead architect for Indivo, a personally controlled health record (PCHR) that offers users digital, Web-based management of their medical data. "Do you control your medical data or are you hoping that the medical community does the right thing? Do you control the results of an election or, again, are you giving up that control and trusting someone else to do the right thing?" he asks. He notes that many people are progressively yielding more and more control of such data to Facebook and Google because of the convenience and connectivity they offer. "But maybe," he suggests, "for certain applications, we want to tilt the balance back to us getting control over our data and our lives online."

—DAN MORRELL

"We were able—in the middle of an election—to determine that something had gone wrong in notification, and that it was indeed unfair to one of the candidates."

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COMPARATIVE CONTINGENCIES

History Quantified

To regard history as an imprecise discipline is to sell it short, say Jared Diamond '58 and Florence professor of government James A. Robinson. In *Natural Experiments of History* (Harvard University Press), a new book they coedited, Diamond, a geography professor at UCLA, and Robinson argue that quantitative methods can and *should* be used alongside the qualitative methods more often used to study the past.

The book presents eight examples of such quantitative analysis: included are chapters on "Exploding Wests: Boom and Bust in Nineteenth-Century Settler Societies," "Politics, Banking, and Economic Development: Evidence from New World Economies," and "Colonial Land Tenure, Electoral Competition, and Public Goods in India." The chapter co-written by Robinson evaluates Napoleon's legacy. Scholars long considered the nineteenth-century emperor a modernizing force in the territories he conquered; recently, though, this favorable view has fallen out of fashion. Robinson, working with Davide Cantoni, a doctoral student in economics, and MIT economists Simon Johnson and Daron Acemoglu, used Germany as a test case, asking how regions controlled by Napoleon fared compared to those that were never under French rule. The authors determined that occupied areas that kept the reforms Napoleon put in place (a written civil code; abolition of serfdom and, in the cities, of guilds that hampered economic freedom) subsequently experienced the most rapid economic development. Areas that the French never controlled developed less quickly (measured in terms of urbanization), and those regions that were invaded, but returned to their old ways after liberation, developed most slowly of all.

Robinson and his colleagues encourage other scholars to extend this analysis to different territories that Napoleon controlled; they believe such comparative work can bring a broader understanding of what causes the uneven distribution of prosperity around the world. They began with Germany because it allowed them to compare invaded and uninvaded areas—and because Germany's constituent parts were similar enough, culturally and otherwise, to limit the number of potential confounding factors.

The gold standard of quantitative methods is the randomized controlled trial (RCT), in which experimenters choose an intervention and apply it at random, and then, after some fixed period of time, compare the "treatment" group that received the intervention to the "control" group that did not. This type of experiment is virtually impossible in the study of history, the authors write—but the same is true of other disciplines that involve reconstructing the past: evolutionary biology, paleontology, historical geology, or astronomy. Furthermore, in many disciplines that study the present, the RCT is impossible for ethical reasons: scientists understand how smallpox works not because they injected people of different blood types with smallpox at random, but because they observed how the disease operated in real life. This "natural experiment" established, with as much certainty as an RCT, which blood types confer smallpox resistance. In crafting the book, the authors looked for examples of other such "natural experiments."

The contributors take great care to explain how they accounted for possible confounding factors. For instance, in a chapter that assesses the impact of the slave trade on modern Africa, Harvard assistant professor of economics Nathan Nunn raises the question of whether slave traders perhaps preyed on underdeveloped areas. To the contrary, research revealed that slaves came disproportionately from the *more* developed parts of the continent, because those were the places most likely to have economies already organized for trade more generally. Nunn writes that using statistical analysis helped him determine *how* likely he was to be wrong, and how that would affect his findings.

Nunn sets out a thorough assessment of the enormous difficulties inherent in his research, but concludes that the contemporary nations that, historically, lost the highest proportion of their populations to slavery are economically the worst off today. In fact, he computes that per-capita annual income in Africa—$1,834, on average—would be between $2,679 and $5,158 if the slave trade had never occurred. Statistical analysis makes statements like this possible; it also enabled Nunn's conclusion that all of the possible confounding factors would, if they had any effect at all, mitigate rather than exaggerate the slave trade's effects. If measurement error exists, he writes, "we can be reasonably certain that the relationship" between the slave trade and poverty "is in spite of measurement error and not because of it." (For more on Nunn's research, see "Slavery's Sway," November-December 2008, page 20.)

Diamond, whose previous books include *Guns, Germs, and Steel* and *Collapse: How Societies Choose to Fail or Succeed*, writes about why Haiti and the Dominican Republic, neighbors on the same Caribbean island, developed so differently. He also explores the

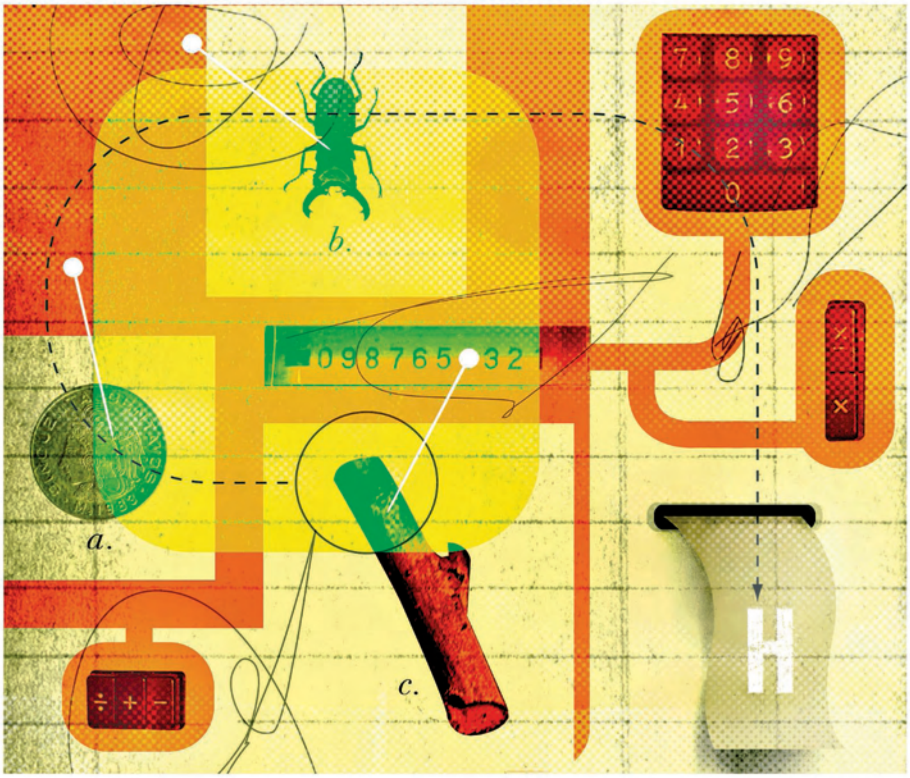

ILLUSTRATION BY STUART BRADFORD

devastating deforestation of Easter Island. The damage is sometimes blamed on the islanders themselves, but Diamond compares a list of 81 Pacific islands on a matrix of nine factors including climate, geological age, elevation, island area, isolation, and even the presence of *makatea*, "a sharp coral terrain resembling huge irregular piles of broken glass" that tends to keep people away from forests they might otherwise want to cut down. He found that these nine variables accounted for most of the variation in deforestation among the islands, and that Easter Island in particular had a "perfect storm" of conditions. On all nine factors, chance was pushing Easter Island toward deforestation.

The eight cases presented in the book are related by method more than theme, and Robinson and Diamond extend an open invitation to add to the literature. "History is full of such potential experiments," Robinson and colleagues write in the chapter on Napoleon's influence. "It is just that historians have not yet thought of them in these terms. We believe that exploiting these experiments in a systematic way will greatly improve our understanding of the important forces that have driven long-run processes of historical, social, political, and economic change."

~ELIZABETH GUDRAIS

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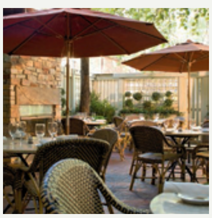
What's New on the Web

THIS MONTH, you'll find Commencement coverage, a photo contest, the Web Extras listed here, and much more online. Don't miss this issue's "Your Take" reader discussion, about the Internet and its impact on social life.

COMMENCEMENT GUIDE



FROM TOP: JON CHASE/HARVARD NEWS OFFICE; HARVARD MAGAZINE; COURTESY OF HARVEST

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- **Live coverage.** Check back during Commencement week for up-to-the-minute coverage of the principal events and speeches.

WEB EXTRAS

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STU ROSNER

Bruce Wright, the new volunteer coach for Harvard men's tennis, brings highly original insights to his coaching. Watch this video extra to learn how Wright translates his training as a gymnast into pointers for tennis.

READ ▶ **International Harvard**

Review reports and photos from the opening of the Harvard Center Shanghai, a major new University initiative.

LEARN ▶ **Our Networked World**

In "Networked" (page 44), read about networks that can solve problems—and then go online to see videos of slime mold solving a maze and mapping out a train system.

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Commencement & Reunion

GUIDE 2010

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In the Limelight

Reunioners showcase their creativity • *by Nell Porter Brown*

Never mind that Conan O'Brien '85 recently went off the air in a very public dust-up with broadcast executives. This spring the burning question locally was: Would he or wouldn't he perform in the talent show at his imminent twenty-fifth class reunion? These events have evolved into a significant tradition not only because they exhibit classmates' creative powers, but because they help bring people back together through shared laughter. Comedy is a critical element of the reunion shows, "especially at Harvard, where there is a sense of seriousness and being hard-driven," says Meg Streeter Lauck '79, who produced her own class show in 2004. "When people are laughing, they are open and they are united; humor brings people together in a way that spreads joy throughout the room."

The talent show is usually the first big evening event of a reunion, she explains: "It provides a sense of unity up front and

Photograph by Jon Chase/Harvard News Office

centers as much on talent as camaraderie." She also sees the show as distinctly related to the life cycles of classmates themselves. "The magic that happens between the fifteenth and twenty-fifth reunions is that people mellow," she states. "Getting together is not so much about 'How far I have succeeded,' but about 'Who am I now?' and the idea that friendships trump everything else. In the show, we are celebrating each other and life."

Almost every twenty-fifth reunion class produces a show, which typically packs Sanders Theatre. "I think each of us really treasures our classmates, and the talent show is such a popular tradition because it's one of the very fun ways we can celebrate this shared enthusiasm," says one of this year's show organizers, Betsy Wanger '85, the associate general counsel at George Washington University. "Reconnecting with classmates has been a blast. I'm amazed all over again at their remarkable talents, and generosity" in sharing their time.

Participants perform everything from show tunes and jazz numbers to classical music and satirical ditties (one suggested that the College admissions process is now so harsh that even George Washington would not be accepted). Others offer up dance routines, comedy skits, or scenes from plays, or take the stage as a group to reprise performances from their undergraduate years. Part of the fun involves incorporating current student groups, such as the Kuumba Singers or Hasty Pudding members, into the show, so alumni can get a sense of creative life at the College today.

> "Reconnecting with classmates has been a blast. I'm amazed all over again at their remarkable talents."

The class of 1964 is particularly attached to their talent shows—they produce them even at non-major reunions. Historical novelist and journalist Ciji Ware was in the original 1963 Winthrop House production of *Li'l Abner* (she played Appassionata Von Climax), but says her proudest recent moment on stage came at the forty-fifth reunion show, when she and classmate Danny Cheever, whom she had taught to dance for *Silk Stockings* in the 1960s, "mounted the stage and managed to get through three minutes and 33 seconds of Irving Berlin's 'Let's Face the Music and Dance!'"

How and when the variety-show tradition began is not quite clear, says Michele Blanc, the Harvard Alumni Association's (HAA) senior associate director for classes and reunions, "but it has become a beloved part of the reunion experience." During the last decade, the shows have become major productions that require technical help with lighting, sound, video, costumes, props, and staging from undergraduates and Harvard staffers. Although many classmates prepare material and rehearse months in advance, there is still a chaotic convergence during Commencement and reunion week.

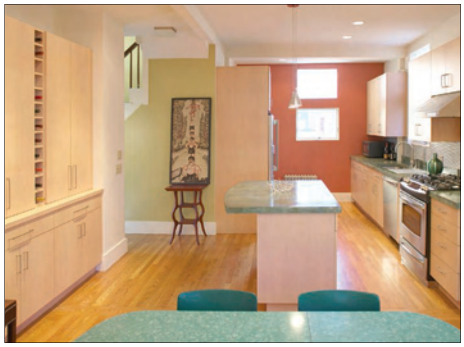
Sanders is usually unavailable until show time, so rehearsals take place at the former Radcliffe gym or other venues, most of them lacking air conditioning. "The logistics are challenging. People are arriving at the last minute, there's not enough time to prepare, and you need all of these technical aspects to be lined up: microphones, lighting, and cue sheets," says Streeter, now a retired network TV director/producer based in Houston. She was awake until

Illustration by Mark Steele

Hammond Residential

GMAC Real Estate

Cambridge...Spacious, sunny, renovated, 4-plus bed, 2.5-bath attached townhouse. Hardwood floors. Private garden. 23GrayStreet.com. $1,250,000



Cambridge...Beautiful single family. Three bedrooms. Gorgeous kitchen, built-ins, open to dining room. Wood floors, high ceilings. Parking. $539,000

Belmont...Charming 1930's Cotswold Tudor on Belmont Hill filled with sunlight. 3-plus bedrooms, two-car garage, some updates, convenient location. $749, 000

Cambridge...Urban. Edgy. The Port. 11 gorgeous new condos. Choose from 1 to 2 bedrooms, 1.5 to 2.5 baths. Parking. Cutting edge design. Brilliant outdoor options. $575,000 to $855,000

Cambridge...Riverside Beautifully renovated free standing condominium. Fireplace,3 bedrooms, 2 1/2 bathrooms, parking. See www.560Franklin.com. $799,000

Cambridge...Rare, historic Hartwell & Richardson Avon Hill condo. Period details galore. 2-plus bedrooms, 3 baths. Parking. A fireplace in every room! $865,000

Cambridge...Unusual Colonial Revival with English Tudor embellishments. Cook's kitchen, expansive yard and gardens, indoor pool and accessory apartment. $2,325,000

Somerville...Contemporary and elegant space at Porter Square. 4 good-sized bedrooms, including master suite with cathedral ceiling; skylights; and 3 full baths. $689,000

Cambridge...Follow path to 1884 Victorian single-family. Romantic wooded setting. Updated. Large private garden. 194Appleton.com. $668,000

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4:30 A.M. on the day of her class show, organizing last-minute details.

Mastering the technical problems may pale compared to mustering the courage to get up on a stage, something many classmates have not done since their college days. "All of these people came to enjoy their reunions and here they are—going on stage and putting everything on the line. That's not kicking back and relaxing," she notes. "But they all came to rehearsals, missed the lobster bake, and gave up other things. Doing the show was all so reaffirming on so many levels—and a little scary!"

Of course, the talent must be well-managed. Every class has a host of amateur and professional performers to draw from, such as actor John Lithgow '67, musician Allison Brown '84, comedian Andy Borowitz '80, Pulitzer Prize-winning composer and musician Paul Moravec '79, NPR's Melissa Block '83, pop musician Dan Wilson '83, and many others, sometimes behind the scenes. "When you have famous performers in a class, it sometimes ups the ante for everyone else," Blanc notes. (She will not say a word about what Conan O'Brien's plans may be, although he has sent word that, schedule permitting, he will attend the Pops performance, at least.) When Yo-Yo Ma '76 came to his twenty-fifth reunion, however, he performed not at the talent show, but with the Pops; it was generally agreed that he did not have to show up early to rehearse.

For the 2004 show, Streeter contacted her classmates Tom Gammill and Max Pross, the Emmy Award-winning comedy writing team who have worked for shows like *Seinfeld* and served as producers of *The Simpsons*; the duo created a series of hilarious bits that were performed by the show's classmate hosts, Hollywood producer and director Paris Barclay (another Emmy winner) and actress Amy Aquino. One especially popular sketch, "Embittered Spouses," featured the pair kvetching about their relatively low status and less-than-stellar alma maters. "I don't know why I had to fly all across the country to see where else he used to be," says Aquino's character, chugging from her cocktail glass. "At *Hahvahd*." Streeter said her own husband (a Kansas State man) loved the skit because it made the reunion more inclusive all around and quashed the stereotypical notion of Harvard stuffiness.

Also intrinsic to the reunion shows are the jokes based on formative undergraduate and alumni experiences—the Harvard development and admissions offices are the butt of many—and the confidence that performers feel before a clearly targeted audience. "Very few times in performers' lives do they really know their audiences in advance—so you can tell inside jokes all night and they take everyone back to common experiences and create that bond," Streeter points out. At the end of the show, she said a few words from the stage, concluding: "Each and every one who lit up the stage here…couldn't have a nicer audience full of friends." The show closed with a rousing ensemble rendition of "It's Our Time"—and a full standing ovation.

Many of the performers are former Harvard Glee Club members, Krokodiloes, Radcliffe Pitches, Kuumba singers, Hasty Pudding-ites, and so on. Sam Lewis '64 says his Harvard days cemented a lifelong love of musical theater, so when classmates asked him to produce the thirty-fifth reunion show, with a cast of about 50, he was excited. The resulting musical variety show broke with the tradition of reunion shows featuring a class's most distinguished classical musicians, he says, but "the 'actors' have loved getting back on the Harvard stage, entertaining their classmates and re-polishing their special talents—be they song, dance, parody, or simply 'shtick'!"

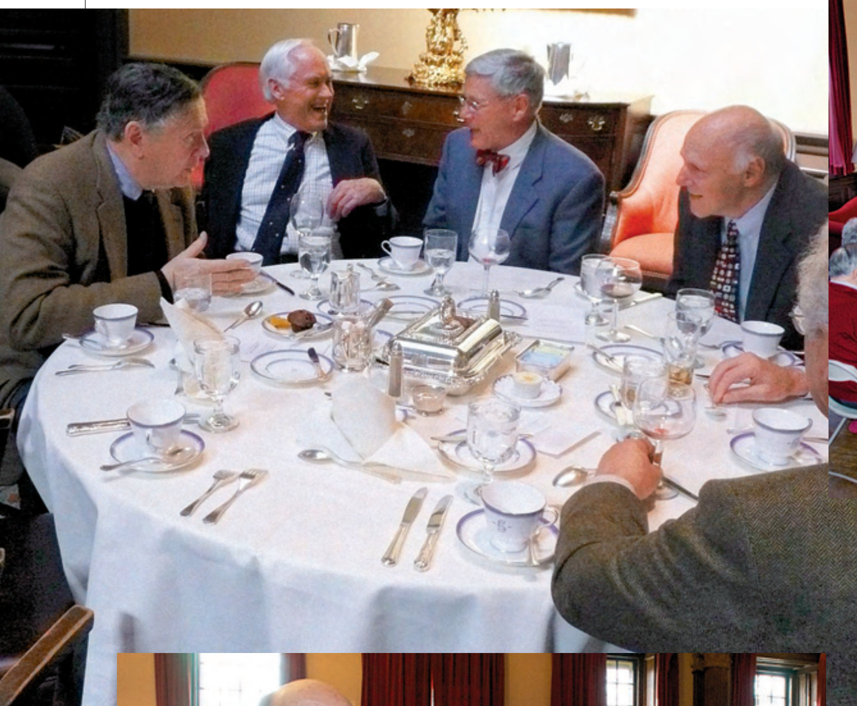
"You can tell inside jokes all night and they take everyone back to common experiences and create that bond."

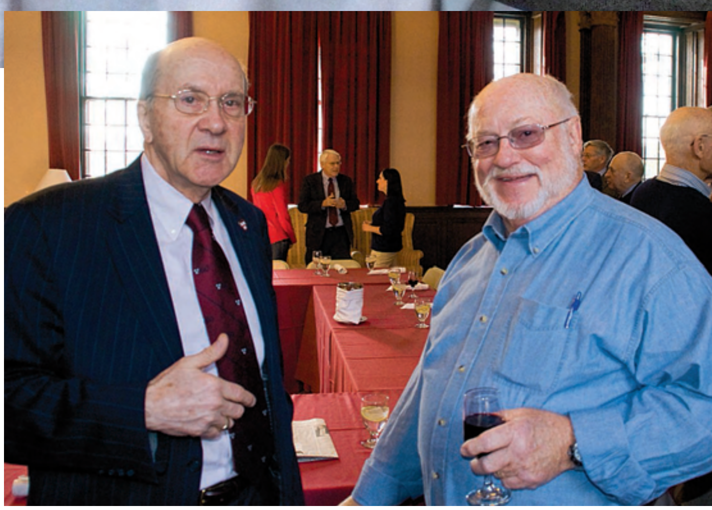
His class was so pleased, they staged musicals for the next two reunions, though the last was more of a burlesque variety show. Each show entailed 10 months of planning, talent recruitment (identifying the "Pudding Girls," for example), and work with HAA and technical support staff on all the logistics. Despite a few glitches—two Pudding Girls fell off the stage during their dance number last fall, though many in the audience assumed that was intentional—the shows were well-received. "Many classmates linger on after the show in a 'high' that is palpable," Lewis reports.

For Streeter, the show is all about the group experience. "I wanted people to get on board with the celebration of not only the talent, but the spirit of what the arts can do to lift the spirit and connect you to something greater than yourself," she explains. "*And* to have people see their classmates on stage and feel that connection to our common experiences during college, and even now." ▽

A Lifetime of Sharing

Fiftieth-reunion reflections on classmates' enduring ties • by Ron Goodman





Members of the class of 1960 at lunch: at the Somerset Club (top left, from left: Harry Wise, Hale Sturges II, David Ries, and Peter Mebel); at Winthrop House (above, with tutors and students); author Ron Goodman; and classmates Henry Marcy (left) and Louis Geoffrion at Winthrop House

WINTHROP HOUSE PHOTOGRAPHS COURTESY OF PETER PAPESCH; OTHER IMAGES COURTESY OF RON GOODMAN

IN THE LATE 1970s, I attended my first Class of 1960 luncheon, in those days held at the downtown Harvard Club of Boston. It quickly became clear that these gatherings were not just reunion-planning meetings composed of class officers, nor primarily opportunities for business networking. Rather, under the guidance of our late class secretary, Dave Donaldson, they had evolved into a forum for men willing to share the joys and travails of their lives with a group of accepting and supportive classmates.

As Jerry Rogoff, who was there at the inception in 1970, reports: It was a "*Roots* thing…connections…sharing life's experiences…camaraderie—very special." I have since participated in more than 40 gatherings that follow a comfortable routine: after an opportunity to partake of some wine as we greet old and new friends, we sit down to enjoy our meal. Then, each attendee is given a minute or two to express whatever is currently important to him; often provoking lively discussion as a way of sharing individual life situations.

These days there are five or six meetings a year, with an average of 29 classmates at each. Many hail from New England and

New York, but others travel from Texas, Minnesota, Pennsylvania, and West Virginia to attend. As we have aged, topics have often followed the life cycle's inevitable stages: the illness or loss of parents, a spouse, or child; job loss or bankruptcy; and the joys of children and grandchildren. During a recent gathering, one group was comparing notes on prostate cancer; another was composed of men who had lost their wives; still others spoke of Harvard women's hockey; and a fourth group was talking about Afghanistan. We also share our vital interests in the larger political world: discussions during the 1991 recession and immediately following 9/11 were especially affecting. Some of us are experts in our fields, but what's striking is the way we all listen to one another without a sense of hierarchy or self-importance.

Since 1992, we have held about 90 luncheons, with a total of 125 attendees, under the tireless leadership of Henry Marcy, who took over organizational tasks after Dave Donaldson revealed that he was terminally ill. We also now hold summer luncheons, to which partners and, since 2005, our Radcliffe classmates have been invited.

The venues around Greater Boston vary, but have recently included the Harvard Houses. Especially rewarding was a recent luncheon at Winthrop House, where we met with the House master, students, and three House tutors. There, we experienced a Harvard greatly evolved from the institution we knew almost 55 years ago. The now graying and almost uniformly Caucasian men met with male and female students of varied races and national origins, and sensed the expanded energy, breadth, and experience of the current student body. In turn, we gave these younger people an image of a Harvard gathering of still alert and vital elder statesmen—not ossified alumni from a distant, unconnected past.

I have asked many classmates for their views on these gatherings. Deeply moving were the admissions of how many of us had felt isolated as undergraduates and have come to know classmates as individuals who are now perhaps more humble and emotionally accessible than when we were students. One responder described the luncheons as akin to a Friends' meeting: with the space to speak without the fear of judgment, and without pressure to impress. Others expressed thanks for a time "full of good humor"; the ability to "see the ups and downs of our lives and care for each other"; the chance to find "friends I didn't know very well in our campus days" and to "enjoy the round-table recounting of personal joys and sorrows."

Many of us have felt the comfort of this group support when life has taken a difficult turn. When my own wife of 38 years, Judy, was terminally ill in 2004, the empathy, friendship, and advice afforded me at these luncheons were immeasurably valuable. Having known us as a couple for more than 30 years, these friends provided a concern that I knew came from common life experiences. Predictably, it was through a mutual friend at a luncheon that I was introduced to Elizabeth (Bassell) Goodman, M.Ed. '66, whom I subsequently married in 2007.

Because of these four decades of private and personal sharing that we have done as Harvard men supporting Harvard men, our Radcliffe classmates have not been integrated into the meetings. Nevertheless, we are now equal planners and participants for our combined fiftieth Harvard reunion. And it is a result of the Radcliffe

Many of us have felt the comfort of this group support when life has taken a difficult turn.

reunioners' previous experience of intimate, personal discussion groups that our combined gathering this year will offer topics such as "Exploring Unlived Potential and Neglected Aspects of Ourselves"; "Avenues for Creativity and Social Usefulness"; "The Place of the Arts in Our Lives"; "Suffering Losses"; "The Aging Body"; and, ultimately, "Facing Mortality."

One classmate, a physician who attends the luncheons, has posited that there is medical evidence that health and longevity correlate with interpersonal connectedness. As we celebrate our fiftieth reunion, it is clear that these luncheons provide just such a sense of shared experiences, of individual lives lived together. For we have literally grown up together, are aging in synch, and our perspectives—shared as a group—have a unique continuity. We are friends joined at random as Harvard freshmen who went on to share not only a formative collegiate experience, but also our dreams, joys, accomplishments—and pains—throughout active adult lives, and who will continue to know and confide in each other as the men we are still becoming.

Ron Goodman '60, professor emeritus at Quincy College, is now pursuing artistic interests, especially photography.

Great Trepidations

Anticipating the fifth reunion • *by Phoebe Kosman*

After their initial fifth-year reunion anxieties, many alumni find the habit grows more comfortable.

Beginning in late summer (I *think*, but can't be sure about the dates—I deleted the e-mails from my inbox before deleting them from my trash, working as thoroughly as if they had been electronic vampires), and then with increasing desperation throughout the fall, our class secretary e-mailed asking for my contribution to the *Harvard College Class of 2005 Fifth Anniversary Report.* One of my girlfriends—formerly my freshman, sophomore, and senior-year roommate—forwarded the message she'd received with a yelp of incredulity: "Is this for *real*?" It later emerged that a third roommate had managed to land on 2005's misplaced-persons list; she threatened violence to anyone revealing her whereabouts to the class committee. None of my five senior-year suitemates, my closest friends from college, submitted a report. Or at least no one has admitted it to the rest of us.

Our reasons were various. Least originally, the *Fifth Anniversary Report* served as an unpleasant reminder that we were five years removed from college, and thus five years closer to the end of our reproductive lives, our go-out-to-a-show-on-a-work-night lives, our working lives, our *life*-lives, what did we have to *show* for it? Et cetera.

Because "dutiful" is my defining characteristic, I had read the instructions and the helpfully linked-to *Harvard Magazine* article ("Red Books, Raw Gems," May-June 2007) before deleting the e-mails, and so was daunted by the demanding genre of the reports themselves. The correct response, I could tell, would be more *London Review of Books* personal ad ("I am not as high maintenance as my impeccably arranged collection of porcelain cats suggests, but if you touch them I will kill you. F, 36") than *New York Review of Books* personal ad ("Berkshires resident who loves New York. Tall, slender, sensuous with authentic spirit and aesthetic eye...."), but "wittily self-deprecating, with concision" comes much less naturally to me than does "dutiful."

Finally, and this is what I think prompted my non-misplaced roommate's reaction, her appalled disbelief, the ritual—the submission, the reunion itself—seemed so very *Harvard*. And Harvard-ness is something we members of an irony-steeped generation (or my irony-steeped friends; it's probably not fair to generalize) have always struggled with. In college, we went to formals, but in thrift-store fancy dress; at graduation we drank "Harvards" (Angostura bitters, brandy, grenadine for the crimson, sweet vermouth, lemon juice—thanks, *Playboy Bar Book!*) with the same kind of winking observance and defiance of ritual. It was only subtly different than actually observing the ritual, and perhaps the distinction was discernable only to us; but it felt, still feels, like an important one. No, we weren't really being the elite, there in our dark-paneled, Oriental rug-ed library, there in our common room before our fireplace with its plug-in log. Instead, we were rolling our eyes at the notion of being that elite. I understand better now than I did then how grating our refusal to own up to the privileges we'd been granted may have been to an outsider, but it was how we defined ourselves then: we were of Harvard but not, you know, *of* of it. And that distinction seemed impossible to establish in the context of the reunion. By registering, by attending, you forwent any kind of insouciance. You would be caught trying, for real.

And yet. In the years since college, two of my funny, brilliant, eye-rolling suitemates have gotten married to their respective long-term Harvard boyfriends, enacting a ritual that is about as traditional as they come. (Well, perhaps not entirely—they were gay weddings—but bear with me.) When planning the second of the two weddings, which took place this March in the Faculty Club, the grooms-to-be told me that they were hoping to keep the event irony-free. I pretended to be affronted, but knew what they meant. Sometimes the underlying meaning of a ritual, even one as fraught and commercialized as a twenty-first-century wedding, transcends all of its trappings, all of the registered-for flatware and the RSVP'd-for entrées, to convey something so important that it can be expressed only through ritual.

That's how we felt, my sarcastic friends and I, when we went to the earlier wedding, in July 2008. When the sweet judge officiating referred to George Eliot, on second reference, as "he," the table ringed by the members of the Harvard class of 2005 fractured into a chorus of poorly muffled guffaws. But you can't see that eye-rolling in the pictures. In the pictures, everyone is beatific, and increasingly disheveled from a combination of dancing and an open bar, and so palpably happy that looking at the pictures two years later I'm taken aback by it. The enormity of the event, the irradiating happiness of two people who had loved each other for years promising to love each other for all the years to come, overcame whatever portentousness we were eager to laugh at in the trappings. In the pictures, you can tell that we've stopped trying to find things to make fun of. Our joy at being with each other, suffused with such happiness, is evident.

So what I am saying is that maybe some rituals are unavoidable, desirable even, no matter how earnest or hidebound they seem at the outset. That sometimes they overcome their apparent hokeyness in a way that only the participants, and to a lesser extent observers later clicking through tagged pictures on Facebook, can appreciate. That maybe the five-year reunion, and subsequent reunions, anniversary reports and all, have an importance that overrides their eye-roll-inducing trappings; that maybe the underlying value of reconnecting with someone who knew you when you were 20 and mostly insufferable, but who nevertheless remembers you fondly, or of returning to a place that made you the less-insufferable adult you are today, justifies the indignity of wearing a laminated nametag. That maybe wearing a laminated nametag is even somehow necessary to the rest of it.

What I am saying, Class of 2005, is that I hope you go to the reunion, and that I suspect if you do, overcoming your misgivings, you will have a wonderful time. But I'm not sure I'll see you there. My boyfriend of four years and I, who would marry each other if we weren't terrified of weddings, have just bought our first place, and I'm pretty sure I can rationalize only one major life event at a time.

Having mostly conquered her fear of the telephone, Phoebe Kosman '05, one of this magazine's former Ledecky Fellows, is a book publicist for Harvard University Press.

Local Tables

Harvard Square–area restaurants that offer something special

THOUGH SMALL, the menu at **Ten Tables** in Cambridge tends toward the exquisite. Take the short list of wine-based cocktails. The Gaston 76 is made with a lesser known French aperitif, Lillet Blanc, somewhat akin to vermouth. Here it is infused with tarragon and served over ice, with three Hollywood-thin cucumber slices idling along the inside of the glass. The slightly anise-like flavor starts out sweet but ends with a hint of the bitter (Lillet contains quinine) and an overall grassiness that opens the palate to the more unearthly delights to follow.

Restaurateur Krista Kranyak and chef/co-owner David Punch seem to have matured from their very early days of more experimental (albeit tremendously good) food at the first Ten Tables, in Jamaica Plain. In Cambridge, the food feels more refined, yet far from fussy. The flavors are richly layered, as in the saffron and tomato broth with garlicky highlights served in a stew of mussels and rock shrimp. Colors and textures, too, are given plenty of room to play.

Our first course was a deep-sea-green garlic and semolina soup with baby spinach and

COURTESY OF TEN TABLES

Ten Tables, in its new, Cambridge incarnation, has an appealing 1940s vibe and exquisite food.

truffle butter ($9). Sounds good enough. But lolling in the center of each bowl was a shelled, five-minute egg so perfectly cooked that we broke them open gently with the sides of our spoons and used the yolks to "fortify the broth," as our young waiter suggested. The resulting velvety soup hit every nerve of the spine going down, like an assertive massage. The ribboned spinach offered something to chew amid the soft, curving white flesh of the egg. Similarly, the stylishly small, tender shrimp—not the jumbo, Americanized versions—in that Rhode Island-style seafood stew ($25) had a bouncy texture while the mussels were smooth as custard. They came immersed in the spicy tomato-based broth that, even lightened by bits of parsley, kicked a little heat in at the back of the throat.

It's worth noting the carefully selected wines at Ten Tables. If you order the four-course chef's tasting menu ($40 per person), the staff pairs wines with each dish for an extra $25. A solid choice are the natural wines produced by Tony Coturri in Sonoma County. The vineyard adds nothing to the grapes; this is clean, un-manipulated winemaking at its best. We had a glass of the Sandocino—a cabernet-merlot-syrah non-vintage blend—with the steak *frites* ($25). Its deep, mineral essence had just enough fruit to play with the spice-rubbed, Meyer Ranch skirt steak, which was lean and juicy. The hand-cut French fries came with garlic aioli and delectable strips of pickled red onions (more of those next time, please!).

A Coturri vintage also showed up with dessert: the late-harvest, airy Primitivo was a tad sweeter than the chocolate terrine, which came with homemade Thai basil ice cream and sea salt ($8). Frankly, this dish almost induced hallucinosis: a sudden dip into a dark underworld cavern with swirling chocolate rivers, dangling ganache stalactites...and then the ripples of that sweet herbal cream with the salty bits to round out the trip home. The spice pound cake with rhubarb compote and crème fraîche ($8) was a mellower ride, with its slightly crusty texture and hint of burnt sugar.

These journeys through food take place in a pretty, simple setting: the basement of an old brick apartment building. Yet because it's away from a commercial center and you have to step down to enter, Ten Tables has the romantic 1940s feel of an older establishment—enhanced by its blood-red banquettes along camel-colored walls, the low ceilings, and the nicely dimmed lights. Make your reservations for Commencement Week *now.* (5 Craigie Circle; 617-576-5444)

For a similarly intimate ambiance, many flock to an older restaurant, **Casablanca,** which celebrated its thirtieth anniversary in 2008. The bar's larger-than-life Bogart-Bergman mural sets the tone for a bold array of eclectic menu items, from the ricotta dumplings with quince compote ($6) and the simple roasted almonds with sea salt ($6) to the stunning monkfish ossobuco ($29) and the braised lamb shank with pistachio mint basmati rice ($29). After dinner, stroll next door to the historic Brattle Theatre, a renowned art cinema, for some visual treats. (40 Brattle Street; 617-876-0999)

COURTESY OF HARVEST

Those who favor dining out in fine weather know that Harvest boasts perhaps the most agreeable terrace in Harvard Square.

If dimly lit interiors don't suit your mood, or you want a more straightforwardly French-inspired menu, go to the **Harvest** for a repast on one of the loveliest patios around. New England seafood lovers should try the classic raw bar ($30/$60), while those in favor of small-farmed food and produce will enjoy most of the rest of the menu. Notable choices include the Painted Hills Farm Striploin with creamed spinach and Swiss chard, foraged mushrooms, Yukon gold potato risotto, and bordelaise ($36), and the roasted chestnut and mascarpone agnolotti with native quince, woodear mushrooms, heirloom cranberries, and amaretto brown butter ($26). The menu-writer deserves a prize for prose! (44 Brattle Street; 617-868-2255)

We also appreciate the airy atmosphere of **Sandrine's,** with its big windows and glittering lights. The restaurant's French fare, with an Alsatian bent, includes the richest delights—*escargots,* foie gras, and filet mignon—along with the traditional *tarte flambée (Flammekueche),* a crispy flatbread, topped with nutmeg-scented *fromage blanc,* which comes with a variety of toppings ($10 to $14). (8 Holyoke Street; 617-497-5300)

At **Rialto,** in the Charles Hotel, celebrated chef Jody Adams offers whole roasted fish with nettles, green tomatoes, and *guanciale* (a specialty bacon made from cheeks and jowls) ($34), or veal cheeks and sweetbreads served with buckwheat spaetzle, marrow, and morels ($34). We even love the side dishes, such as orange beets with mint ($7) and wilted greens punched up with garlic and chiles ($7). (1 Bennett Street; 617-661-5050)

Farther afield, and less expensive, is the **West Side Lounge,** a friendly neighborhood favorite with fresh cocktails and a wide range of food in a comfortable setting. We are partial to the classic spinach salad with blue cheese, roasted walnuts, and Granny Smith apples ($7.95); the "breads and spreads" special for two, featuring cheesy artichoke dip, hummus, and more, ($11.95); and the succulent Prince Edward Island mussels served in a white wine and garlic broth that is soaked up by buttery toasted crostini ($8.95). (1680 Mass. Ave.; 617-441-5566)


COURTESY OF RIALTO

A beautifully plated offering of seared char, from Rialto

For a more atypical experience, go several blocks north to **Addis Red Sea,** an Ethiopian restaurant. Traditional dishes—like *ZilZil-Tibs,* strips of tender beef sautéed in oil with onions, herbs, berbere, and vinegar ($10.95)—are eaten with your hands, using a spongy bread called *injera.* The meat dishes are balanced by vegetarian choices featuring lentils, cracked wheat, and spicy cabbage. It's a colorful, cozy atmosphere smelling of hot spices and warm bread. (1755 Mass. Ave.; 617-441-8727) ~N.P.B.

Green Genes

Renovating, renting, and erecting sustainably

A multiyear renovation of the Fogg Art Museum, as seen from Broadway, began with interior demolition.

Renovation of the Fogg Art Museum complex at 32 Quincy Street got a green light this spring, signaling the beginning of a new phase for University projects in Cambridge that focus on repurposing space on existing sites. Meanwhile, the last of Harvard's new construction wound down as the Law School's Northwest Corner building began to take shape.

At the museum complex, interior demolition continued through March and into April. A small bulldozer could be seen pushing debris from a cavernous hole (in the side of the building facing Broadway) down into a waiting dumpster. As of the end of March, 87 percent of the construction debris had been recycled. The designers hope that when complete, the complex will rate a gold LEED certification. (LEED, or Leadership in Energy and Environmental Design, is a series of standards for sustainable structures set by the U.S. Green Building Council, a nonprofit building-industry consortium.)

When it concludes in 2013, the museum project will unite in one facility the Busch-Reisinger (where the roof was leaking) with the collections, galleries, and curatorial staff of the Fogg and the Sackler.

Students, faculty, scholars, and the public will have significantly greater access to the collections, not only through larger exhibition galleries, but through new, expanded study centers that will become a hallmark of the new museum. The new

Harvard Art Museum will also combine within its renovated space—and 100,000 gross square feet of new construction—ample room for conservation labs and classrooms. Climate control to preserve the artworks that Harvard owns and those it hosts as part of traveling exhibitions will be a major step forward for collection care. Security systems will also be upgraded.

Under the careful guidance of Pritzker Prize-winning architect Renzo Piano (who is simultaneously working on a new wing for the Isabella Stewart Gardner Museum in Boston), the museum's original central courtyard will be restored. Staging for that phase of the renovation began in April.


STU ROSNER

Harvard Law School's Northwest Corner building for academic and student activities should open in late 2011.

The green emphasis of the art museum project continues at the Law School's Northwest Corner building, which is also expected to receive LEED gold certification when completed in December 2011. That 250,000-square-foot building will include a garage with space for 695 cars (with the better spaces reserved for environmentally friendly vehicles), an academic center named Wasserstein Hall, space for student organizations and activities in the Caspersen Student Center, and a wing that will house the school's clinical legal programs.


STU ROSNER

Harvard is seeking tenants and co-developers in Allston.

Meanwhile, the University is pursuing a two-pronged strategy to develop and maintain its real-estate holdings across the Charles River in Allston. The nonprofit Earthwatch Institute will occupy 15,000 square feet of space in the building at 114 Western Avenue, formerly a WGBH facility; additional partnerships are being sought to co-develop other vacant property.

The Week's Events

SIGnboard
Visit harvardmagazine.com/commencement for news of SIG gatherings.

Commencement week this year includes addresses by President Drew Faust and Justice David Souter. For details and updates, visit www.harvardmagazine.com/commencement.

* * *

TUESDAY, MAY 25

Phi Beta Kappa Exercises, at 11, with poet Doug Powell and orator Natalie Zemon Davis, historian at the University of Toronto.

Baccalaureate Service for the Class of 2010 at 2, Memorial Church, followed by class picture, Widener steps.

Senior Class Family Dinner and Party, at 6. Athletic complex.

WEDNESDAY, MAY 26

ROTC Commissioning Ceremony, at 11, with President Drew Faust and a guest speaker TBA. Tercentenary Theatre.

Kennedy School Commencement Speaker, 2, followed by reception. Kennedy Forum.

Senior Class Day Exercises, at 2, with the Harvard and Ivy Orations and speaker Christiane Amanpour, CNN chief international correspondent. Tercentenary Theatre.

Law School Class Day, 2:30, followed by reception. Speaker TBA. Holmes Field.

Business School Class Day Ceremony, 2:30, with speaker Sir Ronald Cohen, M.B.A. '69, chair of The Portland Trust and Bridges Ventures, followed by a reception at 4. Baker Lawn.

Masters' Receptions (time varies by House) for members of the senior class and guests. The Undergraduate Houses.

Graduate School of Education Convocation, at 3. Radcliffe Yard.

Graduate School of Design Class Day at 4, with speaker Denise Scott Brown, principal, Venturi, Scott Brown and Associates. Gund Hall.

Harvard University Band, Harvard Glee Club, and Radcliffe Choral Society Concert, at 8. Tercentenary Theatre.

THURSDAY, MAY 27

Commencement Day. Yard Gates open at 6:45.

The 359th Commencement Exercises, 9:45. Tercentenary Theatre.

Senior Luncheon and Diploma Ceremonies, 11:30. The Undergraduate Houses.

The General Alumni Spread, 11:30. The Old Yard.

The Tree Spread, for College classes of 1919-1959, 11:30. Holden Quadrangle.

Graduate School Diploma Ceremonies, from 11:30 (time varies by school).

Alumni Parade, 1:45. The Old Yard.

The Annual Meeting of the Harvard Alumni Association, 2:30, with speeches by President Drew Faust and Justice David Souter. Tercentenary Theatre.

Medical and Dental Schools Class Day Ceremony, at 2. Speaker TBA. HMS Quadrangle.

FRIDAY, MAY 28

Radcliffe Day Luncheon, 12:30, with Radcliffe Medal recipient and speaker Gloria Steinem. Radcliffe Yard.

* * *

For updates on **Harvard reunions, Radcliffe Day, and events for graduating seniors,** visit www.commencementoffice.harvard.edu, or contact the Harvard Alumni Association (124 Mount Auburn Street, Cambridge) at 617-495-2555; haa@harvard.edu; or www.haa.harvard.edu. Information on all other professional or graduate school events may be found at their respective websites.

The Harvard Information Center, Holyoke Center, is open every day except Sunday, 9 to 5 (telephone: 617-495-1573).

A Special Notice Regarding Commencement Exercises

Thursday, May 27, 2010

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 can not be reserved. The sale of Commencement tickets is prohibited.

• Alumni/ae attending major 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 of the Harvard Alumni Association (HAA), 124 Mount Auburn Street, sixth floor, Cambridge 02138; 617-495-2555; or through the annual Tree Spread mailing sent out in March.

• Alumni/ae from non-major 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.

Afternoon Exercises

The Annual Business 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 HAA, 124 Mount Auburn Street, sixth floor, Cambridge 02138.

—Jacqueline A. O'Neill, University Marshal

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2. Contact the Club to make a reservation for the meal or activity you prefer at tmartorelli@harvardclub.com or 617-450-8431.

3. Pay by credit card for your personal introduction to the Harvard Club of Boston. (Please make these arrangements in advance by telephone, not via e-mail.)

One of the many stunning views from our One Federal Street Location.

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MAIN CLUBHOUSE: 374 Commonwealth Avenue
DOWNTOWN CLUB: One Federal Street, 38th Foor.

Montage

Art, books, diverse creations

Laura Mehlinger with a Colorfield romper, in silk with mesh streamers (left), and a silk-and-mesh veil chemise.

Highbrow Lingerie

Fashion designer Laura Mehlinger draws on inspirations ranging from Vladimir Nabokov to Prince.

by SUSAN HODARA

Lingerie and literature don't come together that often, but when naming her intimates brand, fashion designer Laura Mehlinger '01 turned to Vladimir Nabokov. Lola Haze™ alludes to *Lolita*, the subject of Mehlinger's senior honors thesis in English. "Lola" was another of 12-year-old Dolores Haze's nicknames. "It's a reference to my admiration for Nabokov," Mehlinger says, "for the way he plied his craft in such a playful, seductive, and completely masterful way."

The same adjectives could describe the way Mehlinger plies *her* craft. Consider, for example, the Ruffle Teddy from her Wabi Sabi City collection, whose sheer black bodice is hand-painted with tattoo-like ornamentation. Or her Colorfield collection, whose combinations of fuchsias, oranges, and violets were inspired, Mehlinger says, by Morris Louis's paintings and Prince concerts. Along with panties, camisoles, slips, and rompers, Lola Haze offers one-of-a-kind hand-painted silk pieces produced in collaboration with New York-based artist Charlotte Pinson. To care for all these delicates, Mehlinger created the Launderie Bag™, a lacy pouch for washing, storage, or travel.

For Mehlinger, each new collection offers the chance to express her deepest sensibilities. "Unexpected juxtapositions are what's most interesting to me about design," she says. "When something's visually expected, it blends into the background. If you're designing clothes for that purpose, that's great. But it's creating something visually jolting yet also somehow harmonious that truly inspires me."

In 2009, its second year, Lola Haze expanded into 34 stores, including Victoria's Secret, in 11 states. (Prices range from $25 to $80, for basic items, up to several hundred dollars for silk chemises with complex detailing.) "Lingerie for American women is tricky," Mehlinger says. "They're not raised to be comfortable with the idea

Photograph courtesy of Laura Mehlinger of display." Her clientele, she adds, are women who feel empowered and confident, and dress for themselves.

"I always wanted to be a fashion designer," she says. "As a child, I would spread fabric on the floor, lie on it, trace myself, and cobble together weird little outfits." Growing up in suburban Alexandria, Virginia, she filled her closet with vintage finds and clothes she sewed herself. Harvard, Mehlinger acknowledges, has never been fashion-forward: "It's neither a place where you can study fashion, nor a place where people care much about fashion. But I loved that—the serious-mindedness of it. I loved that during reading period everyone walked around in sweatpants and dirty hair."

Nevertheless, in her senior year, Mehlinger staged a fashion show in Pforzheimer House. "I assembled a 40-person volunteer team of students, including all the models," she recalled. "I designed and sewed the outfits in my bedroom. It was lots of fun, but it was also a test. I wanted to gauge whether my love for fashion was something I felt strongly enough about to throw myself into."

A Colorfield chemise, in silk with mesh streamers.

It was. After Commencement (her graduation gift was her prized Bernina sewing machine), she worked for Gap in San Francisco, then Manhattan, designing women's wear and intimates. In 2005, what began as a three-month trip became a yearlong journey traversing North Africa, Europe, Australia, and Asia. The travels bolstered her independence. "I returned with the confidence to start Lola Haze," she says.

In collabortion with artist Charlotte Pinson, Mehlinger designed a striking top (left) and bird-themed dress, both hand-painted on silk.

Each collection begins in the imagination. "I sketch and sketch and sketch," she says. "I start pushing ideas to see where they'll take me." For her "I Love/Hate Lucy" fall 2010 collection, "I was working with the concept of destruction," she says, indicating fabric samples patterned by burning and discharge dying (a chemical process that removes color in a controlled manner).

Next comes the stage Mehlinger calls "creative discipline." With her drawings tacked to the wall, she conceives the collection. "I chop what doesn't make sense,"

Chapter & Verse

Correspondence on not-so-famous lost words

Douglas Watson requests a source for: "You tell me I am wrong. Who are you to tell me I am wrong? I am not wrong." He was told the author was D.H. Lawrence, but has not been able to verify that.

James Friguglietti hopes for a citation for an aphorism attributed to Oscar Wilde: "The best way to destroy a man's reputation is to tell the truth about him."

"Learning about normal functioning from extreme cases" (September-October 2009). James Finkelstein sent an earlier statement of the principle, from William Harvey's Letter to John Vlackveld (April 24, 1657): "Nature is nowhere accustomed more openly to display her secret mysteries than in cases where she shows tracings of her workings apart from the beaten paths; nor is there any better way to advance the proper practice of medicine than to give our minds to the discovery of the usual law of nature, by careful investigation of cases of rarer forms of disease."

"I am firm. You are stubborn. He is…" (March-April). Dick Dodds found this remark attributed, without citation, to British journalist Katharine Elizabeth Whitehorn on Wikipedia, and Richard Friedman found it reprinted in *The Best of Sydney J. Harris* (1975) as "I am a man of firm principles; you tend to be stubborn; he is pigheaded." (Harris was a longtime columnist for the *Chicago Daily News.*) But Susan Zucker Leff cited S.I. Hayakawa's *Language in Thought and Action* (2d ed.; 1964), which states in chapter 6 that "Bertrand Russell, on a British Broadcasting Company radio program called the 'Brains Trust,' gave the following 'conjugation' of an 'irregular verb': I am firm. You are obstinate. He is a pig-headed fool." The *New Statesman and Nation* then ran "Week-end Competition No. 952," seeking additional examples, and printed the best of the 2,000 results on June 5, 1948, validating recollections by Fran Donohue Hanson, Diane Zelby Witlieb, and Martin Mayer of such a contest. Witlieb forwarded one remembered example ("I have reconsidered it. You have changed your mind. He has gone back on his word."), Mayer another ("I have about me something of the subtle, haunting, mysterious perfumes of the Orient. You rather overdo it, dear. She stinks.").

"…unwise to publish one's theory until late in life" (March-April). Herb Klein was the first of several readers who identified this passage from the introduction of Harvard professor Daniel Gilbert's 2006 bestseller, *Stumbling on Happiness.*

Send inquiries and answers to "Chapter and Verse," *Harvard Magazine,* 7 Ware Street, Cambridge 02138, or via e-mail to chapterandverse@harvardmag.com.

Photographs courtesy of Laura Mehlinger

she says. "I assign colors and fabrics. I make sure there's unity and relevance, that the pieces don't eat at [work against] each other, and that nothing is superfluous." This phase embodies Mehlinger's highest aspirations. "I'm not talking about the discipline it takes to work hard, because that's a given," she says. "I'm talking about making creations that suit the consumer. I want to design things that wearers will love, that will become emotional for them and work within their lives."

Mehlinger has refined her understanding of the relationship between commerce and creativity. "I used to think it was like a Venn diagram," she says, "with a place where both could coexist. But ideas that push fashion forward, that really make

> "But ideas that push fashion forward," she says, "that really make you think, do not have mass appeal."

you think, do not have mass appeal. So I've come to see it more as a spectrum."

In determining her position on that spectrum, Mehlinger has looked to other designers she admires, like Issey Miyake, whose lines incorporate both innovative and commercial pieces. Each Lola Haze collection includes designs that are more intricate and higher priced ("a little more fun and interesting," she says) along with more commercial, "everyday-comfortable" pieces. "I'm still learning, but I've been surprised at how many people end up buying the crazy things."

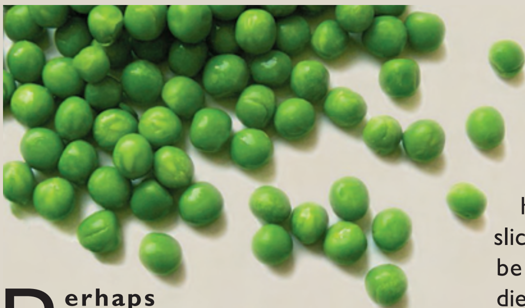
As a one-woman operation based in Brooklyn, Mehlinger sews her own prototypes, which she uses to market her goods. Sales are primarily wholesale, generated by word of mouth, through the company's website (www.lolahaze.com), and at the twice-yearly CURVExpo lingerie trade show. Mehlinger supervises production at a factory in the city's garment district. "I go there carrying my bolts of fabric," she says. "I love being such a *garmento!*"

Susan Hodara '75 is a freelance journalist whose articles have appeared in the New York Times *and other publications.*

O P E N B O O K

The Green-Pea Memo

Neil J. Smelser '52, Ph.D. '58, JF '58, is an acclaimed sociologist and scholar of higher education, at Berkeley and the Center for Advanced Study in the Behavioral Sciences. (In the latter capacity, he advised Dean Drew Faust on the new Radcliffe Institute's role and structure.) His *Reflections on the University of California* (California, $45) would be an ideal gift for President Faust and Corporation members, Overseers, deans, or department chairs, for its lucid, enduring 1994 essay on governing that institution. Turns out he is also a wicked satirist: the "Thanksgiving Dinner Report," a 1977 mock memo on serving the meal to study-abroad students in England, was written, he observes, "to poke fun at the academic-bureaucratic mentality of university life." Herewith, an unseasonable excerpt, beginning with wisdom from Ruth Eigner, a predecessor:



Perhaps her most important piece of advice concerned the issue of green peas. She warned, "avoid serving green peas." Upon being pressed for reasons she said that green peas have a way of falling off plates, and that they fall between things. The main things they fall between, moreover, are students' shoes and the carpet. This suggestion made good sense to all of us, except Alan Nelson [associate director], whose house has a carpet that is pea-green in color. He forcefully presented the argument that it was in *his* house that the green peas were going to be served, and if crushed they would not show on his carpet. He actually went so far as to suggest that crushed green peas might be of some organic value to the carpet.... After weighing the arguments, I ruled against green peas. As a matter of fact, I was sufficiently impressed with Ruth Eigner's advice that I submitted to the staff the idea of imposing a *general* size limitation on things served, thinking, perhaps, that no single item should be smaller than an American-size golf ball. This idea proved overdrawn, largely because it was too restrictive. It would, for instance, have ruled out carrot sticks and sliced cucumbers, which proved to be a refreshing change from the diet of overcooked vegetables that our students had been eating in various universities' dining halls....

You should also be aware of the paper plate problem. I do not want to appear critical of the British paper manufacturing industry, but I have to say that paper plates are not their *forte*....

Actually, working on the paper plate problem served to deepen my thinking on the issue of green peas. After considering the matter carefully, I have decided that it is not completely fair to claim that green peas, *as such,* constitute the problem. To think that way is to penetrate the issue only superficially. Rather, it is when you begin to think of green peas *in combination with* soggy paper plates that you advance toward grasping its essence. In fact, I would put the primary onus on the plates rather than the peas; almost *anything* would fall off those plates. When you move beyond thinking about green peas alone, in short, the green-pea issue itself becomes much less significant and pressing. I thought I would pass this insight on to you, so that you might share it in the future with directors-elect and their spouses.

ISTOCK

Skyscraper as Symbol

The semiotics of skyscrapers

A SKYSCRAPER, unlike a sculpture or painting, cannot be the work of a single artist. It arises from numerous contingencies and collaborations among architects and CEOs, steelworkers and engineers, bankers and billionaires. Like the Great Pyramids of ancient Egypt, the skyscraper is—in our own time—perhaps the ultimate symbol of cultural production. The period since 9/11, thought by some likely to signal the demise of huge towers, has instead seen the biggest surge ever in their construction. Nearly half of the world's skyscrapers have been built since 2000.

There is "no artifact more synthetic and comprehensive in our contemporary world than the skyscraper," writes Scott Johnson, M.Arch. '75, in *Tall Building: Imagining the Skyscraper* (Balcony Press, $34.95). As a principal of the California architectural firm Johnson Fain, he has designed more than a few tall buildings himself.

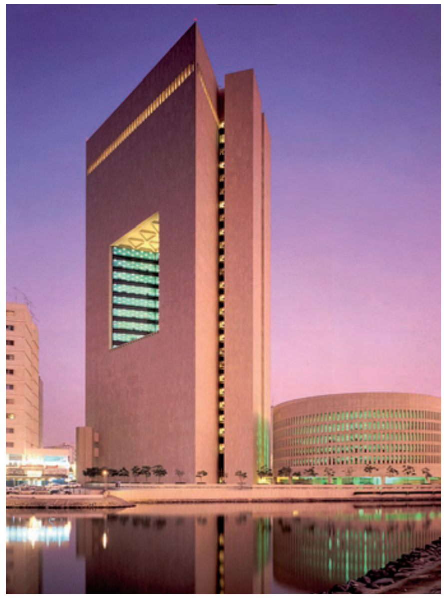
Expedience, transcendence, ambition, and dominance: these are the principal reasons why tall buildings emerged and why they continue to be built, says Johnson. Initially, land values in places like downtown Chicago and New York City drove expansion skyward, enabled by technological developments like elevators, curtain walls, and high-strength steel.

But today, "like so much in our lives, skyscrapers have become semiotic things," Johnson said in an interview. From San Francisco's Transamerica Pyramid (designed by Pereira Associates, Johnson Fain's corporate predecessor), where the final design was chosen by Transamerica's then-CEO and ended up becoming the symbol of the company itself, to Dubai's Burj Khalifa (formerly Burj Dubai), a national monument to modernity and global reach, tall buildings signal aspirations. Burj Khalifa, for example, at 2,717 feet, is taller than Chicago's Sears Tower and Manhattan's Empire State Building combined.

Visit harvardmag.com/extras to see more examples of skyscrapers

Johnson traces a number of the forces that have created skyscrapers, including the increasingly prosperous cities of Asia and the Middle East and the rise of mixed use. "In 1996," he says, "eight of the 10 tallest buildings were in the United States, and only one was mixed use"—retail, recreational, office, and residential. Today, all 10 of the world's tallest buildings are outside the United States and *all* of them are mixed use. "We are moving *vertically* to enact all the rituals and activities of our daily lives," he explains. "Living on one floor, shopping on another, exercising, seeking open air, attending parties on others. It's transformational."

Bioclimatic concerns—air and light—have been another important shaping influence in modern buildings. English architect Norman Foster has found ways to



©WOLFGANG HOYT/ESTO

©ADRIAN SMITH + GORDON GILL ARCHITECTURE; PHOTOGRAPH BY JAMES STEINKAMP PHOTOGRAPHY

Top: The National Commercial Bank, in Jeddah, Saudi Arabia, has shaded interior windows, an environmental response to its desert environment. Burj Khalifa, in Dubai, United Arab Emirates (at right and below), at 2,717 feet, is the world's tallest tower.

©ADRIAN SMITH + GORDON GILL ARCHITECTURE; PHOTOGRAPH BY JAMES STEINKAMP PHOTOGRAPHY channel natural light to the very center of his buildings, while the Malaysian architect Ken Yeang gouges out his buildings' skins to create profusely planted microclimates in sun or shade.

Clockwise from left: Norman Foster designed the Swiss Re building in London to channel light and air throughout its astral form; a skyscraper in Doha, Qatar, advertises the 2006 Asian games; Peter Eisenmann's unbuilt design for the Max Reinhardt Haus rethinks the linearity of tall buildings.

MIKE HEWITT/GETTY IMAGES

Just as in the 1950s and '60s there were clear resonances between the world of architecture—with its "pure, sleek" skyscrapers—and the minimalist creations of the fine arts world, says Johnson, today the influence of the information age has reached tall buildings. In an extension of their semiotic role, their surfaces are being rethought to carry visual content and information. In certain places in city centers, their exteriors have become not only battlegrounds, but also more valuable than the space within. Johnson recounts landlord struggles with residential neighbors bothered at night by illuminated signage, on the one hand, and with tenants angered by reduced daylight after an advertising scrim is suddenly hung on the building. Recently, a developer was offered more money for the exterior of a building than the residential units inside could generate.

FOSTER + PARTNERS

COURTESY EISENMAN ARCHITECTS, PHOTOGRAPHER DICK FRANK (1:200 MODEL, WEST ELEVATION)

The fight for the exterior of tall buildings, Johnson says, is clearly the next big conversation. If we are indeed on the cusp of a new reason for building skyscrapers, Johnson's view is that public art might play a role. "A tall building is de facto a potential work of art," he argues. "It may be privately financed and occupied, but it is in the public realm—it is a wall of the public right of way."

~JONATHAN SHAW

A Cautionary Tale

Inflation and its painful aftermath

by DAVID WARSH

ROBERT J. SAMUELSON '67 had the bad luck to send *The Great Inflation and Its Aftermath: The Past and Future of American Affluence* to the printer the spring before the recent financial crisis became acute. The book reached stores just in time for the November 2008 election, and, even though it received respectful reviews, it was swept aside by events. Now Samuelson is back with a paperback edition, somewhat revised and updated, with a new introduction addressing the significance of the financial cataclysm of the last couple of years.

Lucky Sam. It turns out that there's a double-barreled moral to his story. A little like Edward Gibbon, Samuelson started out to write a history and finished with a cautionary tale.

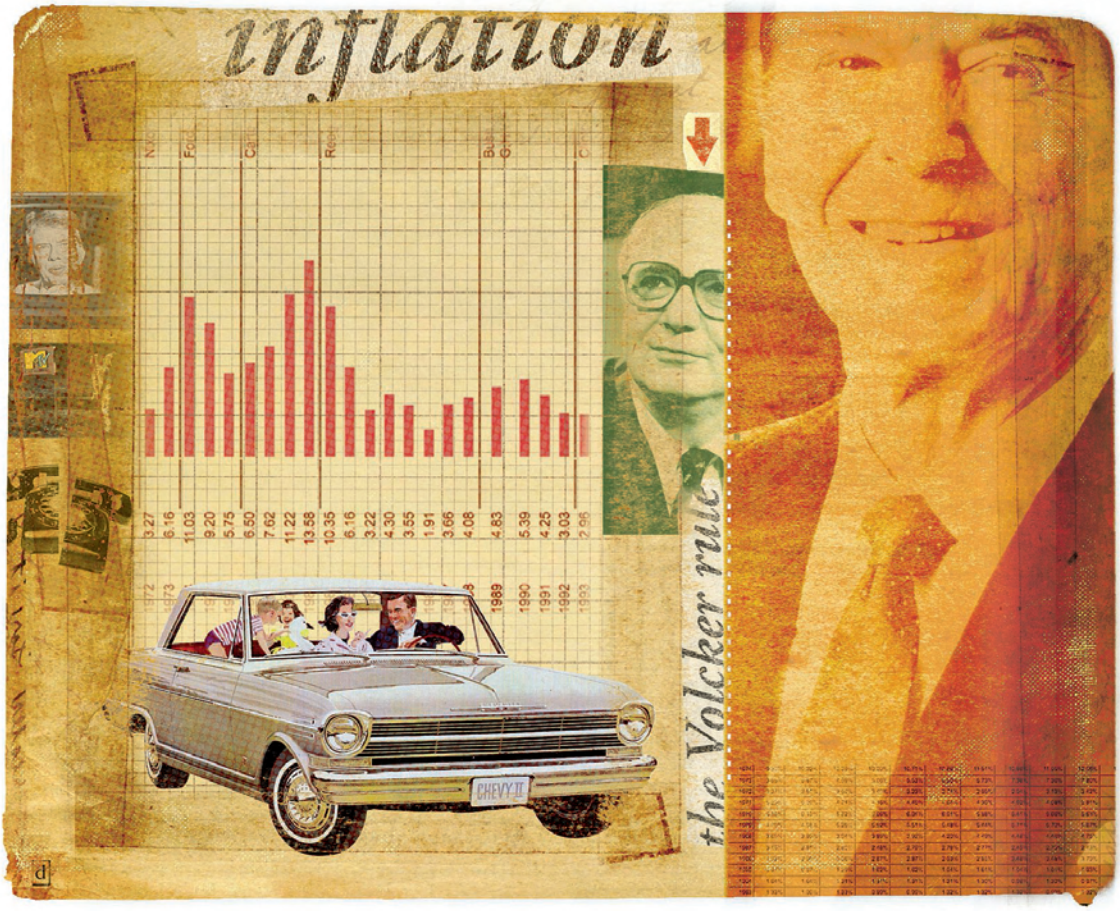
Anyone born after, say, 1965, might have been puzzled at the sudden prominence assigned to Paul Volcker this past January. The Democrats had just lost their supermajority. A little-known Massachusetts Republican state senator named Scott Brown surprised everyone by winning the Senate seat that Edward M. Kennedy '54, LL.D. '08, had held for nearly 50 years.

Suddenly there was the 82-year-old Volcker, summoned to the White House to stand at President Barack Obama's side as he announced that "the Volcker rule" would guide the administration's efforts to reform the banking industry—federally insured banks should be barred from speculative activity unrelated to their business. Yet it had been more than 20 years since Volcker had retired as chairman of the Federal Reserve Board. The banking lobby, and the Senate, quickly dismissed his rule. What could the old man add? In fact, under the circumstances, Volcker was

Robert J. Samuelson, *The Great Inflation and Its Aftermath: The Past and Future of American Affluence* (Random House, $17 paper)

probably the next best thing to George Washington.

Anyone of college age or older in the summer of 1979, when President Jimmy Carter named Volcker to the Fed, probably recognized that the appointment turned out to be one of the two most memorable things that happened to the United States between 1979 and 1987—that is, besides the personal computer, the AIDS pandemic, MTV, and *Spy* magazine. The other one was the election of Ronald Reagan in 1980.



Samuelson originally wrote to explain what he calls the "lost history" of the last 50 years—how the rise of inflation in the 1960s and 1970s produced one sort of crisis in 1980, and how the disinflation of the 1980s and 1990s laid the groundwork for a crisis of a different sort in 2008. He is well qualified for the task, having begun writing about political economy (as a cub for the *Crimson*) when John F. Kennedy was in the White House, and having written about it ever since—after 1984 as a columnist for *The Washington Post* and *Newsweek.*

A slow writer, he laboriously produced one book in the 1990s—*The Good Life and Its Discontents: The American Dream in the Age of Entitlement*—which argued that the American Dream had escalated into an unrealistic American Fantasy. In the next decade he spent most of his spare time writing *The Great Inflation and Its Aftermath*, "lest the entire episode slip from our collective consciousness." The mistake that America made in Vietnam looms large in historic memory, he writes; the mistake of inflation does not.

True, it is hard now to remember, much less imagine, how differently money signified in 1962. A candy bar or a copy of the *New York Times* cost a nickel, a beer 15 cents, a gallon of gas 35 cents, a bag of groceries $5, and a full-sized Chevrolet $2,529. Credit cards, to the extent they existed, were irregular company "charge-plates." Inflation was just getting under way.

The United States was involved in a great contest with the Soviet Union in those days—racing to the moon, staving off a missile crisis in Cuba, beginning a revolution in civil rights, going to war in Vietnam. Congress declared a second war, on poverty, and in 1965, authorized Medicare and Medicaid. The rising price of silver forced the U.S. Treasury Department to quietly stop circulating silver coins in July 1967. Clandestine smelters, run by enterprising gangsters and amateur crooks, went to work and, all but unnoticed in the next two years, silver dimes, quarters, and half dollars vanished from the nation's coinage, replaced by shiny silver-colored clad versions.

By the late 1970s, the consumer price index was rising at an annual rate of more than 10 percent. Inflation had become an infuriating, dizzy-making complication in all kinds of everyday decisions. A pair of explosions in the price of oil had convinced many Americans that the world was running out of the stuff. The economy was stagnant. Unemployment was high. The stock market had gone sideways for a decade. Pessimism was deeply ingrained. In *The Zero Sum Society*, Lester Thurow pronounced the political economy "paralyzed."

And then in late 1979, Volcker slammed on the monetary brakes. A year later, Reagan was elected. The two men made a "compact of conviction," Samuelson says. Volcker assaulted inflationary expectations, raising interest rates to unprecedented levels—banks' "prime rate" reached a record 21.5 percent—and throwing millions out of work. Reagan provided political support. The president also cut taxes, fired striking air-traffic controllers, broke up the phone company, and taunted the Soviet Union with his Strategic Defense Initiative.

By the time the bitter recession ended in 1982, the inflation rate had dropped from 11 percent to barely 4 percent—and then stayed there, despite big budget deficits. The United States began a 25-year boom, the longest in its history. Samuelson calls this "the restoration of capitalism"—more stable and productive, but more crass and cruel. In 1984, Jane Bryant Quinn and Samuelson replaced Milton Friedman and Thurow (who earlier had taken over from Paul Samuelson, to whom Robert J. is no relation) as the economics columnists at

Illustration by David Vogin

Newsweek. The change was emblematic: goodbye, great themes and expertise; hello, home economy and common sense.

According to Samuelson, the traumatic inflation of the Sixties and Seventies didn't have to happen. It was "a self-inflicted wound that resulted from collective hopefulness and intellectual overconfidence." President Kennedy was led astray by his Keynesian advisers, with their counsel that he seek to maintain "full employment" and reduce "output gaps"—subtle technical concepts quite impossible to translate into salable political propositions. Traditions of good housekeeping, such as balanced budgets and the necessity of occasional recessions to check inflation, were forgotten. The brilliance of Volcker and Reagan stemmed from the essential simplicity of their principles, he

The traumatic inflation resulted from "collective hopefulness and intellectual overconfidence."

says. Not surprisingly, Samuelson's influence in Washington reached its zenith in the mid '90s, when his espousal of Eisenhower-era balanced budgets framed the contest of wills between Newt Gingrich and Bill Clinton, which in turn finally led to a budget surplus after a period of rapid growth at the end of the decade.

Alas, success brought complacency. The expansions of the 1980s and (especially) the 1990s were intoxicating precisely because they contrasted so starkly with what had gone before. Eventually the virtuous circle turned vicious circle of overconfidence and avaricious abandon. Samuelson has very little to say about the politics of the '90s and the '00s—Bill Clinton appears just once in the index of the book, and George W. Bush not at all. Searching for villains is beside the point, he says. The problem was that 25 years of slowly declining inflation rates subconsciously conditioned nearly everyone to believe that growth would bail them out of any and all mistakes.

Well, so much for that. What next? Are the trillions being spent to save the banks and stimulate the economy foretelling an inflationary doom? Samuelson writes cautiously, "In theory, at least, the huge quantities of cheap money and credit might threaten a subsequent inflation if the economy recovers and they are not withdrawn in timely fashion. The outcome will help define the next economic era." He stops short of predicting another long hubris-fueled cycle of grandiose expansion that must be finally reined in by another "compact of conviction" somewhere in the years ahead, but that is the implication of his cautionary tale, and clearly he is worried about it. Barack Obama's "sweeping agenda," he says, would enlarge the role of government and shrink the role of private enterprise.

Mainly, though, Samuelson sticks to the message of his columns of the last 25 years. The overly generous entitlements of the welfare state need to be reined in. Households must take more responsibility for individual savings. New government services necessitate new taxes. Governments can't force economic growth, though there are things they can do to influence it. Government budgets should show a surplus in good times so that they can spend freely in the inevitable bad times. And a low inflation rate is a precondition for a healthy economy. Those Eisenhower-era verities that John F. Kennedy declaimed against weren't so stupid after all!

David Warsh '66, author of Knowledge and the Wealth of Nations: A Story of Economic Discovery, *is proprietor of the weekly online column economicprincipals.com.*

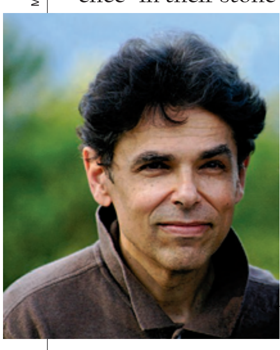
New Ancient Sculpture

Abstract forms that span millennia

by PAUL GLEASON

FROM THE WINDOWS in his studio, sculptor James Dinerstein '69 can look out at Newtown Creek, the thin waterway separating Brooklyn from Queens. The dozen or so works inside the studio occupy an in-between space, too: they are postwar abstractions that have an archaic solidity and heft.

Beckoning (2008), for example, near the back of the room, gestures dramatically in three or four directions, as if about to fly apart. On closer inspection, though, the sculpture is quite substantial, its pale, ghostly form composed almost entirely of concrete. An older piece, *Solitary Figure* (1995), cast in bronze, stands in a corner like a sentry, yet looks ready to march out the door and off into Brooklyn. Dinerstein (DYE-*ner-steen*) loves ancient art, including Egyptian pieces and especially the archaic Greek statues of male and female human figures, *kouroi* and *korai*. He marvels at what he calls the "stilled and vital presence" in their stone bodies.



MARY MAGRINAT

James Dinerstein

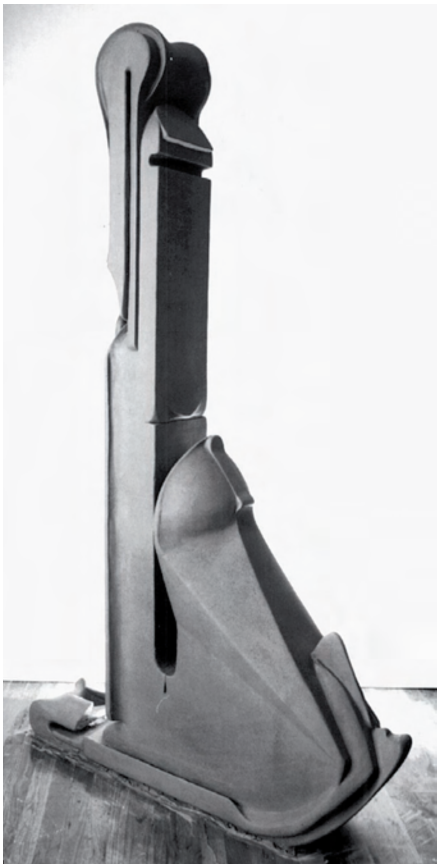
Twentieth-century art, from Pablo Picasso's Cubism to Anthony Caro's Constructivism, also appeals to him. At St. Martin's Art School in London, he studied with Caro, the English sculptor who famously assembled his art from scraps of industrial metal. "The structural language of ancient art and modern abstraction are commonly seen as antipodal to each other," Dinerstein says. Caro's sculptures were about the relationships of their different parts to each other, not about the parts themselves. The inner life of ancient sculpture (its expressive plasticity and modeling of a solid mass) "hasn't been a part of abstract sculpture in a long time," Dinerstein says. "My new work tries to bring them together in a successful unity." He doesn't see any point in making sculpture if he can't use physical material in a way that makes his art seem almost alive.

BECKET LOGAN

***Beckoning* (2009), one of Dinerstein's recent concrete sculptures**

Dinerstein's style, marrying *korai* and Caro, has won him acclaim in the *New York Times* and solo exhibitions. In 2008, the Poetry Society of America chose him to inaugurate its *Studio Visits* program, sponsoring a reading in his studio by former American poet laureates Louise Glück and Robert Pinsky. As part of the program, Bass professor of English Louis Menand wrote an essay on Dinerstein's work, comparing it, at one point, to sculptor David Smith's, and likening one Dinerstein piece, *Sudden Inclination* (2007), to an aging Frank Sinatra sitting on a stool. "Formally, they are abstract, but the shapes are vaguely figurative," Menand

Visit harvardmag.com/extras to see more of Dinerstein's sculpture



JIM DINERSTEIN

***Solitary Figure* (1995), shown here in clay, was cast in bronze.**

wrote. "[T]hey seem archaic and modernist at the same time. In other words, they are original" (the full text appears at www.jimdinerstein.com). The sculptor himself feels that he is indeed breaking new ground: "I can't think of quite anyone who's doing sculpture in this way," he says.

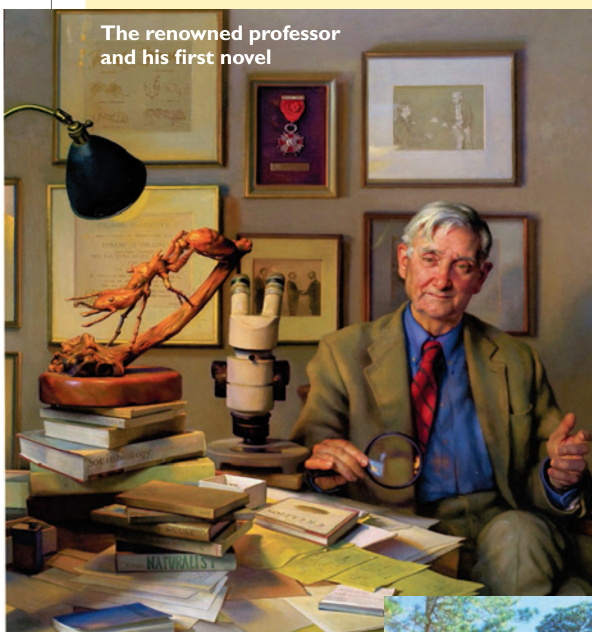
Dinerstein's latest works, the Newtown Creek Series, have all begun as skeletons of steel rebar and wire mesh. The sculptor then takes ordinary, sand-based patching cement (faster drying and yet more plastic than its stone-based, sidewalk cousin) and layers it over the armature from the bottom up. "The way I work cement, it's pliable," he explains. "At some point it's almost like clay, and then it's hard like stone. I can go back and forth; it's additive." As he adds more and more concrete to the frame, Dinerstein imagines the sculpture growing out of itself—each layer he adds opens new possibilities, while closing others. "These massive walls of cement are conceived as wholly plastic, through and through," he explains. "They wind up having a calligraphic freedom of movement, a fluidity of forming, that doesn't fit with the everyday notion of how cement

Off the Shelf

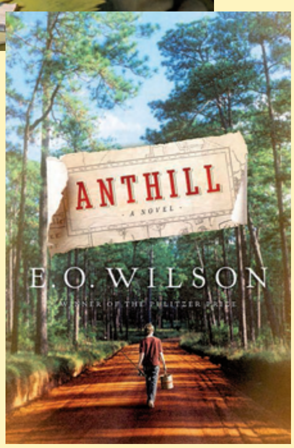
Recent books with Harvard connections

Anthill, by E. O. Wilson, Pellegrino University Professor Emeritus (W.W. Norton, $24.95). The Pulitzer Prize-winning myrmecologist, sociobiologist, and biodiversity advocate has a new trick: a novel. Raff Cody, the protagonist, shares the author's Alabama roots, but his Harvard experience, in defense of wildlife, is at the Law School.

Last Looks, Last Books, by Helen Vendler, Porter University Professor (Princeton, $19.95). Drawing on the Irish custom of "taking the last look," the preeminent poetry critic assesses the terminal books, and their coming to terms with life's end, of Stevens, Plath, Lowell, Bishop, and Merrill.


The renowned professor and his first novel

NELSON SHANKS/NATIONAL GALLERY



The Politics of Happiness, by Derek Bok (Princeton, $24.95). Harvard's prolific president emeritus continues his quest for an improved public life by exploring recent social-science discoveries that point to enduring sources of satisfaction and fulfillment (rather than earning quick riches)—and linking them to suitable policies for family support, retirement security, and, yes, education.

The Devil in the Holy Water, by Robert Darnton, Pforzheimer University Professor (University of Pennsylvania, $34.95). The director of the Harvard University Library (see page 36), an historian of the book, here indulges his scholarly appetites in a juicy subject: "the art of slander" as deliciously perfected in France from Louis XIV to Napoleon.

For All the Tea in China, by Sarah Rose '96 (Viking, $25.95). A story of industrial espionage: the British East India Company's 1840s dispatch of a Scots botanist into forbidden territory to steal the secret of tea cultivation and processing.

Crisis and Command, by John C. Yoo '89 (Kaplan, $29.95). The author, now a law professor at Berkeley, helped frame the Bush administration's controversial legal response to terrorism after 9/11 (see "The War and the Writ," January-February 2009, page 24). Here he completes a trilogy making his case for expansive executive power.

Rule of Law, Misrule of Men, by Elaine Scarry, Cabot professor of aesthetics and the general theory of value (MIT, $14.95). The author's collected essays from 2001 to 2008 assailing the "deformation" of law—"relentless and ruthless acts of lawbreaking, actions designed to extend executive power"—contra John Yoo, above.

One Flight Up, by Susan Fales-Hill '84 (Atria, $25). The author, writing from a suitable Park Avenue address, confects a novel of four privileged Manhattan women—a divorce lawyer, a gynecologist, a gallery owner, and an heiress—and their menfolk. Among the acknowledgments: "to my psychiatrist."

Cervantes' Epic Novel, by Michael Armstrong-Roche '84, Ph.D. '00 (University of Toronto, $70). The Wesleyan associate professor rehabilitates a great prose epic (and wonderful quiz stumper): not *Don Quixote,* but the overshadowed *Labours of Persiles and Sigismunda.*

Rethinking the MBA, by Srikant M. Datar, David A. Garvin, and Patrick G. Cullen (Harvard Business Press, $39.95). Two Harvard Business School professors and a research associate take on "business education at the crossroads," prompted by HBS's centennial—and public dismay at senior managers who exacerbated the financial crisis. They find a need to "rebalance" technical skill with "essential professional competencies."

Bargaining with the Devil, by Robert Mnookin, Williston professor of law (Simon & Schuster, $27). The chair of the program on negotiation dissects when to negotiate and when to duke it out, drawing on examples from Churchill to IBM to the San Francisco Symphony's contract talks (an example plumbed in "Peacemakers," March-April 2004, page 52).

The Neural Imagination, by Irving Massey, Ph.D. '54 (University of Texas, $55). An emeritus professor of English and comparative literature at SUNY Buffalo shows how neuroscientific and aesthetic approaches to art can reinforce, rather than reduce, one another.

The Two Hendricks, by Eric Hinderaker, Ph.D. '91 (Harvard, $35). From the University of Utah history department, Professor Hinderaker peers across space and time to the Colonial frontier to untangle a revealing tale of Anglo-Iroquois interactions in colonial America.

Girl in Translation, by Jean Kwok '90 (Riverhead, $25.95). In this debut novel, a girl with "a knack for school" moves from Hong Kong to New York and a life shaped by a strange new language and work in a sweatshop. The plot in part mirrors the author's own experiences.

BECKET LOGAN

Louis Menand has likened the concrete *Sudden Inclination* (2008) to an aging Frank Sinatra sitting on a stool.

behaves." In this way, the material helps shape the finished work.

Until about six years ago, bronze was his medium. He switched to concrete partly because the bronze was too expensive, and partly because the actual metal pouring had to be done elsewhere. (He used a foundry in Trenton, New Jersey.) Dinerstein prefers molding his material by hand, and, perhaps surprisingly, finds the concrete easier to work with than either clay or bronze. For a few days after he applies the concrete, he can still shape it with metal scrapers designed for clay. But the concrete's toughness also allows him to carve an array of incisions, channels, and reliefs into the surface of each sculpture. Bronze is too hard to cut this way; clay would simply fall apart. After the rough shape of the sculpture hardens completely, Dinerstein uses diamond-coated files to add the final accents.

A single piece takes a few months to complete, but his style took years to develop. At Harvard, Dinerstein studied both ancient and modern art, and took life-drawing classes in the basement of Adams House. During college, he met his wife, architect Lia Gartner '69, who earned her professional degree at Columbia while Dinerstein studied in London. After completing his work there, the Brooklyn native returned to New York City and began the experiments in material and form that have culminated in his newest, concrete sculptures.

JIM DINERSTEIN

The bronze *Canon* (1997), more than seven feet tall, is at Grounds for Sculpture in New Jersey.

Artists, he believes, "find their voice by absorbing everything of history they can and smelting it down in their imagination, then coming out with their own language." In his mind, the Newtown Creek Series expresses both antiquity and modernity. "I would need several lifetimes," he says, looking over his work, "to realize the possibilities that are inherent in these things." ▽

FORUM

THE PAY PROBLEM

Time for a new paradigm for executive compensation

BY JAY LORSCH AND RAKESH KHURANA

Concerns about the compensation of chief executive officers and other top executives of American public companies have reached fever pitch since the financial crisis and the economic meltdown of 2009. Some observers blame the recent recession in part on the flawed compensation arrangements for the top management of major financial institutions. Nor are such concerns new. For almost 20 years, a growing chorus of voices—including some shareholders, the business media, policymakers, and academics—have been criticizing the way top managers are paid. The criticisms focus particularly on CEOs not only because they are the highest paid, but also because their compensation sets the pattern for executives beneath them.

Like previous criticisms, the current complaints focus on two issues: executives are paid too much, and current incentive-pay schemes are flawed because the connection between executive pay and company performance is mixed at best—and at worst has led to a series of dysfunctional behaviors.

Whether executives are paid too much is highly contested. Some institutional shareholders, politicians, and the public (as measured by opinion surveys) believe that CEOs are overpaid, while other shareholders, board members, and executives themselves disagree. What cannot be disputed is that American CEOs make more money than CEOs in other countries, largely because of a greater reliance on incentive pay (see the details opposite). Further, American CEOs are paid increasingly large amounts relative to the average employee and their immediate subordinates. Finally, it is clear that the rise in executive pay contributes to the skewing of income distribution in the United States.

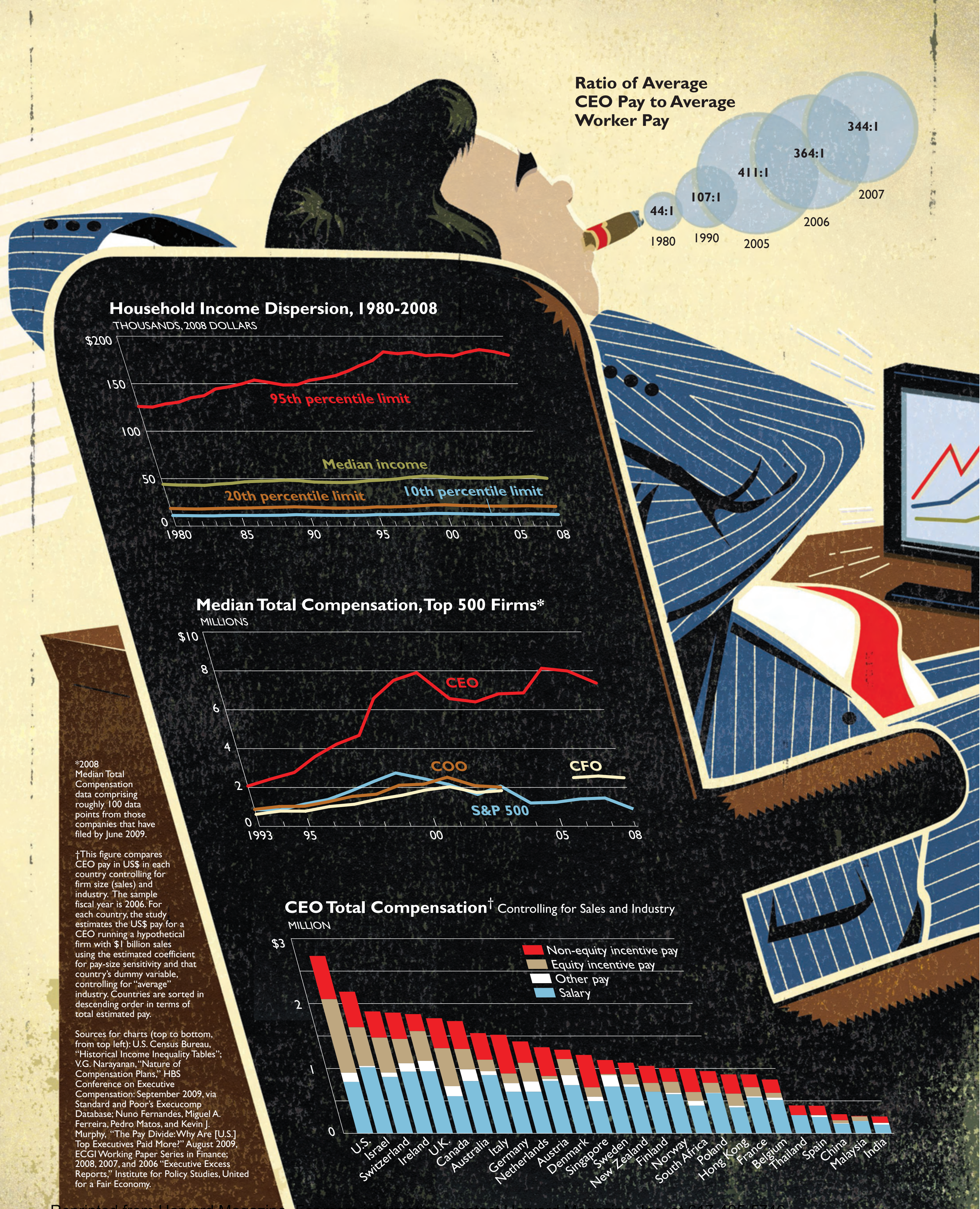
Less clear is evidence about the link between executive compensation and performance. The most comprehensive survey examining the link between CEO pay and performance found that changes in firm performance account for only 4 percent of the variance in CEO pay. This may in part reflect CEOs' ability to game the system, or even the perverse effects of incentives that promote *dysfunctional* behavior.

The solutions offered for the problems of excessive levels of executive pay and the need to strengthen the link between pay and performance often hit on the same themes: strengthen the independence of directors and compensation committees; increase the shareholders' rights to elect directors and to express their views on compensation plans, to discourage gaming and align incentives more closely with the aims of the owners. It is also tempting to suggest that these problems can be solved by better compensation schemes or improved techniques to link CEO pay to stock performance.

We disagree with the premises underlying these remedies. Instead, we find that the current compensation trouble stems in large part from unexamined assumptions that have fundamentally changed the nature of executive compensation and radically shifted the way that boards, executives, and even the larger society regard the corporation and its broader purpose.

In fact, the problems of executive compensation are symptomatic of larger societal questions. They cannot be resolved without considering the purpose of executive compensation—what behaviors, attitudes, and values we are trying to motivate in our business leaders—and indeed the larger purpose of business in American society. We assert that the current approach to executive compensation is an outgrowth of a pervasive paradigm that boards, senior executives, and indeed even those of us educating future and current business leaders have adopted about the purpose of the corpo-

Illustrations by Stanford Kay



*2008 Median Total Compensation data comprising roughly 100 data points from those companies that have filed by June 2009.

†This figure compares CEO pay in US$ in each country controlling for firm size (sales) and industry. The sample fiscal year is 2006. For each country, the study estimates the US$ pay for a CEO running a hypothetical firm with $1 billion sales using the estimated coefficient for pay-size sensitivity and that country's dummy variable, controlling for "average" industry. Countries are sorted in descending order in terms of total estimated pay.

Sources for charts (top to bottom, from top left): U.S. Census Bureau, "Historical Income Inequality Tables"; V.G. Narayanan, "Nature of Compensation Plans," HBS Conference on Executive Compensation: September 2009, via Standard and Poor's Execucomp Database; Nuno Fernandes, Miguel A. Ferreira, Pedro Matos, and Kevin J. Murphy, "The Pay Divide: Why Are [U.S.] Top Executives Paid More?" August 2009, ECGI Working Paper Series in Finance; 2008, 2007, and 2006 "Executive Excess Reports," Institute for Policy Studies, United for a Fair Economy.

ration, what it means to be a business executive, and to whom and for what executives are responsible.

The American Way of Pay

To understand our perspective requires understanding how corporate America arrived at its current compensation policies. In mid-twentieth-century business articles and textbooks, one finds references to executive "salaries"; mention of incentives (in cash, stock, or options) is an exception. As a management professor stated in 1951, "It is usually unwise to have a large proportion of executive pay consist of incentives."

Complexity and consultants. But by the 1970s and 1980s, compensation packages for CEOs and other senior executives included more incentives, and those incentives were paid in stock and options as well as cash. These arrangements were often worked out in discussions and negotiations between the CEO and the compensation committee of the board of directors, and then ratified by the entire board. As the complexity of companies and their compensation arrangements increased, a new actor emerged to provide ideas and advice to both executives and corporate directors—the compensation consultant. Because these consultants promoted themselves as disinterested, objective experts, many board members with limited time and knowledge about compensation matters came, not surprisingly, to depend on—and increasingly accept, uncritically—the consultants' advice.

At the core of that advice was the alleged power of incentive compensation to motivate executives. Directors often found themselves sympathetic to such an idea, and perhaps also were compromised about the basic premises behind CEO pay by the fact that they were often active CEOs themselves. But the advice about the importance and efficacy of such incentives was based more on the power of an idea than on clear empirical data. Moreover, the consultants had their own reasons to keep their client executives happy. As Arch Paton, a McKinsey partner and compensation expert explained in 1985, "For their part the consultants like to satisfy this well meaning desire of the executive and frequently have substantial other income from the client to protect. This could create a conflict of interest[,] for consultant recommendations below the expectations of the executive might not be well received. Further[,] as time goes on[,] the consultant may come to regard the *executive* as his client rather than the *company*." [Emphasis added.]

The motivation model. The underlying assumption that executives would work more effectively if their monetary rewards were tied to the results they were achieving built on earlier ideas about incentives for factory workers, sales representatives, etc., that go back to the piece-rate schemes advocated by Frederick Taylor and other proponents of Scientific Management. But these prescriptions missed two complications when applied to senior executives:

- that very often executives have little or no control over the results they are supposedly being rewarded for achieving; and
- that the results of a company are more often produced by a group of executives or even by an entire organization's effort, and only rarely by a single individual. Although some scholars had pointed out that incentives work only when individuals had a clear "line of sight" between their efforts, the results achieved, and the rewards being offered, such complications were increasingly ignored as boards accepted the consultants' assumption about what motivated executives.

A related and equally unexamined assumption was that executives worked primarily for money. Such rewards as future promotions, the intrinsic satisfaction of achieving results, and the pride taken in belonging to a successful company were overlooked and sometimes denigrated. Even for American business executives who value the "almighty dollar" so highly, these other rewards have important meaning. That is another reason for our strong reservations about whether the heavy reliance on incentive compensation delivers the results that its proponents believe it does.

The market fallacy. Even as attitudes toward executive compensation changed inside firms, changes related to the larger market for CEOs—and a new intellectual framework about the purpose of the corporation—would complete the superstructure that has governed the executive compensation process for more than three decades.

Increasing turnover in chief executive suites contributed to a belief that there is a robust and well-functioning market for senior executive talent against which compensation needs to be benchmarked. By "robust and well-functioning," we mean a market in which many buyers and sellers make transactions anonymously. In such a market, what and how an executive should be paid is defined by the supply and demand for the talent she represents. Though there can be little doubt that such a market exists for middle-level executives, there are fewer "buyers" and "sellers" when one considers senior-level executives, and the transaction is not transparent until much later, if at all. Therefore market rates are much harder to identify, and the compensation arrangements in reality depend much more on negotiations between the executive, and usually his attorney, and the compensation committee and its advisers. For senior executives, the most significant determinants of compensation are the negotiating skill and bargaining power of the parties involved. These negotiations cover not only the amounts to be paid, but the form of the compensation, as well as the performance metrics, if any, to which it is to be related.

Managers' nonmonetary rewards—future promotions, the satisfaction of achieving results, pride in belonging to a successful company—were overlooked and sometimes denigrated.

This flawed assumption about the "market" for CEO talent flows from two factors that have driven up senior-executive compensation.

First, given the idea that there is such a market, compensation consultants have sought a method for making market rates transparent—the much-discussed compensation surveys that establish the "price" of various executive positions by company size, industry, and geography. Not only is the validity of such a methodology questionable, but the surveys also have the perverse effect of "ratcheting" compensation ever upward (to use Warren Buffett's term). It works like this: The surveys report compensation for a position by quartiles—from highest to lowest amounts. Not surprisingly, compensation committees and their fellow directors prefer the upper quartile. It not only makes the executives feel better, but it looks better in the company's Compensation Discussion and Analysis (CD&A) in its annual 10-K report to the Securities and Exchange Commission. If the executives don't want the public to be told they are below average in pay (and presumably performance), neither do many directors and shareholders. That would imply that the board of the company (in which shareholders have invested) believe its performance is below average. As a result, American senior executives are like the children of Lake Wobegon—all above average. Recent papers suggest further that executives game the system of comparisons, making the benchmark against which they are being judged a moving target that is too often manipulated by the directors, compensation consultants, and even the executives themselves. If the executive's performance falls short of the original target, it is too often the target that is reset, often surreptitiously in the company's financial footnotes.

The idea of bargaining about the size of "make whole" and "golden parachute" payments, or about making them contingent on performance, seems to be off the table.

Although compensation committees and their advisers act in the belief that they are dealing with a *market*, they actually find themselves involved in *negotiations*. In numerous papers and books, Friedman professor of law, economics, and finance Lucian Bebchuk and his collaborators have argued that when directors negotiate with an executive, their proposals are constrained not only by their beliefs about market conditions, but also by their bargaining power and tactics. Nowhere is this clearer than in the case of the large lump-sum payments commonly granted to executives, especially when they are brought in from outside the company. These are typically of two types: "make whole" payments (money given to an executive to replace earnings which he will leave behind with his former employer) and "golden parachutes" (money guaranteed to the executive if the company is acquired by or merged into another firm). Both payments are guaranteed regardless of the executive's performance, unless he or she should be fired for cause (which according to the etiquette of corporate America never happens). Such payments, because of their large size and lack of a link to performance, are another important cause of the rise in top level compensation—and are a major source of shareholder concern.

Yet compensation committees continue to grant these lump sums to new executives, because that is what they believe the market requires to attract the new talent. The idea of bargaining about the size of such payments, or about making them contingent on performance, seems to be off the table.

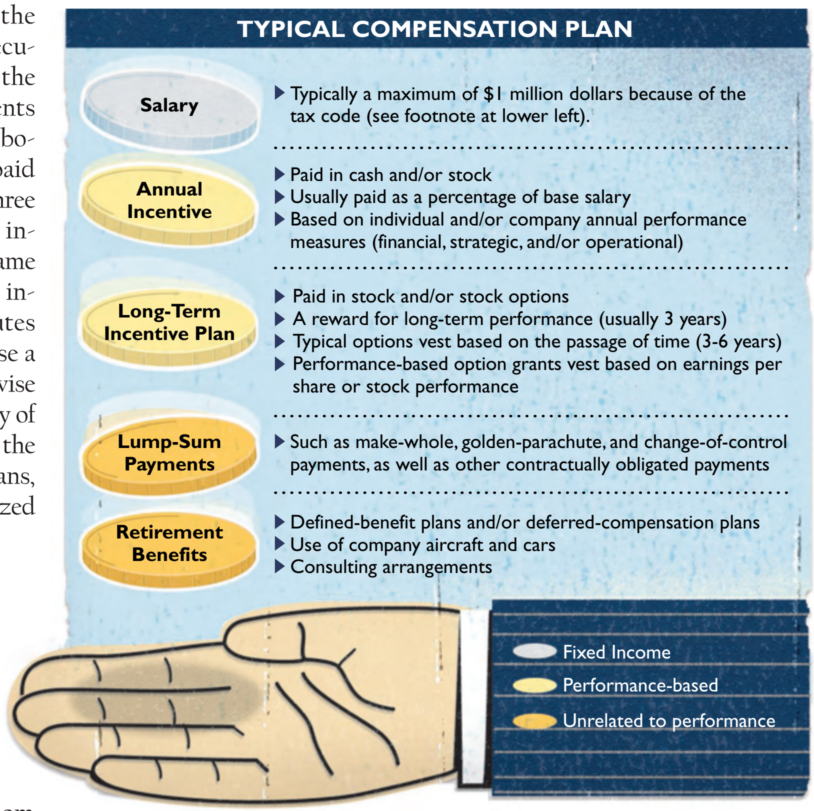
The behavior of General Electric's board as it was beginning the process of selecting a successor to the retiring Jack Welch illustrates the elevator effect on pay. Five possible candidates were identified about two years in advance of Welch's departure. He suggested to the compensation committee and the board that each executive be granted a multimillion-dollar retention bonus to encourage him to stay at GE and compete for the top spot. When directors expressed concern about the cost to GE shareholders of all these bonuses, they were told that they would have to pay only the person who was selected as Welch's successor: the others were all likely to leave GE to be CEOs elsewhere and their new employers would pay the promised amount as a "make whole arrangement."

"Agents" and owners: the primacy of stock. The second factor that transformed compensation was the theory that linked top executives' pay plans to a firm's stock price. Taking as a starting point the earlier work of Adolph Berle and Gardiner Means, economists Michael Jensen, William Meckling, and others argued that corporate directors and senior executives were "agents" of the company's shareholders. It followed that the goal of boards and the executives whose compensation they set must be to align these agents' interests with the owners', most directly by maximizing shareholder wealth. Thus executive incentives should be tied to "shareholder value," usually measured by the company's stock price and dividends per share.

Few ideas about business have been as quickly and widely embraced not only by directors and executives, but also by the bankers, consultants, and lawyers who advise them, as well as by the Delaware Court of Chancery. Prominent business organizations switched from advocating a "stakeholder view" in corporate decisionmaking to embracing the "shareholder" maximization imperative. In 1990, for instance, the Business Roundtable, a group of CEOs of the largest U.S. companies, still emphasized in its mission statement that "the directors' responsibility is to carefully weigh the interests of all stakeholders as part of their responsibility to the corporation or to the long-term interests of its shareholders." By 1997, the same organization argued that "the paramount duty of management and of boards of directors is to the corporation's stockholders; the interests of other stakeholders are relevant as a derivative of the duty to the stockholders."

In applying these ideas to executive-compensation plans, consultants, directors, and the executives themselves had a problem. In most instances, the executives had only partial control over the factors that determined the value of their company's stock. A company's past or likely future performance was only one determinant of the current share price; the general stock market level and broader economic conditions also affected shareholder value significantly. The most widely accepted solution to this complication was to tie executive compensation to economic goals seen as drivers of shareholder value (return on assets, return on equity, growth in sales and/or profits, etc.), while paying the executives in stock or in options: a purportedly perfect alignment of interests and incentives.

The compensation system. Taken together, these assumptions—which are still widely shared by directors, executives, and those who advise them—have created (with a little help from the IRS*) a near-universal set of beliefs about the components of effective compensation for senior executives (see figure), as a glance at the CD&A section in the 10K of any public company will show. Those components include a base salary, usually $1 million. There is also a bonus related to annual company performance (usually paid in cash and stock), and a long-term incentive based on three years of company performance, even though in many industries (such as pharmaceuticals) a three-year time frame can hardly be considered "long-term." Most plans also include the make-whole payments and golden parachutes described earlier. This should not be surprising because a handful of consultants who share these assumptions advise the boards of all major American companies. The validity of "agency" theory has been widely accepted and provides the intellectual underpinnings for many aspects of these plans, even though many of its original advocates have recognized its limits and imperfections!



Source: J. Slivanya and K. Powers, "IRS Increases Scrutiny of Performance-Based Plans under Sec. 162(m)," *The Tax Adviser*, September 1, 2008, 561-562.

The Causes—and Consequences—of Rising Executive Pay

The major causes of the escalating pay for CEOs and other senior executives flow from these assumptions. The most obvious connection is the ratcheting effect of the compensation surveys. Less obvious, but also significant, is the fact that until the downturn in 2008, the economic performance of publicly traded companies had been on an upward trend for a decade or longer. Even though we have doubts that their incentive plans actually motivated managers to act to cause their companies to perform better, if company results improved for *any* reason (including pure serendipity), the managers received higher pay: cause and effect didn't matter. What drove incentive compensation up was the company's performance itself—whether under the control of the CEO and his team or not.

During this same period, the value of shares of U.S. companies was also rising. Because the largest proportion of senior executive compensation is in company stock, as the value of the company's shares rose, so did the amount of pay the executives received. Finally, wide adoption of lump-sum payments increased compensation still further.

What most troubles us is that executive pay is rising not so much as a *driver* of improved performance, but as a *consequence* of improving performance and an accompanying rise in equity values. And as we explained earlier, incentives have impact on behavior only when the recipients can see a direct link from their actions to the results achieved and the rewards they will receive. As we have argued, in most companies *multiple* forces and the joint efforts of *many* individuals cause the results achieved. There are circumstances when executives can see an opportunity—a direct connection between actions they can take and results that will produce rewards they desire—but not in the way their companies intend: for example, decisions to cut corners on approving mortgages to earn greater origination fees (and the resulting waves of loan losses and foreclosures), or the decisions taken at Enron to create off-balance-sheet transactions (disguising that failed corporation's true, deteriorating results). In these circumstances, the potential payouts worked *too* well, causing executives to take unwise or even illegal actions.

As a society, we understand how to deal with specific transgressions like these by making them difficult or legally risky to carry out. But when the transgressions arise because fallacious assumptions become accepted practices among our business and professional leaders, we seem to have no effective antidotes. The SEC can require greater disclosure about top management compensation in the CD&A—but the likely result is executives comparing their pay with each other to make sure they are being fairly treated. Or Congress can change the tax code (as it did in 1993), so salaries above $1 million would be taxed at an excess rate—but the dubious effect was to put *more* emphasis on incentive compensation, accompanied by all the problems just described. Congress can call for "say on pay" (a measure adopted in the United Kingdom), thus giving shareholders the right to hold a nonbinding vote on top executives' compensation—but shareholders are likely to be trapped in the same misleading assumptions as boards have been. We need to rethink *how* we pay senior executives, and *for what*, so that they are motivated not only to create wealth for themselves, but also to build companies that serve society.

Revising the American Business Paradigm

The issue of CEO compensation goes beyond absolute amounts and the technical terms defining how executives are paid. Indeed, we believe that the existing approach to compensation offers a poignant commentary on the kind of society we are becoming. Compensation systems always become in part *ends*, not simply *means*. By emphasizing particular ends, reward systems condition the behav-

*In 1993, the IRS issued Section 162(m), which dictates that non-performance-based compensation in excess of $1 million is not tax-deductible. This applies to the CEO and the three other most highly paid executives reported in SEC filings.

ior and thinking of those people who participate in them or feel their effects. Over time, they shape the business paradigm. And, in turn, because business is such a central institution in American society, they also shape our national culture and character. The contemporary pay system is an important part of a radical shift in what we in America regard as the essential nature of corporations, their purpose, and the role and identity of business leaders.

For most of the twentieth century, the large, public corporation was regarded as both an *economic* entity and a *social* institution. Shareholders were but one of several constituencies that stood in relation to the corporation. Corporate decisions were evaluated not only by their specific economic results, but also with an eye toward their moral and political consequences.

Today, corporations are typically described in terms of economic and financial considerations alone. Within this dominant paradigm, corporations are seen simply as groups of self-interested market actors—shareholders, employees, executives, or customers—held together by nothing more than a series of contracts. These supposedly voluntary contracts define the transactions between executive and employee, for example, in a mutually advantageous way. Once the contractually defined exchange is completed, the parties to such a relationship have no further obligations toward each other: they revert to the status of anonymous market actors. But this image of the corporation is problematic: it has nothing to say about the unavoidable fact that organizations are themselves complex social systems. Organizational relationships are not merely transactional and fleeting. Over time, they become imbued with affect, content, norms, values, culture, and meaning. Defining the organization as a nexus of individual contracts conveniently dispenses with issues of power, coercion, and exploitation. It denies *any* unique relationship between an organization and other constituents. In all these ways, and more, this model is at odds with more than a century's research in psychology, sociology, anthropology, and organizational behavior on actual workplace relations. Without empirical justification, it relieves the corporate institution of any meaningful responsibility to anyone but the transitory group of stockholders who buy and sell shares constantly.

We need to change the terms of the conversation, to make room for a larger and more public discussion about the purpose of the corporation and larger moral and political considerations. Every corporation is embedded in a social matrix, and is accountable for multiple factors within that social setting: obligations to the society that provides it tax advantages or public goods, such as public schooling, publicly financed research, or basic infrastructure such as roads and airports. In a democratic society like the United States, the general public expects responsible and ethical practices and the exercise of self-restraint among business leaders in exchange for vesting an extraordinary amount of power that affects society's well-being in private, corporate hands. Indeed, the primary problem in this perspective is the agency problem we described earlier, in which all the actors are trying to protect themselves from the self-interested actions of everyone else.

As part of that broader public conversation, we also need to revisit what has happened to the identity of management and what it means to be a manager. In part, we believe that the perspective and practices that now undergird executive compensation have themselves mutated the identity of managers fundamentally. At places like Harvard Business School, the prevailing paradigm regards managers as relentless, self-interested free agents ready to make tracks out of their companies and to sacrifice the long-term for immediate gain. That view has largely displaced earlier views of managers as professionals with obligations to various "stakeholders" and to the broader society. The dominant ethos today also legitimates the notion that human beings are relentless market maximizers who need literally to be *bribed* to focus solely on shareholder value—undermining other commitments managers might have to employees, customers, the community, or larger national and global concerns such as the environment or human rights.

Both of us have dedicated our professional lives to business education; we believe deeply in the power of profit-driven business as an institution. But business is useful only if it serves as a means toward an end. We are now presented with choices about sustainability, pandemics, economic and social justice, and the environment that concern nothing less than our collective destiny. The technical forces in play, the global interrelations, the destructive effects on the real economy of badly managed and largely speculative financial dealings, the unrestrained exploitation of our planet's nonrenewable resources—all of this should lead us to reflect on the type of capitalist *system* we have created and the types of *people* who are leading it.

The recent economic crisis and the role that our compensation systems played in fomenting it require a holistic re-examination not only of compensation but of the assumptions and values underlying the economic system we have created. Our present condition offers us a unique opportunity to re-envision our journey and our ultimate destination. Re-thinking the nature of executive pay within the context of our larger economic and social system and the challenges we face may enable us to create a new model of compensation rooted in a more realistic recognition of the social context within which firms operate. It should, and can, rest on valid assumptions and fundamental values that allow us to build a more inclusive and sustainable economic future—one in which we don't have to bribe executives to do the duties we have entrusted to them.

The recent economic crisis requires a holistic re-examination of compensation—and of the assumptions and values underlying the economic system we have created.

Jay Lorsch, D.B.A. '64, Kirstein professor of human relations, and Rakesh Khurana, Ph.D. '98, Bower professor of leadership development, both of Harvard Business School, co-hosted a conference with Gordon professor of business administration Brian J. Hall last fall on executive compensation. A link to the summary of the proceedings appears at the harvardmagazine.com version of this essay (which also includes the authors' footnotes to this text). The authors thank Melissa Barton for her help with research for this article.

Gutenberg

HARVARD'S LIBRARIES DEAL WITH DISRUPTIVE CHANGE.

by JONATHAN SHAW

"Throw it in the Charles," one scientist recently suggested as a fitting end for Widener Library's collection. The remark was outrageous—especially at an institution whose very name honors a gift of books—but it was pointed. Increasingly, in the scientific disciplines, information ranging from online journals to databases must be recent to be relevant, so Widener's collection of books, its miles of stacks, can appear museum-like. Likewise, Google's massive project to digitize all the books in the world will, by some accounts, cause research libraries to fade to irrelevance as mere warehouses for printed material. The skills that librarians have traditionally possessed seem devalued by the power of online search, and less sexy than a Google query launched from a mobile platform. "People want information 'anytime, anyplace, anywhere,'" says Helen Shenton, the former head of collection care for the British Library who is now deputy director of the Harvard University Library. Users are changing—but so, too, are libraries. The future is clearly digital.

Yet if the *format* of the future is digital, the *content* remains data. And at its simplest, scholarship in *any discipline* is about gaining access to information and knowledge, says Peter Bol, Carswell professor of East Asian languages and civilizations. In fields such as botany or comparative zoology, researchers need historical examples of plant and animal life, so they build collections and cooperate with others who also have collections. "We can call that a museum of comparative zoology," he says, "but it is a form of data collection." If you study Chinese history, as Bol does, you need access to primary sources and to the record of scholarship on human history over time. You need books. But in physics or chemistry, where the research horizon is constantly advancing, much of the knowledge created in the past has very little relevance to current understanding. In that case, he says, "you want to be riding the crest of the tidal wave of information that is coming in right now. We all want access to information, and in some cases that will involve building collections; in others, it will mean renting access to information resources that will keep us current. In some cases, these services may be provided by a library, in others by a museum or even a website."

Meanwhile, "Who has the most scientific knowledge of large-scale organization, collection, and access to information? Librarians," says Bol. A librarian can take a book, put it somewhere, and then guarantee to find it again. "If you've got 16 million items," he points out, "that's a very big guarantee. We ought to be leveraging that expertise to deal with this new digital environment. That's a vision of librarians as specialists in organizing and accessing and preserving information in multiple media forms, rather than as curators of collections of books, maps, or posters."

LIBRARIANS AS INFORMATION BROKERS

Bol is particularly interested in the media form known as Google Book Search (GBS). The search-engine giant is systematically scanning books from libraries throughout the world in order to assemble an enormous, Internet-accessible digital library: at 12 million books, its collection is already three-quarters the size of Harvard's. Soon it will be the largest library the world has ever known. Harvard has provided nearly a million public domain (pre-1923) books for the project; by participating, the University helped with the creation of a new tool (GBS) for locating books that is useful to people both at Harvard and around the world. And participation made the full text content of these books searchable and available to everyone in the United States for free.

GBS appeals to Bol and other scholars because it gives them quick and easy access to books that Harvard does not own (litigation over the non-public-domain works in GBS notwithstanding). For Bol, such a tool might be especially useful: Harvard ac-

Photographs by Jim Harrison

2.0

Isaac Kohane, director of the Countway Medical Library, sees librarians returning to a central role in medicine as curators of databases and as teachers of complex bioinformatics search techniques.

quires only 15,000 books from China each year, but he estimates that it ought to be collecting closer to 50,000. So GBS could be a boon to scholarship.

But GBS also raises all kinds of questions. If everything eventually is available at your fingertips, what will be the role of libraries and librarians?

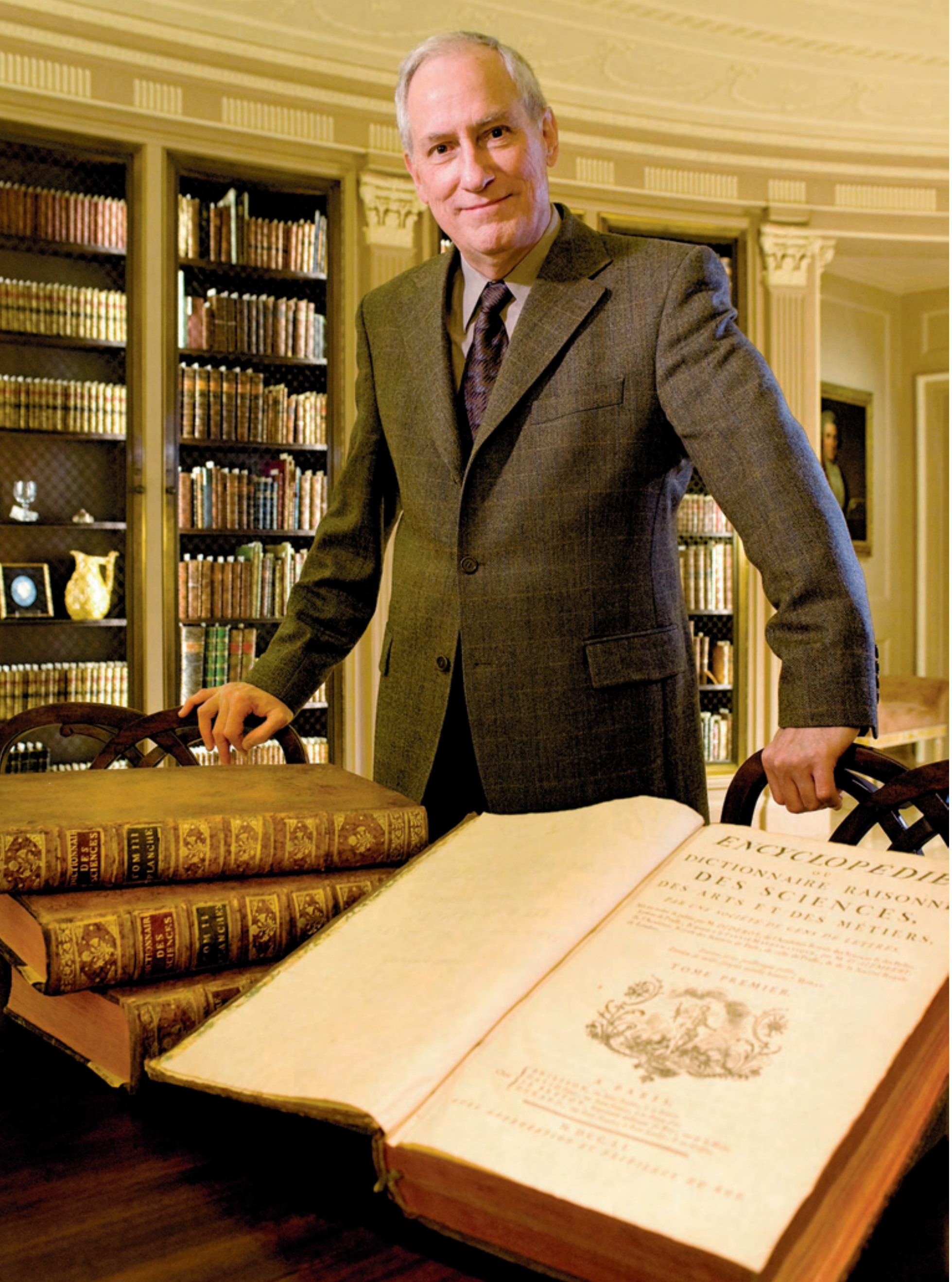
"Internet search engines like Google Books fundamentally challenge our understanding of where we add value to this process," says Dan Hazen, associate librarian of collection development for Harvard College. Librarians have worked hard to assemble materials of all kinds so that it is "not a random bunch of stuff, but can actually support and sustain some kind of *meaningful* inquiry," he explains. "The result was a collection that was a consciously created, carefully crafted, deliberately maintained, constrained body of material."

Internet search explodes the notion of a curated collection in which the quality of the sources has been assured. "What we're seeing now with Google Scholar and these mass digitization projects, and the Internet generally," says Hazen, "is, 'Everything's out there.' And everything has equal weight. If I do a search on Google, I can get a scholarly journal. I can get somebody's blog posting….The notion of collection that's implicit in 'the universe is at my fingertips' is diametrically opposed, really, to the notion of collection as 'consciously curated and controlled artifact.'" Even the act of reading for research is changed, he points out. Scholars poring through actual newspapers "could see how [an item] was presented on the page, and the prominence it had, and the flow of content throughout a series of articles that might have to do with the same thing—and then differentiate those from the books or other kinds of materials that talked about the same phenomenon. When you get into the *Internet* world, you tend to get a gazillion facts, mentions, snippets, and references that don't organize themselves in that same framework of prominence, and typology, and how stuff came to be, and why it was created, and what the intrinsic logic of that category of materials is. How and whether that kind of structuring logic can apply to this wonderful chaos of information is something that we're all trying to grapple with."

How does searching digitally in a book relate to the act of reading? "There may be a single fact that's important," Hazen explains. "Is the book's overall argument something that's equally important as the single fact or is it just irrelevant? When people worry about reading books online, part of the worry is that the nuances of a well-developed argument that goes on linearly for 300 pages [are missing]. That's not the way you interact with a text online." How the flood of information from digitized books will be integrated into libraries, which have a separate and different, though not necessarily contradictory, logic remains to be seen. "For librarians, and the library, trying to straddle these two visions of what we're about is something that we're still trying to figure out."

Moreover, the prospect that, increasingly, libraries will be

Visit harvardmag.com/extras for links to the libraries' digital collections and a video spoof of an earlier cultural transition



The book, or codex, took hundreds of years to replace handwritten manuscripts, which persisted as an economical way to produce small numbers of copies into the nineteenth century, nearly 400 years after Gutenberg invented movable type. Robert Darnton, director of the University Library, shown with Diderot's *Encyclopédie*, predicts great longevity for the book.

stewards of vast quantities of data, a great deal from books, and some unique, raises very serious concerns about the long-term preservation of digital materials. "What worries us all," says Nancy M. Cline, Larsen librarian of Harvard College, "is that we really haven't tested the longevity for a lot of these digital resources." This is a universal problem and the subject of much international attention and research. "If you walk into the book stacks," she points out, "you can simply smell in some areas the deterioration of the paper and leather. But with something that hums away on a server, we don't have the same potential to observe" (see "Digital Preservation: An Unsolved Problem," page 82).

Despite these caveats, Bol's vision of future librarians as digital-information brokers rather than stewards of physical collections is already taking shape in the scientific disciplines, where the concerns raised by Hazen are less important. In fields faced with information overload—such as biology, coping with a barrage of genomic data, and astronomy, in which an all-sky survey telescope can generate a terabyte of data in a single night—the torrents of raw information are impossible to absorb and understand without computational aids.

Medicine has had to cope with this problem ever since nineteenth-century general practitioners found they could no longer keep up with the sheer quantity of published medical literature. Specialization eventually allowed doctors to focus only on the journals in their particular area of expertise. Throughout such transitions, libraries played an important role. Doctors, upon completing their rounds, would comb the stacks for records of similar cases that might help with diagnosis and treatment. Today, the amount of new information being generated in the biological sciences is prescribing another momentous shift that may provide a glimpse of the future in other disciplines. For a doctor, learning about a genetic test and then interrogating a database to understand the results could save a life. For libraries and librarians, the new premium on skills they have long cultivated as curators, preservers, and retrievers of collective knowledge puts them squarely on top of an information geyser in the sciences that could reshape medicine.

MINING THE BIBLIOME

Isaac Kohane, director of the Countway Library at Harvard Medical School (HMS), recently asked a pointed question on his blog: Who is the better doctor—the one who can remember more diagnostic tests or the one "who is the quickest and most savvy at online searching for the relevant tests?" He predicts that "we are going to be uncomfortable with some of the answers to these questions for many years to come" because success based not on bedside manner, but on competence interacting with a database, implies a potential devaluing of skills that society has honored. And who is pondering these issues most acutely? A blogging librarian and pediatric endocrinologist with a Ph.D. in computer science.

One hundred years ago, says Kohane, a report on medical education in the United States concluded that doctors were inadequately prepared to care for patients. Half the medical schools in the country closed. "I think we are at a similar inflection point," he says. "If you look at bioinformatics and genetics, you see vivid examples—which can be generalized to other parts of medicine—where the system has inadequately educated and empowered its workers in the use of search, electronic resources, and automated knowledge management." Genetic testing, he adds, offers a "prismatic example": studies in the Netherlands and the United States have shown that "physicians are ordering genetic tests because patients are asking them to, [even though] they don't know how to interpret the tests and are uncomfortable doing so."

Kohane sees similar problems when making the rounds with medical students, fellows, and residents: "When we run into a problematic complex patient with a clearly genetic problem from birth, and I ask what the problem might be and what tests are to be ordered, their reflex is either to search their memories for what they learned in medical school or to look at a textbook that might be relevant. They don't have what I would characterize as the 'Google reflex,' which is to go to the right databases to look things up." The students doubtless use Google elsewhere in their lives, but in medicine, he explains, "the whole idea of just-in-time learning and using these websites is not reflexive. That is highly troublesome because the time when you could keep up even with a subspecialty like pediatric neurosurgery by reading a couple of journals is long, long gone."

The journals themselves have grown in number and quantity of articles, but "the amount of data being produced and analyzed in large, curated databases," Kohane says, "exceeds by several orders of magnitude what appears in printed publications." The fact that students and doctors don't think to use this digital material is an international problem. "Even at Harvard," where "we spend millions of dollars" annually for access to the databases, "many of the medical staff, graduate students, and residents don't know how to use...," he pauses. "Well, it's worse than that. They don't know that they *exist*."

But in this lamentable situation Kohane sees an opportunity for medical libraries, whose role, he believes, had faded for a while. "It is becoming so clear that medicine and medical research are an information-processing enterprise, that there's an opportunity for a library that would embrace that as a mission...to be again a center of the medical enterprise."

Kohane has sought to do just that by creating an information institute—an HMS-wide center for biomedical informatics—embedded within Countway Library. The institute offers voluntary mini-courses, invariably oversubscribed, explaining what the relevant databases are, how to plumb them, and how to analyze the data they produce. A parallel effort under his supervision seeks to "mine the bibliome"—the totality of the electronically published medical literature—by allowing researchers to track down relationships between genes and diseases in the published literature that would not be apparent when searching one reference at a time. Librarians in the institute also comb databases for contradictions, and find references to sites in the genome that can't possibly exist because the coordinates are wrong. In making sure that information is good, the library is "returning to its original mission of curation," says Kohane, "but in a genomic era and around bioinformatics." This defines a new role for librarians as database experts

BOOKS AND BUDGETS

The future may be digital, but the book is far from dead, says University Library director and Pforzheimer University Professor Robert Darnton. More books are published now than at any other time in history, and the number of new works published each year is growing fast. So, too, is the cost of individual books. Book prices have been compounding at more than twice the rate of inflation, but library budgets have grown slowly. People still prefer to read printed books, and now they also want music, poetry, videos, and online access to the Internet, to electronic journals and specialized databases. Libraries are caught in the middle of this transition. Arguably, the stakes are nowhere higher than at the largest academic library in the world. With a $165-million budget and 1,200 employees, Harvard's 73 libraries anchor within the Greater Boston area one of the most concentrated centers of learning anywhere in the world.

Because of the University's scope and scale, the challenges facing its libraries encompass in many ways those confronting all libraries. But Harvard also faces some special challenges. More than 50 separate administrative structures govern those 73 libaries, and this complexity, now being addressed by a task force charged with simplifying it, leads to redundancy, inefficency, and a failure to capture economies of scale in negotiating with vendors (see "Libraries on the Edge," January-February, page 41). Harvard's current budgetary crisis has led to cutbacks in all areas of collecting; cash infusions and last-minute negotiations staved off the most potentially damaging cuts this year as President Drew Faust quietly transferred $1 million to the University Libraries from her own discretionary funds last fall; the Arcadia Foundation made a large gift; and Faculty of Arts and Sciences dean Michael Smith rolled back planned cuts to the budget of the Harvard College Library.

Meanwhile, the University's evolving understanding of itself as a world institution has led to an acute need to collect from areas of the globe in which Harvard research has not been traditionally strong, but where economic and political development has led to a burst of publishing so voluminous and chaotic that it is almost impossible to keep up with the output, as in China; or where markets and communications are so underdeveloped that scarcity and imperfect information make collecting there a special challenge, as in Africa. Pressures to collect in these and other new geographical areas of study, particularly in south and southeast Asia, as well as eastern Europe, have in turn caused anxiety among professors working in other areas because—even as the University expanded its global reach, establishing new centers and programs—funding for other library endeavours was *not* included.

Faculty members working in traditional areas use spirited language when discussing what they describe as a competition for limited resources, particularly the humanists, for whom libraries are the equivalent of scientific research laboratories, points out Ann Wolpert, director of the library at MIT. To the extent that trenchant exchanges reflect scholars' passion for their subjects, well, this is Harvard: "We'd be more worried if they weren't passionate," says Larsen Librarian of Harvard College Nancy Cline. But even if the University's scholarly mandate had remained frozen, the information explosion—new kinds of materials, in novel formats, and in quantities unimaginable even a decade ago—would have led eventually to this point, where keeping up with scholarly output in all its forms is no longer manageable for any one institution alone.

and teachers, while the library becomes a place for learning about sophisticated search for specialized information.

Such skills-based teaching, learning, and data curation depend on finding individuals who are trained in medicine and also have the public-minded qualities of a librarian—rare indeed, as Kohane readily acknowledges. And even though the cost of such bioinformatics education is small relative to the millions of dollars spent on subscription fees for electronic periodicals (the price of which doubled between 2000 and 2010, says Kohane; see "Open Access," May-June 2008, page 61 for more on the crisis in scholarly communication), the resources to provide more educational support for complex types of database search training are insufficient across the University. "That's because we are trying to bolt on a solution to a problem that probably should be addressed foursquare within the core educational process," he says.

There *is* growing awareness of the need to have an "information-processing approach to medicine baked into the core education of doctoral and medical students." Otherwise, Kohane says, "we're condemning them to perpetual partial ignorance." Already, a few lectures on the topic are being introduced into the medical-school curriculum, making HMS a pioneer in this area. Discussions about bringing more of the biological/biomedical informatics agenda to the undergraduate campus are also under way.

Even in the relatively tradition-bound profession of law, digitization cuts so deeply that when Ess librarian and professor of law John G. Palfrey VII restructured the Law School library last year, he says he thought about the mission less as "How do we build the greatest collection of books in law?" and more as "How do we make information as useful as possible to our community now and over a long period of time?"

This focus on information services within a community guided both personnel decisions and collections strategies. "We scrapped the entire organizational structure," reports Palfrey (whose digital genes can be traced back to his former position as executive director of the law school's Berkman Center for Internet and Society). Last June 30, all the librarians handed in resignations for the jobs they had held and received new assignments. There is now a librarian who works with faculty members, teaching empirical research methods, and another who helps students and faculty conduct empirical research. The collection development group includes "a lab for hacking a library": a member of that team is working on an idea called "Stack View" that would allow the re-creation of serendipitous browsing in a digital format. Technology "allows you to reorganize information and present it in a totally different way," Palfrey points out.

The law library's new collection-development policy is organized along a continuum of materials for which the library takes increasing responsibility. These range from resources in the public domain that aren't collected, but to which the library provides access; to materials accessed under license; and all the way up to unique holdings of an historic or special nature that the library archives, preserves, and may one day digitize in order to provide online access. The fact that the library no longer buys everything published in the law has been made explicit. "It is no longer possible financially, nor is it desirable—not all of it is useful," Palfrey says bluntly. Only a third of newly purchased books are initially bound. "We'll put a barcode on it, put it on the shelf, and see if people use it," he explains. "If they do, and the book starts to wear, then we'll send it to the bindery."

Even though these changes may seem like cutbacks (they were in fact planned and in process before the University's financial crisis became apparent), he believes skilled librarians are in no danger of becoming obsolete: "The role of the librarian is much greater in this digital era than it has ever been before." Good lawyers need to be good at information processing, and Palfrey found in research for his book *Born Digital* that students today are not very good at using complex legal databases. "They try to use the same natural-language search techniques" they learned from using Google, he says, rather than thinking about research as "a series of structured queries. It's not that we don't need libraries or librarians," he continues, "it's that what we need them *for* is slightly different. We need them to be guides in this increasingly complex world of information and we need them to convey skills that most kids actually aren't getting at early ages in their education. I think librarians need to get *in front* of this mob and call it a parade, to actually help shape it."

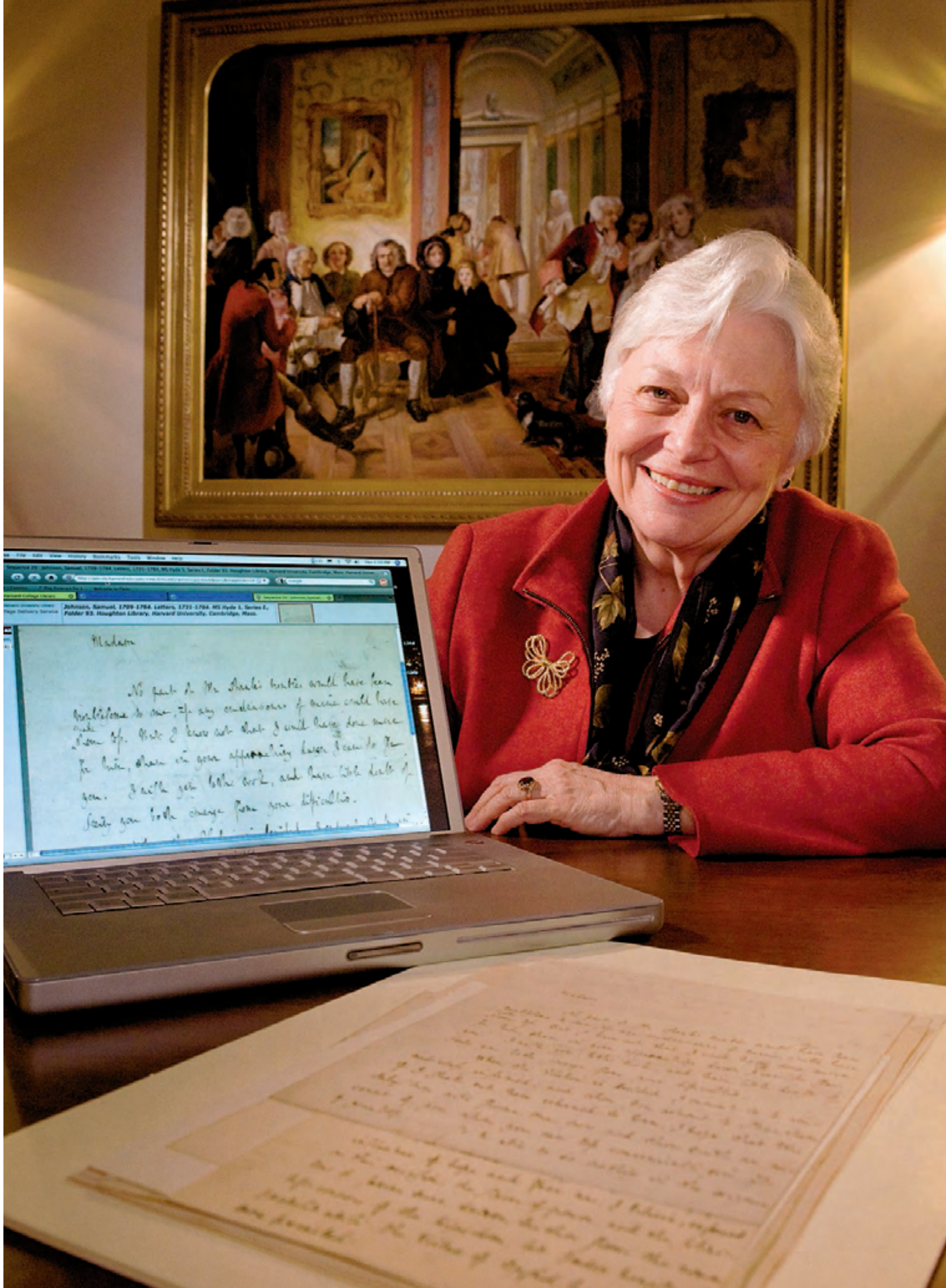
Mary Lee Kennedy, executive director of knowledge and library services at Harvard Business School, whose very title suggests a new kind of approach, agrees with Palfrey. "The digital world of content is going to be overwhelming for librarians for a long time, just because there is so much," she acknowledges. Therefore, librarians need to teach students not only how to search, but "how to think critically about what they have found… what they are missing… and how to judge their sources."

Her staff offers a complete suite of information services to students and faculty members, spread across four teams. One provides content or access to it in all its manifestations; another manages and curates information relevant to the school's activities; the third creates Web products that support teaching, research, and publication; and the fourth group is dedicated to student and faculty research and course support. Kennedy sees libraries as belonging to a partnership of shared services that support professors and students. "Faculty don't come just to libraries [for knowledge services]," she points out. "They consult with experts in academic computing, and they participate in teaching teams to improve pedagogy. We're all part of the same partnership and we have to figure out how to work better together."

"JUST IN TIME" LIBRARIES

All this is not to suggest that the traditional role of libraries as collections where objects are stored, preserved, and retrieved on request is going away. But it is certainly changing. Two facilities—one digital, the other analog—suggest a bifurcated future. The two could not be more different, though their mandates are identical.

In Cambridge, the Digital Repository Service (DRS) is a rapidly growing, 109-terabyte online library of 14 million files representing books, daguerreotypes, maps, music, images, and manuscripts, among other things, all owned by Harvard. In a facility that also serves other parts of the University, a two-person command center monitors more than a hundred servers. Green lights indicate all is well; red flashes when environmental conditions such as temperature or humidity exceed designated parameters. In a nearby room, warm and alive with the whirr of hundreds of cooling fans, their cumulative sound resembling the roar of a giant waterfall, a handful of servers hold the library's entire digital collection. Other



"A man will turn over half a library to make one book," said Samuel Johnson. Nancy Cline, Larsen librarian of Harvard College, displays a manuscript letter from the Hyde Collection of Dr. Samuel Johnson; all its Johnson letters are available online as part of the University Library's open-collections program.

servers are dedicated to "discovery," the technical term for the searchable online catalog, or "delivery," the act of providing a file to an end user.

There are at least three copies of the entire repository—one in, and two outside of, Cambridge. One of them, secured by thumbprint access, is constantly being read by machines at the disk level to ensure the integrity of the data, a process that takes a full month to complete. "Several times a year," says Tracey Robinson, who heads the library's office for information systems, "we detect data that have become corrupted. We engage in a constant process of refreshing and making sure that everything is readable." Any damaged material is quickly replaced with another copy from the backup.

The analog counterpart to the DRS is the Harvard Depository (HD), located in the countryside about 45 minutes from Boston. A low, modular building with loading dock bays, it resembles a warehouse more than anything else. In many ways, that is precisely what it is. Just two librarians oversee 7.5 million books held in an energy-efficient, climate-controlled environment—more than twice as many as are held at Widener, which is three times as large. "The libraries based in the city are among the most expensive in terms of linear capacity," says Nancy Cline. "The Depository as a concept is absolutely essential for us." A number of other libraries in the Boston area, including MIT, use the HD. The facility absorbs half a million new books each year, circulates 220,000, and boasts a 100 percent retrieval rate. (In 24 years, just two books could not be found for delivery; in a typical library, one study showed, patrons find what they are looking for only 50 percent of the time.)

The secret to the HD's extraordinary density and retrieval rate is simple: here, a book is not a book. Titles, subjects, authors—none of this so-called "metadata," the information people typically use to find things, matters. "We know how many books we get in," says assistant director of the University Library for the Harvard Depository Tom Schneiter, who directs the facility, "but we don't know what they are. To us, they are just barcodes. It makes our work much more efficient." A staff of dedicated workers, who rotate through different tasks in order to break up the routine, can check in as many as 800 barcodes an hour. All the items are sorted and shelved according to size in bins that are themselves barcoded. This allows the height of the shelves to be perfectly calibrated to the height of the books; no wasted airspace. Place a request for one of the books in the HD and it will be delivered the next business day to the campus library of your choosing.

Originally, the HD was intended to store only low-circulation items. But because the libraries of the Cambridge campus are "full to bursting," says Pforzheimer University Professor Robert Darnton, the director of the Harvard University library, "doing triage" on thousands of little-used books from the shelves each year to make room for new ones proved impractical. Now, most new books are simply sent to the HD. Although some professors lament the death of shelf-browsing, others are grateful when a book they love is sent off, because they know that when next they want it, not only will it be found, it will be well-preserved: time essentially stands still for the books at the HD, where an environment set at 50 degrees and 35 percent relative humidity is expected to maintain a book in the condition in which it arrived for 244 years.

The price of such longevity and retrievability is about 30 cents per stored volume per year, which compares favorably to the cost of digital storage; expense estimates from the HathiTrust (a national group of research libraries that have created a joint repository for digital collections) for storing a digital book scanned by Google range from 15 cents for black *(please turn to page 82)*

Masauko Chipembere

Brief life of a pioneering African nationalist: 1930-1975

by ROBERT I. ROTBERG

MASAUKO CHIPEMBERE, Malawi's premier nationalist, came to Harvard in the early 1970s as an exile, to write his autobiography and the biography of a freedom struggle in Africa that had not been concluded. Although the architect of Malawi's 1964 independence, he had been unceremoniously hounded out of his country in 1965 by the autocrat he had mistakenly summoned home to lead the anti-colonial battle. Chipembere never saw his country again, dying young of complications from diabetes. His principled and incompletely fulfilled life reflects personal adversity and many of the political vicissitudes and disappointments of modern Africa.

The son of an Anglican archdeacon, Chipembere from an early age was both a rebel and a strong believer in natural justice. Once he returned home in 1954 from South Africa's Fort Hare University College to join his British-controlled country's battle for independence, Chipembere became its chief nationalist strategist and spokesman. His intelligence, determination, energy, integrity, and selflessness appealed to villagers, chiefs, his fellow legislators, and other Africans concerned with the political emergence of Malawi.

But Malawi's nationalist movement had no supreme leader such as Ghana's Kwame Nkrumah. The 27-year-old Chipembere, lacking personal ambition, fatally felt he would need "10 years or more of experience" to take charge; he feared making "a mess of things." Instead, he persuaded Hastings Kamuzu Banda, then 59, an American-educated physician who had left Malawi about 1916 and never returned, to take up the mantle of political leadership. He and others built Banda up, messiah-like, and brought him home in 1958.

In late 1958, Chipembere decided the time was ripe to confront the colonial authorities. Despite a mild, self-effacing personal manner, he was a committed rabble-rouser who felt that Banda was too timid and set in his ways, and that the anticolonial temperature had to be raised if Malawaians were to gain freedom. The nationalists began holding political meetings throughout the protectorate, defying government bans. Early in 1959, Chipembere, Banda, and 200 followers were arrested. Banda and a few others were released more than a year later, but Chipembere was held until late 1960. Then, possibly with Banda's connivance, he was prosecuted anew for sedition and inciting violence and jailed again, until early 1963. A British judge called him a man "corroded with racial hate."

With Chipembere in prison, Banda took control of the Malawi Congress Party (MCP) and campaigned tirelesssly. In mid 1961, Malawi's eligible voters enthusiastically cast ballots for the MCP; a year later, Banda became leader of the Legislative Council and later prime minister, and Britain promised to let Malawi secede from the previously imposed Federation of Rhodesia and Nyasaland. On July 6, 1964, Malawi gained independence. Banda, originally promoted by Chipembere, had triumphed and Chipembere himself became minister of local government and of education.

All should have been well—but Banda had grown imperious. Younger party members soon resented his patriarchal approach; many differed with him on policy, such as his willingness to trade with apartheid South Africa and colonial Portugal. He opposed affirmative action and had created a paramilitary organization that terrorized ordinary Malawians and his own cabinet officers alike.

A month after the independence ceremony, most of the cabinet demanded that he cease behaving autocratically. With Chipembere in Canada on an official visit, Banda dismissed the dissidents. Chipembere rushed home to protest: "Rightly or wrongly," he told parliament, "I regard myself as a man of some principles, a man of some honesty, a man of some courage, a man with some respect…I wouldn't dare for a moment retreat from my principles…. It gives me a really heavy heart," he added, that Malawi had broken down.

Then he returned to his rural home to raise a rebellion. He and a few hundred supporters tried to attack government outposts in early 1965, but did little damage; they were soon hunted down. Chipembere really had no stomach for war. Britain shepherded him to Tanzania and soon he was at UCLA, studying for a graduate degree in political science. He then taught in Tanzania before returning to UCLA in 1969 to complete his doctorate, be treated for diabetes, and teach at California State University, Los Angeles.

Starting in 1970 and continuing periodically to the eve of his death, he came east for the summers, to write laboriously his never-finished autobiography—an intensely personal, honest account of a vigorous life of leadership in politics and of personal integrity under stress. In conversations and in writing, he saw his decision to give up the leadership to Banda as well-intentioned but naïve, his rebellion as driven more by integrity than reality.

He did not live to see the end of Banda's dictatorship in 1993 and the development of true democracy in Malawi. But once Banda was replaced, Chipembere was immediately rehabilitated as a national hero. In 2002, then-president Bakili Muluzi and other national leaders celebrated the publication of his autobiography in Malawi. Its title, *Hero of the Nation*, is fitting, for Chipembere is remembered at home as a towering founder of the republic.

Robert I. Rotberg directs the Program on Intrastate Conflict at Harvard Kennedy School. He transcribed and edited, and wrote the introduction for, Hero of the Nation: Chipembere of Malawi, An Autobiography, *which Chipembere wrote as an intermittent associate of what is now Harvard's Weatherhead Center for International Affairs.*

A wedding photograph of Masauko and Catherine (Ajizinga) Chipembere. Years later, Catherine Chipembere served as deputy minister of health and population in the Malawian government.

Photograph courtesy of the Chipembere family

Nicholas Christakis

NETWORKED

Exploring the weblike structures that underlie everything from friendship to cellular behavior

If a campaign volunteer shows up at your door, urging you to vote in an upcoming election, you are 10 percent more likely to go to the polls—and others in your household are 6 percent more likely to vote. When you try to recall an unfamiliar word, the likelihood you'll remember it depends partly on its position in a network of words that sound similar. And when a cell in your body develops a cancerous mutation, its daughter cells will carry that mutation; whether you get cancer depends largely on that cell's position in the network of cellular reproduction.

However unrelated these phenomena may seem, a single scholarly field has helped illuminate all of them. The study of networks can illustrate how viruses, opinions, and news spread from person to person—and can make it possible to track the spread of obesity, suicide, and back pain. Network science points toward tools for predicting stock-price trends, designing transportation systems, and detecting cancer.

It used to be that sociologists studied networks of people, while physicists and computer scientists studied different kinds of networks in their own fields. But as social scientists sought to understand larger, more sophisticated networks, they looked to physics for methods suited to this complexity. And it is a two-way street: network science "is one of the rare areas where you see physicists and molecular biologists respectfully citing the work of social scientists and borrowing their ideas," says Nicholas Christakis, a physician and medical sociologist and coauthor of *Connected: The Surprising Power of Our Social Networks and How They Shape Our Lives* (2009).

The basic elements of a network are simple: it consists of nodes

BY ELIZABETH GUDRAIS

connected by links (also called ties). But as the numbers of nodes and links increase, the number of possible configurations grows exponentially. Likewise, there are innumerable possibilities for what a node and a link can represent: a word, a gene, or a person, in the first case; phonetic similarity, coincident expression, or a conversation, in the second. Structurally simple, yet analytically incredibly complex, networks hold the answers to so many questions that at Harvard alone, the number of researchers studying them may reach three digits. Here is a sampling of the newest work in this dynamic field.

"STUFF SPREADS" IN MYSTERIOUS WAYS

Christakis, professor of medicine and medical sociology at Harvard Medical School (HMS) and professor of sociology in the Faculty of Arts and Sciences, and University of California political scientist James H. Fowler '92, Ph.D. '03, wrote *Connected* after discovering that each was working on a special case of network effects (the effect of a spouse's death on one's own health, for Christakis; the spread of voting behavior, for Fowler) and realizing they shared an interest in what else could be spreading through networks.

The book is an exuberant romp through the field, presenting findings from medicine, epidemiology, evolutionary biology, sociology, anthropology, political science, economics, mathematics, and beyond. The authors discuss the spread of laughter, tastes in music, sexual behavior, and anxiety over nut allergies. They note one study that rigorously compared the structure of networks of myriad phenomena and found a strong similarity between the bill-sponsoring patterns of U.S. senators and social licking in cows. They report that *Physarum polycephalum*—slime mold—is more efficient than Japanese graduate students in finding the shortest route through a maze (the fungus can "collaborate" by fanning out in the form of a network to explore all possible paths); and share Japanese mycologist Toshiyuki Nakagaki's follow-up studies, in which the fungus was as good as or better than humans at devising maps for railway systems in Great Britain and Japan. These studies, they say, demonstrate the problem-solving power inherent in networks.

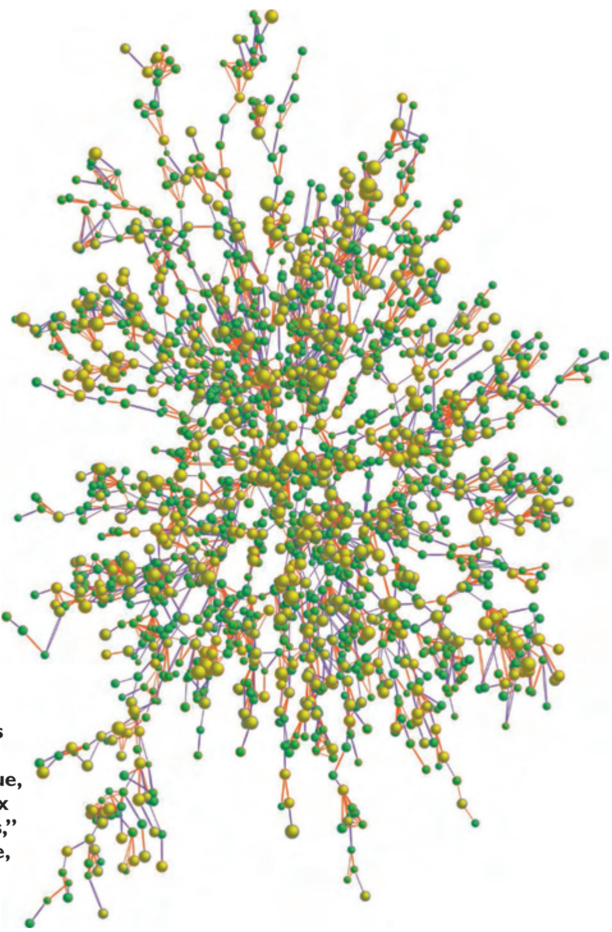
Visit harvardmag.com/extras to see a video of slime mold solving a laboratory maze, and one of mold forming a Japanese railway system map

These wide-ranging, sometimes wacky findings reflect the field today. The boundaries between disciplines are becoming all but meaningless in network analysis; Christakis's lab group includes scholars of physics, economics, anthropology, computational biology, sociology, and healthcare policy. "Often new knowledge is produced at the intersection of disciplines," he says, "and in network science this is happening in spades."

But the core of the Christakis-Fowler collaboration is original research on what spreads through human social networks. With data from the Framingham Heart Study, under way since 1948, they mapped more than 50,000 social ties among 5,124 people (who connected outward in turn to a network of more than 12,000 people). Because the study tracked all manner of health markers and asked subjects about an exhaustive list of behaviors—diet and exercise, medications, recreational substance use, emotions—it was a rich lode of data.

The two men started publishing their findings with a splash: a 2007 article in the *New England Journal of Medicine* reporting that *obesity* spreads through social networks, as people are apparently influenced by friends' weight gain to become obese themselves. More perplexing is their finding that obesity spreads through up to three degrees of separation. If a subject named a friend who was also in the study, and that friend's friend became obese, the first subject's chances of becoming obese were roughly 20 percent greater. Across one more degree of influence (husband's friend's friend or friend's sibling's friend—i.e., three degrees away), the risk was 10 percent greater. Weight gain appears to ripple through friend groups via some unseen mechanism such as altered eating or exercise behavior, or adjustment of social norms regarding weight.

The authors found similar patterns for happiness, loneliness, depression, alcohol consumption, the decision to stop smoking, and even divorce. "Our health depends on more than our own biology or even our own choices and actions," they write in *Connected*. "Our health also depends quite literally on the biology, choices, and actions of those around us."

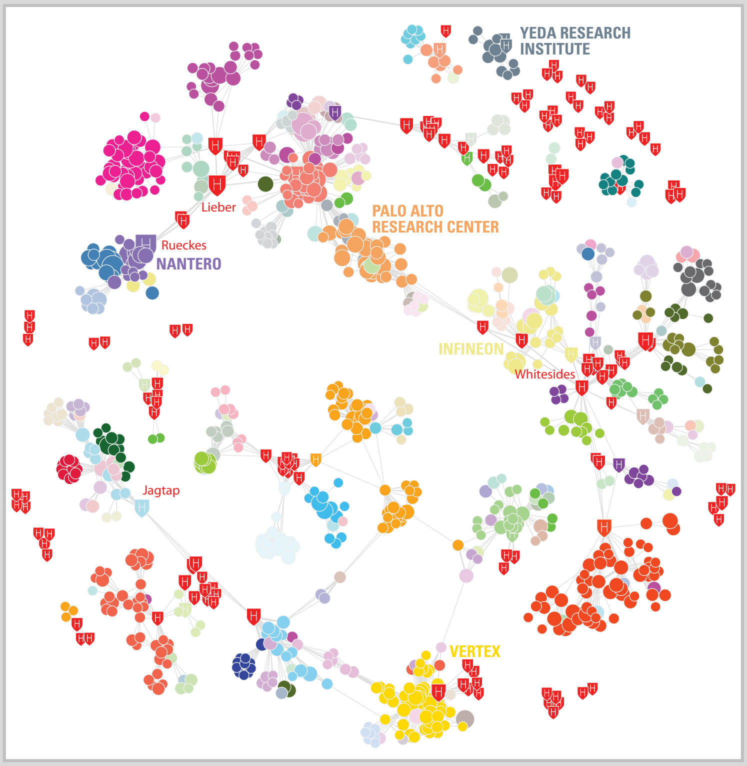


COURTESY OF NICHOLAS CHRISTAKIS AND JAMES FOWLER

THIS MAP is a typical example of the computer-generated images used to help understand networks and network effects. A subset of the "obesity network" mapped by Nicholas Christakis and James Fowler, the image shows 2,200 subjects from the Framingham Heart Study (from a total of 12,067). Each dot, or "node," represents one person (red borders indicate women; blue, men). The yellow dots represent obese people—those with a body mass index (BMI) of 30 or more—and node sizes are proportional to BMI. Colors of "ties," or links between nodes, indicate relationship type: purple for friend or spouse, orange for family. Note the visible clusters of obese people; Christakis and Fowler report that network effects—in which one subject's weight gain influences the BMI of those around him—help to explain these obesity clusters.

Many people want to achieve success as inventors; few actually do. Lee Fleming, Weatherhead professor of business administration at Harvard Business School, is studying whether someone's position in a network seems to matter when it comes to determining who succeeds.

Using data on all U.S. patents since 1975, his team mapped innovation networks for inventors across the country. The network of Harvard inventors who applied for patents between 2003 and 2008 is shown here, with larger nodes indicating that an inventor's patents are frequently cited, i.e., influential; a connection between nodes indicates collaboration on an invention, measured when the inventors list themselves jointly on a patent application.



RONALD LAI AND ALEX D'AMOUR, INSTITUTE FOR QUANTITATIVE SOCIAL SCIENCE

At a basic level, this map illustrates the global connections of Harvard inventors. They collaborate not only with each other, but with the distinguished Palo Alto Research Center in California; the multinational General Electric; and the Yeda Research Institute in Israel. They collaborate in a variety of domains: nanotechnology (Nantero), electronics (Infineon Technologies), and pharmaceuticals (Vertex).

This method also allowed Fleming to examine the question of what network structures seem to bolster creativity. Taking a cue from the definition of creativity as the combining of familiar ideas in unexpected ways, Fleming parsed "novel combinations"—the first time a single patent combines two subclasses of technology—from the database, which goes all the way back to 1790. He then asked what network structure surrounds people who filed patents with these novel combinations, as well as those whose inventions prompted the U.S. Patent and Trademark Office to create a new subclass. Comparing the models of the "broker"—an influential person connected to many others who don't know each other—and the "connector"—an influential individual with a habit of introducing his collaborators to each other—he found that brokers are more likely to come up with new ideas, because they are situated at the center of a group and communication goes through them. (Flowers University Professor George Whitesides, a chemist whose work has spawned more than a dozen startups, and Hyman professor of chemistry Charles Lieber, whose projects include small-scale devices for communicating with neurons in novel ways, are clear examples of brokers in the diagram.) But brokers have a harder time getting their ideas publicized, relative to connectors. Fleming found that brokers whose ideas became influential most often were connected to a "gatekeeper" who was part of a more highly integrated network and could disseminate the idea there. (Gatekeepers in the diagram include Prakash Jagtap, who worked as a scientist at Harvard Medical School in 2001 and 2002, and now directs drug discovery at the Lexington, Massachusetts, firm Inotek; and Thomas Rueckes, Ph.D. '01, cofounder and chief technology officer of Nantero in Woburn, Massachusetts.)

The database also enabled tracing inventor mobility, from firm to firm or university to university, across the last 35 years. Fleming and Matthew Marx, M.B.A. '05, D.B.A. '09 (now an assistant professor at MIT's Sloan School of Management) determined that statewide enforcement of noncompete clauses—where companies bar employees from working for a competitor for a set period of time after leaving the employer in question—induce brain drain. States that enforce such clauses are particularly likely to lose their most productive and well-connected inventors, for whom opportunities in other states are easy to come by. An effort is under way to change Massachusetts law to prohibit the enforcement of these clauses—a change Fleming and Marx support.

In a new project, with Vetle Torvik of the University of Illinois, Fleming will integrate patent information with information on publication and collaboration from the PubMed database (which contains more than 15 million scientific journal articles), with information on government grants (for instance, from the National Institutes of Health), and with information about commercial outcomes, in a database that will be publicly available online. "We're going to be able to trace the process of knowledge generation," he says, "all the way from government funding, through scientific publishing and patenting, to what firms were founded and how successful they were."

READ MORE ONLINE. Visit harvardmag.com/extras to read three online-only sidebars to this article:

COSTS AND BENEFITS OF CONNECTION. Read more about Nicholas Christakis and James Fowler's research, including their responses to critiques of their work.

NETWORKS, NEOLITHIC TO NOW. The characteristics of human social networks seem to have persisted through time—and to have a genetic basis.

VIRTUAL FRIENDSHIP, FOR REAL. The digital revolution has created new modes of social interaction. How do online and offline friendship differ?

Laura Bogart

For each trait that spreads through networks, Christakis and Fowler (and others working in the field today) meticulously chart how, and between whom, transmission occurs. Does geographic proximity matter? Are family relationships more influential than social relationships? What about people who work together? The answers vary depending on what is being transmitted.

Precise knowledge is needed for the type of network-based public-health interventions they envision. In addition to knowing *what* works—in the case of obesity, perhaps distributing healthy recipes, or posting on Facebook or Twitter that you "feel so great after going for a run" to encourage friends to exercise—such interventions require knowing *who* is most influential, and this may vary from purpose to purpose. Christakis and Fowler write that a network-based vaccination campaign, targeting people with the most social contacts, could be three times more cost-effective than a campaign that aims for universal vaccination. Campaigns of the latter type over-vaccinate; immunizing only people who are hubs in social networks would enable administering a minimum of doses for maximum effect. (Recommendations that healthcare workers receive more vaccinations than average citizens follow a similar model, assuming that such workers will have more contact with sick people and thus are more likely to spread infections.) A network-based *surveillance* campaign, prioritizing well-connected people when monitoring infection's spread, could be *700 times* more efficient than random monitoring.

But when it comes to diet and exercise, is it better to have people with *more* connections float the healthy recipes and exercise messages, or to have the positive signals come from *close* friends of the target? That puzzle has not been solved, even though efficient public-health spending depends on the answers to such questions.

A CONTAGIOUS CONSPIRACY

While Fowler and Christakis are concerned mainly with tracking the spread of behaviors and mental states through networks, Laura Bogart is interested in how *information* spreads through networks—and then *influences* health behavior. The associate professor of pediatrics at HMS and researcher at Children's Hospital Boston has used a social-network perspective to study the spread of HIV conspiracy beliefs. She led a national telephone survey of African Americans in which more than half the respondents agreed with the statements "There is a cure for AIDS, but it is being withheld from the poor" and "A lot of information about AIDS is being held back from the public." Such beliefs "are a response," she says, "to years of discrimination, and years of reasons to be suspicious about medical treatments, including unethical practices in the medical system and knowledge about wide disparities" in care.

These beliefs may indeed be a natural response under the circumstances, but they are dangerous: male respondents who agreed with the conspiracy statements were significantly less likely to use condoms consistently. In a separate study of HIV-positive patients, Bogart found that giving credence to such beliefs was negatively correlated with adherence to treatment: 25 percent of patients who did not follow treatment recommendations also agreed with the statement, "People who take the new medicines for HIV are guinea pigs for the government," versus just 8 percent of patients who *did* take their medication as directed. And in a third study, Bogart used social-network analysis to determine that the greater the number of friends who had mentioned a conspiracy belief to a study participant, the more strongly the participant believed the statement.

She has now begun a larger-scale study of how HIV information—conspiracy theories and otherwise—flows through social networks. Her team will track 240 HIV-positive African Americans in Los Angeles for one year, as they go in and out of treatment, on and off medications, and friendships form and erode. Later she hopes to test interventions, identifying "opinion leaders" in the community and offering them HIV education in the hope that they will spread scientifically accurate information that will supplant the myths.

It may come as a surprise that friends' statements of opinion can have such tangible impact, says Bogart, who holds a doctorate in social psychology. "People like to think of themselves as independent thinkers," she explains. "They don't think about social networks as having such an influence on them."

In fact, beliefs and medical mistrust can "have a huge influence on health behaviors," she says. But research and policy discussions tend to focus so much on structural impediments to care—not having transportation to the clinic, lacking insurance—that "we forget that people, in the best of circumstances, sometimes *still* will not take their medication." Her work highlights the importance of social networks in explaining why.

THE EVOLUTIONARY CASCADE

Martin Nowak became interested in networks while trying to develop equations to explain how cancer emerges in the body. "I realized that in order to write down these equations, I had to understand the network of cells in the body," says Nowak, professor of mathematics and biology and director of Harvard's Program for Evolutionary Dynamics.

Nowak began this mathematical quest by studying colon cancer, which arises in *crypts*—tube-shaped glands (below) that produce the cells to renew the colon's lining as old cells slough away. Each crypt comprises 10,000 cells, with one stem cell, or a few at

STEVE GSCHMEISSNER / PHOTO RESEARCHERS, INC

COLON CRYPTS (blue) are visible in this colored light micrograph of a human colon section. Through multiple divisions, the stem cells at the bottom of each crypt give rise to the terminally differentiated cells that form the colon lining (top). The crypts helped Martin Nowak craft a mathematical description of networks that suppress selection: they are organized in a way that discourages the development of cancer. Cells near the surface, which divide often—making cancerous mutations relatively likely—are soon sloughed away, but in stem cells, which pass on mutations to all their daughter cells, division is much less frequent.

most, at the bottom. Nowak characterized each crypt as a network, with the stem cell(s) at the center and the genetic material passed along through each cell division, from precursor cells to terminally differentiated ones. Each crypt is a dynamic network, changing with time: as the cells at the end of the line—the inner surface of the colon—die away, new cells replace them, although the lineage still begins with the same stem cell.

As Nowak studied this system, he says, "I realized that our tissues are actually organized in such a way as to protect us from cancer." If a mutation occurs near the surface, "then most likely it's washed out and nothing happens." If a mutation occurs at the stem-cell level, on the other hand, "it will change that crypt into a lesion, a likely site for later development of cancer."

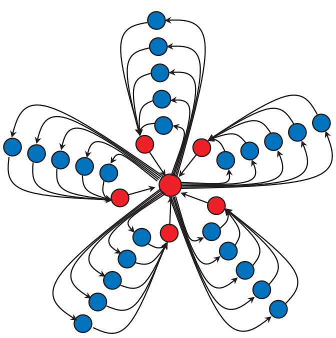
Numerous systems in the body—the hematopoietic system, the skin, and the epithelial layers of the lungs and the breast ducts—behave in the same way. For example, within the entire hematopoietic system—whose stem cells become, through multiple rounds of differentiation, various types of blood and lymph cells—10^{12} cell divisions occur *daily*. "Every one of those cell divisions is a risk for cancer, but most of the divisions happen in cells that don't live long enough to cause cancer," says Nowak. "A stem cell in that system—where it really *would* be dangerous to get a cancer-causing mutation—divides only a few times *per month*."

This realization built on a 1992 Nowak finding. Since Darwin's day, he explains, mathematical representations of evolution had "assumed that populations are well mixed, that everybody is equally likely to bump into everybody else. In reality, populations are not well mixed." Nowak developed a mathematical framework that incorporated the varying likelihood that one organism will meet another (based on living in the same city, sharing a workplace, etc.) and his new research has extended the theory. Just as each human being doesn't have an equal chance of procreating with every other human being, all cells don't have equal likelihood of mutating in a way that promotes cancer, and then dividing and propagating that mutation. Because cancer cells *do* have a fitness advantage relative to normal cells—they live longer and divide more frequently—cancerous mutations would spread quickly in a well-mixed population. But because of the way the cellular network is structured, Nowak says, malignant mutations "have a very small chance of taking over."

Nowak and colleagues have seized on this attribute as the defining feature of networks that suppress selection: even strongly advantageous mutations do not spread through the population. Their theory, published in *Nature* in 2005 and 2006, offers a mathematical description of some networks that make sense intuitively: for example, a small lake feeding a stream that flows into a larger lake. Within each lake, natural selection will operate freely in the fish population. Mutations that occur in the smaller lake will affect fish in the larger lake—but mutations that occur in the larger lake, no matter how advantageous, will never reach the fish in the smaller lake because the stream flows only one way.

The 2005 *Nature* paper also set forth structures that *amplify* selection, including a star-shaped network with one central individual connected to all other individuals, but without connections among the outlying nodes. These structures can be used to understand not only genetic evolution, but also cultural evolution, says Nowak: "If one person has an idea, which network is best for the spread of this idea?" The star structure works well if all the connections are bi-

Martin Nowak



directional (see diagram at left): a good idea that originates in the center is immediately transmitted to the outlying nodes. A good idea that originates at one of the outlying nodes quickly reaches the center and is disseminated from there. Thus, Nowak's research, which began with cancer-cell biology, has flowered into a broadly applicable theory of network structures that inhibit or promote natural selection.

At harvard and elsewhere, network analysis is evolving at an explosive pace. Scholars are using methods they could never have imagined, with collaborators they might never have envisioned, to analyze, in some cases, entirely new types of data.

Another Christakis collaborator, assistant professor of statistics Edoardo Airoldi, is tracking the spread of news on the Internet; the study's purpose is primarily theoretical (it aims to better understand the concept of diffusion in networks), but it will require inventing new tools that could have practical applications for journalism and public relations. Jukka-Pekka Onnela, a physicist who is a postdoctoral fellow in the Christakis lab, has used network analysis to help understand patterns of movement in stock markets—a method that has been picked up by at least one national central bank.

Separately, Onnela has analyzed the call records of 7.2 million mobile-phone users in an undisclosed European country. The researchers got access to 18 weeks' worth of records, for a total of 22.6 million links between callers (each link representing at least one call placed). They were charmed to find that their results displayed a fundamental property of human social relations, and a tenet of network analysis, formally elaborated in 1973 by Harvard sociologist Mark Granovetter, a pivotal figure in the field. In his theory of "the strength of weak ties," Granovetter found that as tie strength—indicating closeness of friendship—increased, the number of common friends also increased. In the cell-phone study, the more time two people spent on the phone with each other, the more likely they were to have commonalities in the list of other people they called. This suggests that tie strength in the cell-phone study probably does correspond to strength of friendship as Granovetter defined it. "We have lots of theories from philosophy and social science about how society is organized," says Christakis. "Now we have data and methods to test a lot of them. It's phenomenally exciting."

A more lighthearted study led by a member of Christakis's lab group searched for meaning behind users' decisions to make their Facebook profiles public or restrict who can view them. It found that users with public profiles had a higher-than-average chance of listing the Beatles, Pink Floyd, and Led Zeppelin among their favorite musical artists, whereas people who restricted access to their profiles were more likely to list Coldplay, Rage Against the Machine, and Ray Charles. The taste for privacy (or public exposure) may be correlated with a personality type that also prefers certain musicians; the researchers aren't quite sure, yet, of

ON THE TIP OF YOUR TONGUE

In the diagram shown here, connections are drawn between words differentiated by a single sound—a framework that has helped researchers understand how humans process language. In a test designed to take users to the tip-of-the-tongue state (where they are at the edge of being able to recall a word), people had an easier time retrieving words that were "well-connected"—those with a high number of words that sound similar. For example, subjects had a harder time generating the word *pub* when asked, "What is the British word for a drinking establishment?" than they did generating *bail* when asked for the verb that means *remove water from a boat.* (Although some words—*stub, hub, grub*—sound similar to *pub,* many more rhyme with *bail*: *sail, jail, mail, tail, hail, fail, nail, pail*, as well as the numerous like-sounding words ending in *-ale.*)

In subsequent research, Samuel Arbesman, a postdoctoral fellow with a background in computational biology working in Nicholas Christakis's lab, joined psychologist Michael Vitevitch of the University of Kansas and mathematician Steven Strogatz of Cornell in comparing languages and found that this basic principle—words that are well-connected are easier to generate—was universally true, but truer of some languages than others. For example, the pattern was less pronounced in Spanish than in English: having many similar-sounding words *helped less* in Spanish than it did in English. The researchers believe this is due to the intrinsic properties of the languages themselves.

In Spanish, words that sound similar tend to mean similar things. To take a simple example, *acendrado* and *acendrada* are masculine and feminine versions of the same word, *pure*. In English, on the other hand, words that sound similar often have vastly different meanings (think of *necklace* and *reckless*). This is partly due to the diverse linguistic influences on English (from Romance as well as from related Germanic languages, for example). In addition, English uses inflection less than Spanish—so where English would add an extra word, Spanish often adds just

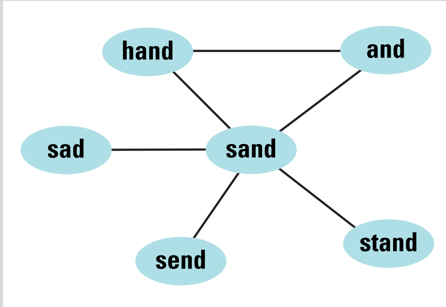


FIGURE COURTESY OF SAMUEL ARBESMAN, MICHAEL VITEVITCH, AND STEVEN STROGATZ

a suffix: for instance, *Ella volverá* for *She will come back* (based on the infinitive *volver*, "to come back").

In English, as one might predict, people had an easier time generating words that lay on "well-traveled" phonetic paths in the brain. But in Spanish, the researchers theorize, there seem to be so many words that are not only similar phonetically but also have similar meanings that the brain simply gets mixed up.

When the researchers moved from speech *production* to speech *comprehension*, they saw the trends reverse. They tested speech comprehension by measuring people's language-processing *speed* (for instance, how quickly they decided whether a snippet of speech was a real word or nonsense) and processing *accuracy* (for instance, people's facility in accurately hearing words played against background static). In these speech-comprehension tests, having lots of similar-sounding words seemed to get in the way of remembering the right word for English speakers—perhaps precisely *because* the meanings were so often different even when the sounds were the same. For Spanish speakers, having lots of similar-sounding words was *helpful* for speech comprehension. The investigators therefore concluded that having lots of similar-sounding words makes both speech production *and* speech comprehension easier in general, but the degree of benefit varies depending on specific attributes of individual languages.

The three researchers also discovered that language networks have another interesting quality. The networks for all the languages they studied (Basque, Mandarin, and Hawaiian, as well as English and Spanish) are *assortatively mixed:* high-degree nodes tend to be connected to other high-degree nodes. In these languages, a given word tends to be linked to other words that are themselves linked to an above-average number of words.

Most of the types of networks that scientists study—the Internet, transportation networks, networks of neurons—are *disassortatively mixed*: nodes that are *dissimilar* in terms of degree are connected to each other. For example, a wireless Internet router may have several computers connected to it, but it's less common for routers themselves to be connected to each other. An air traveler starting out at a small airport can't fly to another small airport without connecting at an airline hub. If your leg itches, you can't scratch it unless the stimulus travels first to your central nervous system and then back out to the periphery, lightning-fast though that process may be—the peripheral neurons are not directly connected to each other.

Human social networks, on the other hand, are one of the few types of well-known networks that *are* assortatively mixed. In other words, people who know a lot of people are also likely to know each other. (With disassortative mixing, a person with many friends would mostly be friendly with hermits.)

Linguistic networks' structure, then, coincides neatly with language's status bridging the biological and the social. And in addition to helping scientists understand language production and comprehension, the network approach is helping them understand the effects of events that damage the brain, such as strokes. Using a method common in network analysis—removing nodes and testing how "robust" the rest of the network is, i.e., what proportion of its nodes are still linked to each other—points toward approaches to rehabilitation. At heart, says Arbesman, network methods are helping scientists understand the evolutionary pressures that shaped the human mind.

the deeper meaning (if any) behind the predilections and associations they observed. But in the online world and the other frontiers that network scientists are exploring, making sense of new data is a crucial task; the Christakis team is diving into genetic, as well as digital, data in search of new insights about human social tendencies (see online sidebar, described on page 46).

"In some ways, the availability of these new kinds of data is like what the microscope was to Van Leeuwenhoek or the telescope to Galileo," says Christakis. "When the telescope was invented, Galileo just started looking at stuff. He looked at the moon and he saw mountains. He looked at Jupiter and found moons encircling it. He looked at the sun and found sun spots. There's this huge part of science which is just about careful observation and curiosity about the world."

Elizabeth Gudrais '01 is associate editor of this magazine.

JOHN HARVARD'S JOURNAL

As spring came to Cambridge, the shrouds that had covered the Law School's new building during winter construction came down, revealing its stone façade. Occupancy is expected in late 2011.

IN THIS ISSUE

Global Reach

Sujiatuo township, 30 kilometers northwest of central Beijing, lies directly in the path of the swiftest, most massive urbanization in human history. As incomes rise and tens of millions of people migrate from China's countryside, dozens of dense

Photograph by Stu Rosner

Development sprawls ever-outward from Beijing (in background, right) toward rural Sujiatuo. Yu Kongjian (below) commutes from Beijing to teach a Graduate School of Design (GSD) studio course. His students Chandrani Majumdar and Daniel Stevens present their water-sensitive plan for the township in a March 10 class, before visiting China to see the site.

YU KONGJIAN

cities are spreading explosively outward and upward. The township—about 100 square kilometers of hillside orchards and flatland farm fields, where some 30,000 people live in a dozen villages—seems destined to be profitably swallowed up by the high-rise housing and high-tech facilities extending from Beijing's Haidian district. A rail line and the city's Sixth Ring Road already cross the site, and it is designated for development.

If the usual pattern holds, the residents will be displaced (perhaps to more modern houses) in the name of improving the "new socialist countryside," the cherry and peach trees lost, and the flows of water that recharge Beijing's overtaxed aquifer cut off by pavement. In an economy where even small cities routinely build gigantic new port zones and industrial parks, the loss of agricultural Sujiatuo would barely register.

But in this one case, perhaps there is an option. Sujiatuo is the subject of a spring-term studio at the Graduate School of Design (GSD). "Landscape and Ecological Urbanism: Alternatives for Beijing City Northwest" challenges a dozen students to envision futures for the township that could accommodate growth while preserving agriculture, ecological assets, and cultural sites.

More ambitiously, thanks to academic "venture capital" support from the Harvard China Fund (HCF; www.fas.harvard.edu/~hcf), the course draws on instructors based in Cambridge *and* China; links the GSD students to peers at Peking University; incorporates a midterm visit to Sujiatuo; and even connects the class to the planning officials who will determine the area's fate. Much as Sujiatuo is a short story in the epic of China's modern development, the studio provides a small window into Harvard's academic ambitions in the People's Republic, and around the world.

On March 10, pairs of students—one each from landscape architecture and urban planning—presented their schemes to a panel of critics in Gund Hall. Tim Wong and Irina Mladenova outlined "Rural: Urban Stitch," a framework for melding the villages with new development while conserving farmland, wetlands, and the natural hillsides rising steeply to the west. Chandrani Majumdar and Daniel Stevens showed "Water Positive," a design aimed at capturing runoff from the mountains, filtering it through organic fields, and increasing residents' incomes through agricultural research and distribution of branded produce. These and the plans that followed were necessarily idealistic. They were based, to that point, on geographic databases and information gleaned through e-mail correspondence with students in Beijing. And they reflected the ambitious scope of the assignment, ranging from the details of spatial siting to an economic vision for bettering the lives of Sujiatuo's needy residents.

But they were also guided by a bracingly realistic vision of China's headlong growth. Studio leader Yu Kongjian, D.Dn. '95, a visiting professor who commutes biweekly from Beijing, is co-editor of *The Art of Survival: Recovering Landscape Architecture* (2006), a fiercely titled argument for design based not on refined aesthetics, but on the urgent requirements of wise resource use, coexistence with natural systems, and sustainability.

Yu puts those principles into practice both as founding dean of the Graduate School of Landscape Architecture at Pe-

Photographs by Kris Snibbe/Harvard News Office king University and as founder of Turenscape (www.turenscape.com), a 500-person design firm. Its projects extend from major urban assignments throughout China to the Chinatown portion of Boston's "Big Dig" Greenway. Many are distinguished by inventive recycling of industrial sites, and by use of emphatically ecological techniques, from restoring natural waterways to planting indigenous species and practical materials (including rice)—not showy flowers.

"The development is inevitable," Yu says of Sujiatuo and other sites in "the backyard of Beijing." But in a country that has confined its rivers between concrete floodwalls, grossly polluted their waters, and is now urbanizing much of its best farmland, he says, "We have to redefine the taste." In that modest phrase, he challenges both Chinese tradition—landscape as an art for elite contemplation—and the contemporary engineering momentum that muscles nature aside in pursuit of industry and urban expansion.

Now the students in the course he teaches (with Toronto-based landscape architect Jane Hutton and Stephen Ervin, lecturer in landscape architecture and GSD's director of computer resources) would face the challenges of Sujiatuo itself during a spring-break trip to Beijing.

Perhaps no cityscape better symbolizes the new China than Shanghai's Pudong district. A towering metropolis with wide boulevards, multimillion-dollar condominiums, the iconic 101-story World Financial Center, and the rising 128-story Shanghai Tower, it has sprung up on the east bank of the Huangpu River since the mid 1990s.

President Drew Faust, Harvard Business School (HBS) dean Jay O. Light, GSD dean Mohsen Mostafavi, and a delegation of faculty and staff members traveled to Pudong for meetings with alumni, friends, and local officials on March 17 through 19 (following an extended alumni-relations visit to Japan). The focal events were a day-long academic symposium and banquet on March 18, officially commissioning the Harvard Center Shanghai. That ambitious facility, an HCF-HBS joint venture, signals a strong University engagement with the People's Republic: it contains spaces for visiting professors and for students pursuing internships or public-service and research opportunities, and even a fully equipped HBS-style classroom, where the school can work with Chinese partners to offer advanced-management courses and customized corporate-training programs.

The facility (Harvard's largest international outpost apart from the Center for Italian Renaissance Studies at Villa I Tatti, near Florence) is fully in step with twenty-first-century China. It occupies the entire fifth floor of the International Financial Centre—a César Pelli-designed, LEED-gold-certified twin-tower office complex plus hotels and retail mall—on a 16-acre site near the apex of Pudong. (The project is being built by Sun Hung Kai Properties Ltd., Hong Kong's preeminent development firm; vice chairman and managing director Raymond Ping Luen Kwok, M.B.A. '77, serves on the HCF advisory group and he and his wife, Helen, are recognized by a plaque in the Harvard center for their role in helping to site it.)

Harvard Center Shanghai is in the new office tower to the left (top); the 88-story Jin Mao Tower and 101-story World Financial Center rise to the right. Harvard's facility has a fully equipped teaching theater (above). President Faust and GSD dean Mostafavi take in the city model at Shanghai Urban Planning Exhibition Hall (left) on March 19.

Photographs by Stephanie Mitchell/Harvard News Office

HARVARD PORTRAIT

Vincent Brown

When Vincent Brown went on the job market eight years ago, he almost took his films—a few short comedies, nothing academic—off his CV for fear of not looking like a "serious" scholar. "It's a good thing I did" leave them on, the professor of history and of African and African American studies says now, because the search committee at Harvard viewed this multimedia experience as an asset. Indeed, these earlier films laid the groundwork for one of his two major academic projects to date: *Herskovits at the Heart of Blackness,* a documentary that he produced based on his own research, aired on PBS earlier this year and has won numerous film-festival and academic awards. The late Melville Herskovits, a Northwestern University anthropologist whose books include *The Myth of the Negro Past*, documented cultural continuities between African societies and slaves in the Americas, and helped change the notion, popular in academia at the time, that there was nothing of worth to be found in African culture. Brown says the "gorgeous" footage Herskovits shot (of dances, music-making, and agricultural techniques, for example) made film the right medium for telling this story. His second project is in a more conventional format: a book on the meaning of death, and the rituals surrounding it, in the society of Jamaican slaves and slaveowners. Brown's next book project aims to connect slave revolts in the Americas with concurrent political developments in Africa, following in the footsteps of Herskovits, whose name is still little-known despite his seminal contribution to the discipline of African American studies. He is, says Brown, "one of the most important scholars you never heard of."

In opening the academic presentations, Dean Light acknowledged HBS's significant international enrollments and the fact that a half-dozen professors can understand Mandarin and a few can even teach in it. (Anticipating enrollment of many Chinese-language speakers, the new center's classroom offers simultaneous translation.) He noted that HCF's chair, William C. Kirby, with dual appointments in the Faculty of Arts and Sciences and HBS, serves as the ideal bridge to expertise on China from throughout the University.

Then Krishna G. Palepu, HBS senior associate dean for international development, who studies emerging markets and

"War, civil war, and Maoism led to Shanghai's utter stagnation" until early in the last decade.

globalization, explained how the Shanghai center embodied an elaboration of HBS's global strategy by moving beyond the small research centers established around the world during the past 15 years to a *teaching* facility—a place for education in diverse disciplines. He called it fitting that the Harvard flag be raised in Shanghai because great universities have always been located in nations with great economies, from medieval Italy to Germany and Great Britain to the United States and now throughout Asia.

Keynote speaker Kirby—the Chang professor of China studies and Spangler Family professor of business administration—addressed "The Chinese Century?" An historian, he immediately put the glittering surroundings in context. In the 1920s, he recalled, Shanghai's Bund stood for the city's rising commercial presence. "Then war, civil war, and Maoism led to Shanghai's utter stagnation" until early in the last decade, when the city "awoke from its buried past," following "the ruinous policies of the first 30 years of the People's Republic…." Despite those traumatic decades, he found in China's military successes in the 1940s and 1950s the impetus for its rise to great-power status now, and

Photograph by Jim Harrison

C O M M E N T

Self Improvement

On University governance and management

The President and Fellows of Harvard College—the seven-member Corporation, the University's senior governing board—has begun a review of its operations. As reported ("The Corporation Changes," March-April, page 52), the matters under examination include its agenda, its interaction with diverse constituencies, and how it gets and uses information.

Those procedures aside, any such exercise might usefully be guided by first principles. For Harvard, those were elegantly expressed in a series of lectures, subsequently published as *University Administration*, delivered by Charles W. Eliot in 1908, near the end of his extraordinary 40-year presidency:

> The functions of the board of trustees or regents of an American university are of fundamental importance. They relate to the management of the property both real and personal; to the distribution of the annual income of the university among the different departments of instruction and research; to the appointment of all officers and teachers in the university;…and to the enactment of the rules or statutes under which the regular work of the university proceeds. The board also passes finally on all the educational policies of the university; but in this function it ordinarily follows the advice of the university faculties….

Subsequently, these responsibilities were succinctly updated for modern use by Berkeley sociologist Neil J. Smelser '52, Ph.D. '58, JF '58. Of the University of California, he wrote in 1994:

> Many regents' expectations derive directly from the fiduciary charge assigned to them as a board of trustees. Among these expectations are (a) that the university's financial affairs will be carried out in an honest, reliable, and accountable fashion; (b) that the university's officers will exercise authority responsibly and effectively.

On the evidence, Harvard's past decade has proved troubling: a presidential tenure cut short, succeeded by the recent, and continuing, severe financial challenges. Perhaps these are fruitful starting points for the Corporation's inquiries.

Taking Smelser's second point first, the Corporation members might want to probe their understanding of why Lawrence H. Summers's presidency, from 2001 to 2006, did not succeed. What were the root causes? When did they emerge? What evidence of problems might the Corporation have detected—when, how, and from whom—and what might it have done then to effect a better outcome for the University? Or, phrased positively, having chosen a leader for Harvard, how might the Corporation best perform its review functions—oversight, performance evaluation, and compensation-setting—but also contribute, directly and affirmatively, to a successful presidency?

Turning to Harvard's resources, different questions arise. It is already painfully known what happens to universities when the investment return on their endowments turns sharply negative (in Harvard's case, combined with annual spending, reducing the value of those assets by $11 billion in one year). Similar lessons have been learned from the additional losses of $3 billion realized on the University's swaps and on the investment of its working-capital funds in illiquid instruments. Investment strategies are being altered; steps have been taken to restore liquidity; changes are being made in Harvard's management of its cash, how it funds administration, and its capital planning.

Is the Corporation also discussing how the Faculty of Arts and Sciences came to rely on endowment distributions for 54 percent of its revenues—and how the Law School has leveraged itself to pay for its huge new building? What were the spending policies that have now made the lessening of endowment resources so painful? Was there a credible plan for financing the ambitious campus construction program in Allston, and for operating the new facilities envisioned there? How were the assumptions underlying all these fundamental decisions critiqued and challenged?

Whatever the Corporation discovers and decides about its oversight of University leadership and its stewardship of finances, it may also want to explore organic alterations in its membership. It might at least wish to consider what would be required to revisit its basic structure, the Overseers' role, or other matters through legislation or other engagement with the Commonwealth of Massachusetts.

But improved governance does not depend on such changes. Should the Corporation organize itself into more formal, expert committees? As it attends to the long-term health of the institution, might it determine that its members' terms should be better staggered relative to the tenure of any Harvard president—the fellow Fellow whose performance they must review? After Conrad K. Harper, J.D. '65, resigned in protest in 2005 (see "I can no longer support the president," September-October 2005, page 56), the Corporation ended up with only one member, James R. Houghton '58, M.B.A. '62 (who concludes his service this June), not elected during the Summers administration. That obviously risked diminishing historical memory, institutional continuity, and independent perspective—all important attributes for Harvard's ultimate governing authority. Such changes are within the Fellows' power today.

Similarly, nothing prevents the Corporation—through its senior fellow, collectively, or in the person of the president—from reporting to the community about its activities and interests. The participants in a *Harvard Magazine* roundtable suggested as much four years ago ("Governing Harvard" May-June 2006, page 25). Might it have been helpful for the Corporation to explain its decision to reduce the endowment distribution (8 percent in this year, 12 percent in the fiscal year beginning July 1)? The *Yale Daily News* routinely features detailed accounts of that institution's weekend corporation meetings, based on a briefing from President Richard Levin; in a late-February dispatch, the newspaper reported his account of discussions of tuition, budget reductions, healthcare legislation and the medical school, undergraduate housing and curriculum, and library issues—complete with the identities of the Yale officials who addressed each matter.

The effects of the Corporation's self-examination extend far beyond its periodic meetings and the confines of Loeb House. How it governs has a direct bearing on the expectations for and conduct of University leadership and management. Accordingly, at this challenging moment, the Fellows might evaluate practices at peer institutions to see which could be fruitfully adapted to strengthen Harvard. For example:

• Communicating in a crisis. Other institutions have made it easy for constituents—faculty and staff members, students, alumni—to learn about their leaders' responses to the current financial difficulties, and the future options depending on possible investment returns and sustainable spending rates. Stanford does a good job of the former kind of reporting (http://budget.stanford.edu), Williams of the latter (through the provost's office, http://provost.williams.edu). Nothing equivalent exists locally, where Harvard's tradition of autonomous schools makes such communication more difficult—and even more vital.

• Putting events in context. Eliot lauded the Board of Overseers for directing the Harvard president to prepare "an annual report accompanied by a complete treasurer's statement, the report to cover all important acts and events for the year, together with remarks on the state of the institution, and on the measures recommended for its improvement."

The useful aspects of the president's overarching report have been lost as it has been reduced to a vestigial cover letter in the annual financial statement. Might the Corporation want to encourage the University to publish a *prospective* budget, so the community knows priorities and intentions for the year—and so there is a common point of departure in case new circumstances dictate spending less? For a complex research university with similarities to Harvard, Stanford's annual budget report—complete with operations, capital spending, and a longer-term capital plan—is an interesting example (http://stanford.edu/dept/pres-provost/budget/plans/index.html).

• Transparency. The *Harvard University Financial Report* (http://vpf-web.harvard.edu/annualfinancial) can be as opaque as it is illuminating. What was the sum of liquid funds invested in endowment-like instruments, and how did that grow, absolutely and proportionately, over time? When Harvard entered into swap agreements connected to funding for Allston construction, what were the terms and exposures of those derivative instruments? How much has been collected through the "strategic infrastructure fund" assessment (an annual half-percent levy on endowment funds to offset central expenses associated with Allston campus development)—and how has it been deployed? How much has been invested in Allston, from the first land purchases in the 1980s, through recent acquisitions (the Watertown Arsenal, the Massachusetts Turnpike site, the Doubletree Hotel), in financing costs, in planning and consulting and design fees, and now in the several hundred million dollars invested so far in the halted science complex: one billion dollars? two billion? more? In any of these cases, would clearer disclosure have raised any warning flags—or changed behavior?

The Faculty of Arts and Sciences (FAS) recently introduced more detailed annual financial statements. But here, too, there is room for improvement. Funds decapitalized from its endowment, FAS notes, offset deficits in the unrestricted operating budget, but the amounts and years are not disclosed. Surely that would be useful for understanding FAS's predicament now. And the functional disclosures (spending on libraries, say, or instruction) found in previous statements have unfortunately vanished.

Harvard, a private entity, is not required to disclose such matters. But such transparency—increasingly expected of diverse institutions—might help illuminate problems or opportunities, and engender support for University goals. Coincidentally, the Association of Governing Boards' recent update of principles for institutional governance emphasizes open communication and transparency.

• The vision. Finally, might not Harvard aspire to formulate and publish a strategy, extending beyond yearly reports on budgets and results? Eliot, who knew whereof he spoke, observed, "The American universities have grown in a casual, agglutinating way, without any definite plan or framework to tie together the different departments which were successively created." How much truer today—and how much riskier for a $4-billion-per-year enterprise. Harvard has typically winnowed its separate faculties' priorities to prepare for capital campaigns. But it has not completed that critical exercise for a decade and a half (and tying strategy to fundraising so explicitly invites a degree of cynicism).

Duke, a younger but surely rising research university, has conducted successive strategic-planning efforts, has published the results, and has backed up its chief priorities with hundreds of millions of dollars (see http://stratplan.duke.edu/plan.html). Much was implemented, and the 2006 plan proved a useful framework for budget reductions when the markets collapsed in 2008.

Someone who knows a great deal about that process and its value to Duke is its president emerita, Nannerl O. Keohane, LL.D. '93—since 2005, a Fellow of Harvard. Someone who has indicated a genuine interest in devising and carrying out an institutional strategy in Cambridge is President Drew Faust. She did so as founding dean of the Radcliffe Institute for Advanced Study; and she invited Lawrence University Professor Michael E. Porter, perhaps the foremost scholar of competitive strategy, to join her first retreat with her deans—in July 2007, just a dozen days after taking office—to explore ways they could become their schools', and Harvard's, foremost strategic leaders.

To complement their own reflections, the Corporation members can find useful sources of expertise on such urgent questions. Harvard's professional-school faculties harbor pockets of deep thinking about board roles, organization, and performance relative to the responsibilities of choosing an institution's leaders and suitably husbanding its resources. And there are external experts—for example, U.S. Court of Appeals judge José A. Cabranes has written about his trustee service at Fordham, Colgate, Yale (where he had earlier been general counsel), and Columbia.

However the Corporation defines its confidential inquiries—perhaps probing some of these issues, no doubt exploring many others—Harvard clearly faces consequential, overlapping questions of governance and of management. The events of the past decade invite deep examination of the institution. Prospective challenges to all research universities (a deficit-ridden federal government unable to fund more research, families constrained to pay more tuition, and uncertain endowment returns) make that self-analysis more urgent.

Members of the Corporation may not have expected to focus on such work when they agreed to serve—almost all of them in what turned out to be the financially ebullient years from 2002 on. But changed circumstances locally and in the wider world compel them to do so now. Concluding his "description of the functions and responsibilities of university trustees" 102 years ago, Charles W. Eliot said it is "obvious" that "service on such boards is in high degree interesting, useful, and honorable."

Visit harvardmag.com/extras for a link to coverage of the Japan portion of President Faust's March trip to Asia, and for detailed accounts of the panel discussions and other presentations during the Harvard Center Shanghai events

in its capitalist flowering at the beginning of the last century the roots of its new economic efflorescence.

Kirby reviewed the government's success in building infrastructure and the dynamism of Chinese entrepreneurs. He highlighted the remarkable expansion of Chinese higher education—"a great and welcome challenge to American universities"—and raised the critical issue of academic governance: the degree of autonomy granted to institutions, public and private, to pursue their "broader public purpose" of educating leaders for the future—a mission, he said, that two "not-quite-democratic institutions," Harvard and China, pursue together.

Looking ahead, Kirby foresaw a century "for all of us, in a world of shared aspirations and common problems." In the past, he said, "We used to say about the Chinese-American relationship, in so many areas, that we were *tong chuang yi meng* (sleeping in the same bed, while dreaming different dreams)….We are without question now, together, embedded in a global system of learning and teaching…from each other, as never before, and sharing many, if not all, of the same dreams" tangibly in the Harvard Center Shanghai.

One of Kirby's themes—acknowledgement of China's development, but frank recognition of past costs and continuing challenges—sounded throughout the day. In "Architecture and Urbanism," GSD dean Mostafavi, as moderator, asked the panelists how India and China could cope with their "phenomenal processes of urbanization"—prompting expressions of concern about pell-mell construction of trophy skyscrapers without regard for livable community (evident in the immediate environs of Pudong) and about the loss of historic structures and farmland.

Carswell professor of East Asian languages and civilizations Peter K. Bol and professor of Chinese literature Tian Xiaofei asked, "Who Cares about Chinese Culture?"—illuminating the ways

Yesterday's News

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

1920 The University's Endowment Fund campaign earns an unprecedented $8 million in receipts and another $4 million in pledges, prompting President Lowell to speak of an *annus mirabilis* in Harvard finances.

1925 A survey of seniors' career plans indicates that only 9 percent plan to follow their fathers' occupations, and that their top choices are business (21 percent), medicine (15 percent), and teaching and law (10 percent each), with the ministry at the bottom (0.6 percent).

1940 A poll of seniors for the 1940 class album reports that 52 percent anticipate a life "characterized by possible social and cultural turmoil, crisis, and catastrophe"; 56 percent feel the New Deal "should be either halted and abandoned or curtailed and modified"; and 18 percent believed Western culture is declining—though one man writes, "I don't know—will have to wait until the next Marx Bros. picture comes out."

1945 An estimated 12,000 people fill Tercentenary Theatre just after noon on May 8 for a 15-minute "service of remembrance and thanksgiving" in honor of V-E Day.

1955 Seniors are relieved when Civil Defense officials declare the University area exempt from a nationwide hydrogen bomb test-alert scheduled for Commencement morning. "The news brought welcome reassurance that H still stands first for Harvard, second for Hydrogen."

1970 After the U.S. invasion of Cambodia, and the shooting of fellow students at Kent State, nearly 1,000 Harvard students travel to Washington to protest.

1975 The Class Day committee, after being turned down by comedians Bill Cosby and Mel Brooks, finds its speaker in Muhammad Ali. He not only accepts the offer, but announces that he is "waiving his usual $3,000 speaker's fee in view of the honor of the occasion."

1980 "The College Pump," quoting from a weekly publication of the Freshman Dean's Office, reports that "[i]n recent weeks there have been several 'food fights' in the Union…This has to be cleaned up by the Union help who were not hired to be extras in a freshman aping of *Animal House*. So cut it out."

1990 The 103-year-old *Harvard Law Review* gains its first black president, Barack Obama, who calls his election "a signal to black students at all levels that they can still achieve, although 'discriminatory barriers remain formidable and there are tremendous educational problems, particularly for the poor….'"

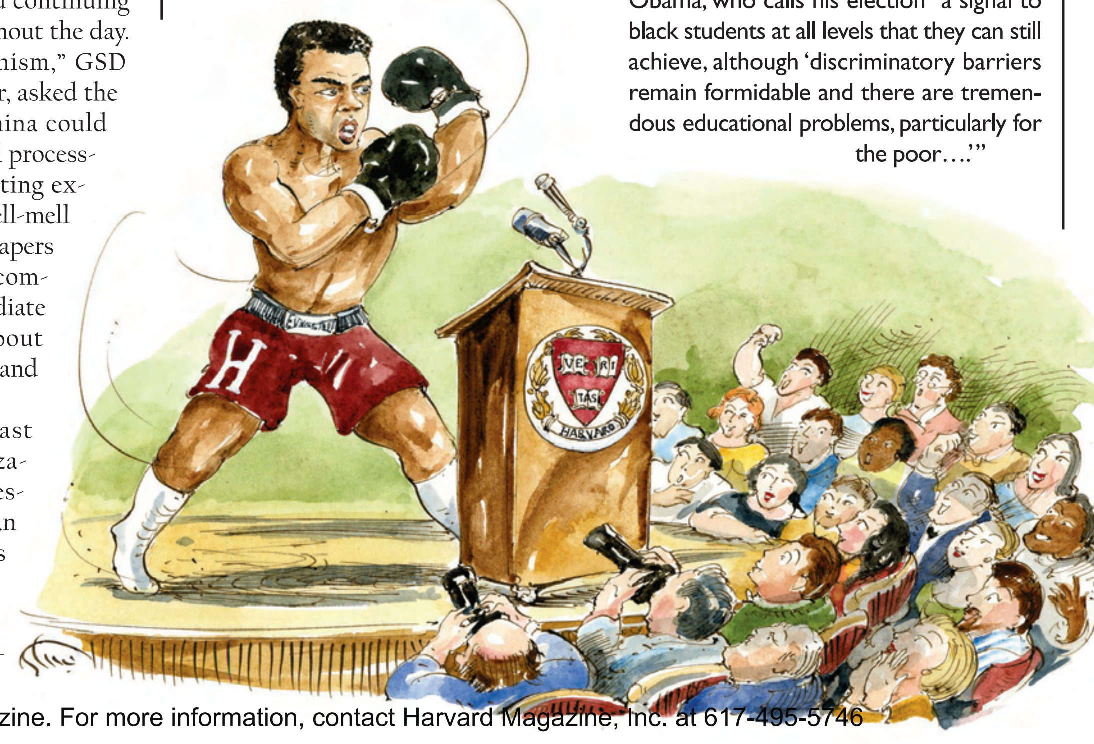


Illustration by Mark Steele

A bilingual welcome to a binational academic center (left). Wenqian ("Wendy") Wang '11, who interned in Beijing last summer, closes the March 18 banquet with a rousing version of "*Wo ai ni Zhongguo*" ("I Love You, China").

American and Chinese cultures reveal their multiple and shifting meanings and applications when brought into contact with one another. Barry R. Bloom, past dean of the Harvard School of Public Health, and colleagues explored "China's Newest Revolution: Health for All?" After noting that life expectancy had tripled during the past century, Bloom pointed out that the opening of China's economy to market forces in 1978 had resulted in the wholesale shift of healthcare costs to private payments, with devastating effects on rural health, widening gaps in access as incomes diverged, and perverse incentives for doctors and hospitals that led to abuse and enormous overuse of drugs and other therapies. Health reforms announced in 2009 promise to correct many of these problems, he said. But corruption, weak regulation, and deep-seated social challenges—from inadequate care for the burgeoning aged population to persistently high rates of suicide and the spread of sexually transmitted diseases—may not prove easily tractable.

At day's end, Starr professor of international business administration David B. Yoffie, who chairs executive education at HBS, outlined the compelling technologies—from mobile to "cloud" computing—that he sees propelling growth. That same day, China Mobile reported *adding* 65 million subscribers in 2009, bringing its total to 522 million—*half* the country's user base; Verizon and AT&T, the U.S. market leaders, each have about 85 million cellular customers overall.

A FRAMED WORK OF calligraphy in the Harvard Center's lobby presents a passage by Gu Xiancheng, a leader of the Donglin movement of the early 1600s—reformists' attempt to invoke Confucian moral tradition to improve life during the decline of the late Ming dynasty. As translated by Bol, the passage reads:

> Use moral principles to take charge of profit-seeking. Use profit-seeking to assist moral principles. Combined to complete each other, they will form a single stream.

That seems a fitting exhortation as Harvard tries to apply both liberal arts and professional disciplines to research and learning in China—and to China itself, as it relies on an unfettered market to grow, while adapting values and customs to its people's lives today.

These principles, applied in specific context during the panels on urban development, healthcare, and other topics, were explicitly the subject of the luncheon address. Bass professor of government Michael Sandel, whose course "Justice" has reached wide audiences in book and video versions, spoke on "The Moral Limits of Markets." Whatever their differences, he said, both the United States and the People's Republic face the predicaments arising during the past few decades as market thinking, institutions, and values have reached into spheres of life traditionally governed by nonmarket norms. But "markets are not mere mechanisms," he claimed, and can taint the goods and so-

"Use moral principles to take charge of profit-seeking. Use profit-seeking to assist moral principles."

cial practices they come to govern: he cited for-profit schools and prisons; the sale of organs and access to transplants; and, in China's hospitals, the sale of appointments to be seen by a medical professional.

"Markets leave their mark," Sandel asserted: once a good or service is for sale, it is valued as a commodity, abstracted from moral or political considerations. During an era of "market triumphalism," he said, people had drifted from "*having* a market economy to *being* a market society"—a transition that many have accepted without reflection, given markets' power to organize valuable productive activity. It was a challenging message within the ballroom of the Pudong Shangri-la, an impeccable outpost of China's foremost luxury hotel chain—itself a concept that would have been oxymoronic when Sandel began teaching political philosophy at Harvard in 1980.

IN HER EVENING ADDRESS, President Faust built upon the details of Harvard's history of educational involvement with China: some 250 Chinese earned Harvard degrees between 1909 and 1929, she noted, and more than 1,200 students and scholars from China, Hong Kong, and Taiwan enrolled or visited last year; the law and

Photographs by Stephanie Mitchell/Harvard News Office

Brevia

Masters Trio

Harvard College dean Evelynn M. Hammonds has announced the appointment of three House leaders, filling vacancies effective at the end of the academic year. Bower professor of leadership development **Rakesh Khurana,** of Harvard Business School (see page 30), and his wife, **Stephanie Khurana,** acting executive director of the Tobin Project, will be master and co-master of Cabot House. Cabot professor of the natural sciences **Douglas Melton,** a Howard Hughes Medical Institute investigator and co-director of the Harvard Stem Cell Institute, and his wife, **Gail O'Keefe,** an educational consultant, will direct Eliot House. And Smith professor of French language and literature and professor of comparative literature **Christie McDonald,** and her husband, **Michael Rosengarten,** a cardiologist, will preside at Mather House.

ULTIMATE OVERSEERS. Harvard's Board of Overseers (the University's junior govering board) has elected Seth P. Waxman '73 (above) as its president and Mitchell L. Adams '66, M.B.A. '69, as vice chair of the executive committee for the 2010-2011 academic year. Their tenure may be especially interesting, as the senior board, the Harvard Corporation, is considering changes in governance (see page 55). Waxman, former Solicitor General of the United States, is a partner in the Washington, D.C., office of WilmerHale. Adams, executive director of the Massachusetts Technology Collaborative, previously served as Massachusetts commissioner of revenue. They succeed U.S. Court of Appeals judge Merrick B. Garland '74, J.D. '77, and Ann M. Fudge, M.B.A. '77, former chair and CEO of Young & Rubicam Brands.

Cultural Icons

President Barack Obama has recognized a half-dozen University alumni and affiliates with the nation's highest honors for cultural accomplishments. Recipients of the National Humanities Medal included: **Robert A. Caro**, NF '66, Pulitzer Prize-winning biographer of Lyndon Johnson and Robert Moses; **Annette Gordon-Reed**, J.D. '84, another Pulitzer winner (for her biography of Sally Hemings and her family); **Philippe de Montebello** '58, Ar.D. '06, former director of the Metropolitan Museum of Art; and **Theodore C. Sorensen**, IOP '03, former presidential speechwriter and adviser, and biographer. Recipients of the National Medal of the Arts included Harvard honorands **Maya Lin**, Ds '83, Ar.D. '96, designer of the Vietnam Veterans Memorial and the Civil Rights Memorial; and the opera singer **Jessye Norman**, D.Mus. '88. Separately, the New-York Historical Society conferred the American History Book Prize on **Gordon S. Wood**, Ph.D. '64, an emeritus professor at Brown, for *Empire of Liberty: A History of the Early Republic, 1789-1815.*

G.R. CHRISTMAS/PACEWILDENSTEIN

Maya Lin

Tuition Ticks Up

The cost of attending **Harvard College** will rise to $50,724 next academic year, from $48,868 currently. The 3.8 percent increase is in the middle of the pack among peer institutions, whose announced price hikes range from 3.3 percent for Princeton and 3.5 percent for Stanford to 4.8 percent for Yale. (Each of those schools will have an undergraduate tuition, room, board, and fee bill below Harvard's in academic year 2010-2011.) The rate of increase represents a slight acceleration compared to the 3.5 percent hikes the College put in place in each of the preceding two years. The budget for undergraduate financial aid will also rise, to $158 million—a 9 percent boost—according to the University news release. For the record, the undergraduate term bill first exceeded the $40,000 threshold in 2006.

Focus on Health

The Faculty of Arts and Sciences has approved two programs that respond to growing interest in health-related fields. The School of Engineering and Applied Sciences will now offer an undergraduate concentration in **biomedical engineering**, drawing upon biology, chemistry, and engineering disciplines, and a natural evolution from recent University investments in the field (see "Engineering Bioengineering," January-February 2009, page 37). Separately, a coordinating committee on global health has been dissolved and succeeded by an instructional standing committee on **global health and health policy**, thus uniting work on healthcare policy in the United States (already a popular secondary field of study among College students) and in other nations. The result will be an enlarged secondary field of study embracing health issues around the globe.

Nota Bene

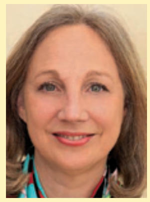
Envisioning research. Harvard Medical School has established a new executive deanship for research, and appointed **William W. Chin** to the position. He had previously served as senior vice president for discovery research and clinical investigation at Eli Lilly and Company, and for 25 years as a faculty member at the school. Chin will elaborate a research strategy aimed at interdisciplinary work crossing boundaries among the school's departments and its affiliated hospitals.


SUZI CAMARATA

William W. Chin

Public-service law. Harvard Law School has created a **public-service venture fund**, able to award $1 million in grants annually to help graduating students pursue careers in nonprofit organizations or government agencies. It succeeds, in part, the now-suspended program that waived third-year tuition for students who made five-year commitments to public service.

Undergraduate opportunities. The College has combined its Office of Career Services (for job counseling and searches) with both its new Office of Undergraduate Research Initiatives (for scientific and other research placements) and the Office of International Programs (for study-abroad, internships, and public- service options). **Robin Mount**, who had been interim director of OCS, has been appointed director of the newly named Office of Career, Research, and International Opportunities.



Robin Mount

Rotc rumblings. As policymakers in Washington discuss ending the military's "don't ask, don't tell" policy concerning service by homosexuals (Harvard Law School dean **Martha Minow** and peers at Berkeley, NYU, Stanford, and Yale in mid March urged congressional leaders to end the ban), **Stanford's Faculty Senate** appointed a committee to study that institution's response, including the possible benefits of re-establishing a Reserve Officers' Training Corps program on campus. ROTC programs at Stanford were phased out in the early 1970s, after the senate ended credit for courses in 1970; current students go to ROTC programs on other institutions' campuses, as Harvard cadets travel downriver to MIT today.

Miscellany. **Charles Clements**, who has been president of the Unitarian Universalist Service Committee and of Physicians for Human Rights, has been named executive director of the Harvard Kennedy School's Carr Center for Human Rights Policy…. Loeb University Professor **Laurence Tribe**, the constitutional-law scholar, has been appointed senior counselor for access to justice at the U.S. Department of Justice, where he will lead an initiative to improve access to civil and criminal legal services…. **Jody Freeman**, who had served as White House counselor for energy and climate change since early 2009, returned to the Law School in March and was appointed to a chair named for former Solicitor General and Watergate special prosecutor Archibald Cox Jr. '34, LL.B. '37, LL.D. '75, former Loeb University Professor. She will resume direction of the school's environmental law program…. Harvard has launched a dedicated iTunes site for University-generated content; log in at **http://iTunes.harvard.edu**…. Harvard Art Museum has appointed **Mary Schneider Enriquez** as Houghton Associate Curator of Modern and Contemporary Art. She has been Latin American art adviser to the museum since 2002 and is completing her Ph.D. in the department of history of art and architecture….The **Harvard Project on American Indian Economic Development** and a companion Native Nations Institute at the University of Arizona were honored with public sector leadership awards by the National Congress of American Indians, the organization of American Indian nation governments.


MATTHEW TEUTEN

Laurence Tribe


PHIL FARNSWORTH

Jody Freeman


HARVARD ART MUSEUM

Mary Schneider Enriquez

Visit harvardmag.com/extras for photos chronicling the demolition and construction

FIXING UP THE FOGG: SIDEWALK SUPERINTENDENT DEPARTMENT. Interior demolition of the Fogg Art Museum and of Werner Otto Hall continued throughout late winter and into early spring, in preparation for heavier construction as part of a three-year, complete renovation of the Harvard Art Museum complex (see "Two Projects Proceeding," March-April, page 48).

PHOTOGRAPHS BY STEPHANIE MITCHELL

GSD students, alumni, and other Harvard guests tour the award-winning waterfront park at Shanghai's Expo 2010 site (left)—an alternative, green model for development. At the site, designer Yu Kongjian explains his vision to President Faust.

medical schools have been active in China for a century; and Harvard experts now work with their Chinese academic peers and government officials on health policy, pollution control, and a wide array of arts and sciences.

More broadly, she said, "In a single decade, along with the world's fastest growing economy, China has created the most rapid expansion of higher education in human history." In that growth she saw "unimagined possibilities for understanding and discovery. It is a race that everyone wins." Importantly, she stressed, those possibilities lie not only within the vital realms of applied and professional knowledge, but also in the sphere of "creative and critical thinking…unfold[ing] not from a fixed model or prescribed solutions, but from vivid debate and unorthodox thinking."

Faust illustrated that passion by citing journalist Theodore White's recollections of his "swift passage from Harvard to China" as a first-year student in 1934. To escape the crowded Western Civ. reading room in Boylston Hall, she said, White crossed the corridor to the empty Yenching Library; there, "bleary with reading about medieval trade, or the Reformation," as he put it, he began to "pick Chinese volumes off the shelves—volumes on fine rice paper, blue-bound, bamboo-hooked volumes with strange characters," until he himself became hooked and "I began to feel at home."

In that era, East Asian studies was, as Faust put it, "a discipline centered on Chinese antiquities" of the sort that bewitched the young White. Today, the University offers more than 370 courses in the field—and students and scholars seemingly will need all of them to promote true understanding between the United States and China.

In the week of the Harvard party's visit, *China Daily*, which reflects government and Party views, was filled with furious critiques of American policy. "Politicizing yuan exchange can't fix Sino-U.S. trade imbalance" read one op-ed—over a cartoon of a physician listening to the heart of an obese "U.S. Economy" figure and asking, "Is this the Chinese yuan, again?" An editorial on Google and Internet access said the issue had "become a tool in the hands of vested interests abroad to attack China under the pretext of Internet freedom"—"an absurdity…beyond comprehension and…intolerable." An official report on "The Human Rights Record of the United States in 2009" (a response to the U.S. State Department's annual country reports on human rights) ran to three broadsheet pages of criticisms, complete with photographs of the Fort Hood massacre and abortion protests. Most evocative, given China's imperial past, was an accompanying cartoon of a corpulent, nude Uncle Sam admiring himself in a full-length mirror that showed him clothed as emperor.

Finding a vocabulary to narrow such differences would seem the urgent business of education, conducted face to face. And so at midday on March 19, in the last official gathering at the Harvard Center Shanghai, it was encouraging to hear the GSD studio students report to Dean Mostafavi and alumni on what they and their teachers had learned in snowy Beijing (from which they had just arrived).

One by one, students offered examples of how their eyes had been opened. Daniel Hadley observed that, given the pace of change and the scale of the project, the databases on which the class had depended proved already obsolete: housing exists where none had been shown. For Julie Gawendo, seeing the transportation infrastructure and proximity to Beijing underscored both the likelihood of rapid development and the need and potential to shape it in planned ways. Diane Lipovsky said that touring some of Beijing's remaining traditional *hutong* housing had strongly inclined her to plan for preservation—but when the students visited Sujiatuo and saw the poor living conditions that some villagers now endure, her views evolved.

Small lessons, perhaps, but not merely for classroom discussion. Later that warm, sunny afternoon, the GSD students, Faust, Mostafavi, and alumni boarded two buses for a visit to the frantic construction site that was to be ready, by May 1, to begin welcoming 70 million visitors to Expo 2010, Shanghai's world fair. As billions of dollars worth of country pavilions, overhead roadways, and a dedicated new subway line passed beyond their windows, the buses made for the one genuinely green design on the whole gigantic Expo campus—along the Huangpu River where Yu Kongjian and his Turenscape colleagues had been commissioned to reclaim a waste industrial waterfront as the new Shanghai Houtan Park, which they call "landscape as a living system."

Along a newly constructed wetland—designed to clean the river's polluted water naturally—the designers built pools, oxygenating cascades, and terraces reminiscent of the region's agricultural past where they planted crop species (rapeseed, rice), native grasses, and dawn redwoods and other indigenous trees. Here—in the midst of official China's urgent drive to build monuments and raise the nation's profile in concrete and steel—a different vision of the future, however small, is also taking root. Early the next week, the park won the American Society of Landscape Architects' award of excellence.

At the end of her banquet address, President Faust invoked the memory of the University's first Chinese instructor, Ko Kun-hua, hired in 1879 to teach undergraduates Mandarin. Upon his death in 1882, she said, "[A] keen observer of his life at Harvard put it this way: 'May [his] work bear fruit in a better understanding, a more confiding and generous friendship, between the oldest civilization on earth and the newest.' May the Harvard Center Shanghai and our work here bear similar fruits of friendship, knowledge, and understanding"—not only between those civilizations, she might have added, but within each of them as well.

THE UNDERGRADUATE

I Saw You...Standing There

by SPENCER LENFIELD '12

A FEW DAYS into reading period last semester, Tej Toor '10 presented her final project for Computer Science 50. She had created a very simple website, called "I Saw You Harvard" after its inspiration, "iSawYou.com." iSawYou is a "missed connections" site, a sort of hybrid between a personals section and "America's Most Wanted." The idea is that if you see someone in the Square who catches your eye, but disappears before you can get a name, you can write about it on I Saw You Harvard and have at least some chance, however remote, of getting in touch.

Lamont bottom floor

Posted at 12/07/2009 7:07 pm, F spotting M

I saw you...Blond, I think, heading downstairs in Lamont, I was heading upstairs, we smiled, I looked back as I walked up the stairs and you were looking at me through the glass door. Who are you?

or

At my boring job...

Posted at 12/09/2009 1:29 am, M spotting F

I saw you...at work. I always try to pick up shifts I know you'll have so we can talk. I asked you to hang out the other day but you had a paper...hopefully next time you'll be free. Although now I'm nervous to talk to you and ask...

The site proved a huge success, spurred on, doubtless, by the fact that it provided the entire College with a convenient and addictive distraction from reading period and exams. Those first few days saw a frenzy of "sightings," as posts are called: some 2,400 lovelorn utterances issued forth from the laptops and iPhones of Harvard undergraduates in that first incredibly busy week. It's a marvel that the University's Wi-Fi network didn't burst from the sudden outpouring of anonymous romantic tension.

It quickly became clear, though, that very few of the posts were missed connections in the strict sense. More frequent were the unspoken, nondescript crushes that clearly didn't want to be discovered:

Harvard Square
Posted at 2010-02-25 22:43:38, F spotting M
I saw you with everyone else tonight. I wish we didn't have to be just friends. Looking at and talking to you makes me smile.

and

Lamont
Posted at 12/08/2009 3:39am M spotting F
I saw you…in Lamont. You are cute.

Or the remonstrations:

The Yard
Posted at 12/14/2009 9:23pm, F spotting M
I saw you…walking around in your flip flops. Your toes were really red. Put on some damn shoes!

Or the general observations:

12/21/09, 9 am, Sever 113
Posted at 2009-12-20 22:57:51, F spotting F
I will see you, last final of sophomore fall… and let me just tell you, you won't stand a chance against me.

Almost immediately, people began to parody the entire concept of the site. Things quickly turned self-referential and mocking:

internet
Posted at 2009-12-13 20:00:54, F spotting F
I saw you…killing my productivity. Thanks, isawyouharvard.

Or:

On isawyouharvard.com
Posted at 2009-12-15 03:48:13, M spotting F
I saw you…far off in the distance as I posted to isawyouharvard.com. It was nice knowing you, dignity…

Then January came, the campus cleared out, and except for a few posts, the site lay dormant. When spring semester began, the site was still attracting traffic, but less of it; what had been hundreds of posts per day slowed to a few dozen, and gradually leveled off somewhere between 10 and 20. Moreover, while the actual sightings diminished, the mélange of commentary, complaint, and joking stayed. Crossfire began, with users trading posts and ripostes. Some of the fun was gone, and what had been a relatively amusing, if occasionally nauseating, catalog of daily infatuations began to look like a vast bathroom wall.

What had been a relatively amusing, if occasionally nauseating, catalog of infatuations began to look like a vast bathroom wall.

This has happened before. In March 2007, Lizzie Widdicombe '06 wrote in the *New Yorker* about boredatlamont.com, which, in effect, was *trying* to be a vast bathroom wall: it consisted of a single, scrolling, unmoderated message board. At the time, Bored At Lamont had accumulated more than 170,000 posts—in terms of sheer volume, immensely more than I Saw You Harvard.

I entered Harvard in the fall of 2008, and never once did I hear anyone say a thing about Bored At Lamont. When asked, almost none of my classmates even know what it is. Juniors and seniors speak of it as a kind of distant memory, getting the same look on their face as my parents do when remembering Ed Sullivan. Within a year and a half, a website that at one time had an average of 25 posts for every student in the College had become a relic. If you visit Bored At Lamont now, you will find a largely defunct website, defaced by students from other schools and visited by only a few truly bored souls—the online equivalent of a ghost town.

Harvard FML, a side project of the online student magazine *The Voice*, was launched at the beginning of the current school year. The site is a Harvard-specific version of "fmylife.com," in much the same way as I Saw You Harvard imitates iSawYou. Every post ends with the abbreviation "FML," which stands for "f*** my life," and ideally consists of some sardonic mishap from daily life ("I go to Lamont so that I can focus on Facebook. FML"), but many are indistinguishable from simple complaining ("I have a midterm, in a class I have not attended since January. FML"), and sometimes downright unfunny ("I have leukemia. FML"). Harvard FML, like I Saw You Harvard, is a moderated site, which helps keep out some of the dreck that covers Bored At Lamont, but the fact remains that both sites are at the mercy of

Illustration by Robert Neubecker

what people—these mysterious, anonymous Harvard students—produce for it. In the end, all such sites suffer the same crisis of purpose: why are people writing this stuff? And who's reading it?

It's easy to turn these questions into a jeremiad against the Internet, or the shallowness of youth culture and its fads, or the failure of students to make meaningful real-life connections—all of which might be fair to some extent, but ultimately miss the point. There's nothing terribly new here: the outlet, perhaps, but not the impulse. (The virtual bathroom walls were preceded by actual ones.) It's the allure of anonymity, but also the sense that you have something to share—the thought that if you were released from all responsibility for a statement, free to speak with complete honesty, you could get at the heart of what goes on not only in your own mind, but in others' as well. People don't think that they're writing with Shakespearean wit (much less profundity), of course, but neither do they think that their posts are completely worthless—otherwise, why bother to write in the first place? This is true of both the drippingly sincere and the bitingly sarcastic. Irony and honesty blend together. It is impossible to tell whether the leukemia poster was being serious or facetious. The difference stops mattering. The point is being able to touch something at the core of the everyday, whether it's a bitter complaint, a secret crush, or a disdain for the notion of either.

But it's only a fantasy, and it gets old fast. Those things *aren't* really the heart of the everyday; they're the surface. The sad fact is that thinking takes work, and so what goes on in your head when you're bored at Lamont sinks no further beneath the surface than any of the other thoughts you have from moment to moment. Feeling like everything is going wrong, or wondering if the person you passed was someone special—these are experiences everyone has, and for that reason, they might be interesting for a bit, but ultimately only tell you what you already knew. It's thrilling to find that there's someone out there who thinks the same thoughts as you, but, in the end, it's not very helpful. That explains why these things tend to appear, flare up, ebb, and all but disappear: after a while, all the flirtations and the frustrations start to resemble one another. And, though we occasionally like to entertain the fantasy that we're at Harvard because we're at least a *bit* out of the ordinary, that's as true here as it is anywhere else.

Berta Greenwald Ledecky Undergraduate Fellow Spencer Lenfield '12 will be at Cambridge University this summer, studying English literature at Pembroke College.

SPORTS

Game, Match, and High Set

A contrarian approach to the "philosopher's stone of tennis"

Former gymnast Bruce Wright brings unconventional views to the tennis court.

In 1970, while watching tennis, Bruce Wright had a life-changing moment. He'd been invited to a professional match in Washington, D.C., that featured the legendary Rod Laver. Wright, an outstanding gymnast at Springfield College, hadn't seen much tennis, but found himself hypnotized. He observed Laver's on-court movement with a gymnast's eyes, ignoring the flight of the tennis ball but soaking up details of how the great Australian lefty carried himself. "I couldn't even tell you who his opponent was," Wright says. "But I noticed a subtle thing: Laver had optimized the height of his center of gravity while moving to and from each shot. Later, with much more study, I realized that this was the single factor that distinguished Laver and put him head and shoulders above his peers—not stroke production, not fit-

Photographs by Stu Rosner

Aba Omodele-Lucien '11 demonstrates a high center of gravity or "high set" (left) and a corresponding "low set."

ness, but his high center of gravity when moving to the ball."

Wright spent years watching a "huge amount of tennis on videotape" and, through study and experimentation with players, determined that this "high set" (high center of gravity) confers several major advantages. The high set results from "trying to stand as tall as possible," Wright says, "moving while minimizing flexion of the knees and waist." Doing so, he says, makes players quicker to the ball, improves their stamina (as it is less fatiguing than a "low set"), and puts less overall strain on the body, making injuries, especially knee injuries, less likely. As a 66-year-old volunteer assistant coach at Harvard, he's now working with Dave Fish, head men's tennis coach since 1976, and assistant coach Andrew Rueb to bring this innovative concept to the Crimson varsity.

Wright's approach is contrarian because, almost unanimously, tennis coaches advise their students to "get low to the ball," to move toward the ball from a modified crouch. "If you have to get down to hit the ball," Fish explains, "the assumption is that you should get down to the ball as early as possible." But Wright distinguishes crisply between "hitting stance" (one's stance while actually striking the ball) and "moving stance" (how one holds one's body while moving around the court between hits). "Nobody has paid any attention to moving stance because everyone is glued to the ball," he explains. "But the efficiency of your *hitting* stance is determined by the efficiency of your *moving* stance. If you get there later, you'll hit it badly." Only on the final step before hitting the ball, he advises, should one lower the body to the degree necessary.

The high set enables quicker movement from the "ready" position and keeps athletes light on their feet. The result is the kind of moving stance epitomized in Muhammad Ali's maxim, "Float like a butterfly." Wright notes that "Ali was a high setter," adding that the high set is effective in any sport that involves quick initiation of movement. "It's very significant, as it affects every single contact with the ball and every recovery after a stroke," says Fish. "When the player, after the split step [the body's slight lift that initiates movement], returns to the higher set, that player is instantly unstable in the most desirable sense. That instability allows him to move forward, back up, or lunge out to either side more quickly. [Top professional player Roger] Federer seems to float above the court, because he maintains a high set."

Visit harvardmag.com/extras to view a video on the high-set concept.

After his gymnastics career at Springfield College, where he was nationally ranked in the rings ("A physical impossibility for someone as weak as I am," he says, grinning), Wright went on to coach gymnastics there, and then at MIT and Annapolis, and to consult with the tennis squad at West Point. He took up tennis seriously after his epiphany watching Laver, and within two years was skillful enough to have made the naval academy's varsity, according to their coach. Using his concept of high set, Wright then worked with several pro tennis players, including Stan Smith, winner of the 1971 U.S. Open and 1972 Wimbledon.

By 1977, Wright felt that he'd introduced

Sports Wrap

Squash

The **women's** team (12-0, 6-0 Ivy) had an undefeated season and captured the national championship, dispatching Williams, Yale, and Penn for the Howe Cup at the College Squash Association (CSA) national tournament. Phenomenal freshman Laura Gemmell won the national individual championship, completing an unearthly 16-0 season in which she lost only three *games*, two of them in the CSA individual final.

The **men** (5-4, 4-2 Ivy) finished ranked fifth in the nation. Co-captain Colin West '10 took the CSA national individual championship, to round out a dominant 16-1 season and end his Harvard career with a 50-9 overall record. West also won the Skillman Award for the senior squash player showing outstanding sportsmanship over his college career.

Wrestling

J.P. O'Connor '10 claimed the NCAA 157-pound championship, defeating Chase Pami of California Polytechnic, 6-4, in the final. O'Connor's 35-0 season was the first perfect campaign in Harvard grappling history. He is Harvard's third national champion, joining John Harkness '38 and Jesse Jantzen '04. The Eastern Intercollegiate Wrestling Association named O'Connor Wrestler of the Year.

> "It was so contrary to common knowledge—it was like saying, 'You're supposed to drive on the left side of the road.'"

the concept of high set to pro tennis, and that its obvious merits would ensure its eventual adoption throughout the game at all levels. Not so. "So great is the force of tradition that the tennis world missed it," Fish explains. "If you've been told that two plus two equals three long enough, no one is going to stick his head out and say it equals four. I had never seen anyone pay attention to the inefficiency of the low set."

Even a top-10 pro like current American star Andy Roddick could benefit from the high set, Wright says—especially on the forehand side. "Andy lowers to some degree moving to most forehands," he explains. "Arriving in position in a more crouched, lower moving set than optimal, his body tends to rise up during his forward swing, taking his racquet upward with it. But an upward swing generates topspin, which—in contrast to a flatter ball—reduces pace, producing a less penetrating shot and hence more time for Andy's opponents to get to and make their reply."

Wright, who first met Fish almost three decades ago, began sharing his insights with him two years ago, and this year they began coaching the men's varsity on the importance of high set. "The guys resisted

The Mystique of Red Top

Nearly everything about the Harvard-Yale regatta is unique.

The dining hall of the Harvard crew's training camp, with its game-room addition at right, overlooks the Thames River.

The long list of past results is studded with footnotes that illuminate some of the more peculiar races. In 1870, for example, "Yale ran into Harvard, which was leading at the turning stake; Yale disqualified." In 1890, "Yale stroke broke oar, dove overboard;" in 1971, Yale's #7 man lost his oar and dove into the same river. In 1911, Yale's stroke was taken from the shell near the three-mile mark, presumably a victim of exhaustion, a fate that befell an un-footnoted Harvard oarsman in 2007, enabling Yale to come back from a deficit and nip Harvard by half a second.

Let's not forget the notorious "eelgrass" race of 1882, when "At the mile Yale led by a length of clear water, but the coxswain losing his head steered through a patch of eelgrass near the east shore, owing to which they were 19 seconds behind Harvard at the mile and a half," according to a Yale historian. The Blue gamely rallied to come back and ultimately lost by only three seconds, despite setting a new Yale course record.

In the Red Top dining hall, the Sexton Cup—given to the winner of the varsity four-miler—outshines more informal croquet awards.

There are many quirky stories partly because there have been so many races: this year's will be the 145th (Harvard has 90 wins, Yale 54). The Harvard-Yale Boat Race, begun in 1852, is the oldest intercollegiate athletic contest in the United States. The varsity four-mile event is the longest crew race regularly rowed in North America. Its only peer is the even older and longer Oxford-Cambridge Boat Race (4¼ miles), which dates from 1829. Both regattas take place upon the Thames, though the one in Connecticut rhymes with "games." Harry Parker, the men's head crew coach, says, "It's special—a very, very challenging race. It puts a premium on training hard, good determination, and endurance."

The race training is unique in the world of college sports. Harvard and Yale are the only colleges that maintain special training camps to prepare for a single athletic contest. Harvard's is called Red Top, after the color of a cupola atop the small boathouse there; Yale's, a short way upstream, is Gales Ferry, the name of a local town. These camps lie fallow all year until the crews arrive a week or two before their showdown. Only heavyweight men compete in New London: the varsities plus the freshmen (a two-mile race), JVs (three-mile race), and an unofficial "combi crew" (a mix of oarsmen from the third varsity and second fresh-this at the beginning," Fish says. "It was so contrary to common knowledge—it was like saying, 'You're supposed to drive on the left side of the road.' The high-set concept met with both respectful doubt and mockery and ridicule." But as players began adopting it, the results started speaking for themselves. "I've noticed an increase in consistency, which is the philosopher's stone of tennis," says Fish. "Our guys have hit individual shots well enough to beat the pros, except the pros can sustain that kind of play through a match with greater consistency."

Take Alexei Chijoff-Evans '11, currently Harvard's number-one singles player. "Alexei is a big guy who's been taught to move low all his life," Fish says. "He felt that his results in tennis all depended on his stroke. After he adopted the high set, he began to feel he could hit a big shot from anywhere on the court." Chijoff-Evans adds, "I have a propensity to drop my head and bend at the waist too much on the serve. By staying higher, my serve percentage has gone up and I'm able to hit it harder. I'm also making a lot more forehands—not muscling the ball with my arm but hitting it a lot more loosely."

Wright is now at work on a book titled "The Movement Myth" that describes his findings. He has even gone beyond high set into an analysis of the anterior/posterior axis that he feels can illuminate a long-overlooked physical source of error in athletics. Stay tuned. ~CRAIG LAMBERT

Two Harvard crews (right) row past "The Rock," long contested as a site for Harvard or Yale partisan artwork. Below, rowers convene with coach Harry Parker. The boathouse, with its eponymous red cupola, is at left.

man boats who race two miles on Friday—before the regatta proper on Saturday—or sometimes on Sunday).

The days leading up to the floating clash are a college oarsman's version of the Elysian Fields (or streams), a paradise of sorts where there is little to do but row, eat, sleep, and horse around. The Harvard crews row twice daily, in the early morning before breakfast, and in the afternoon. In between, there's ample time for games of cards (and today, video games) or croquet on the riparian lawns. "They *call* it croquet," cautions Ian Gardiner '68, M.B.A. '74, former chairman of the Friends of Harvard and Radcliffe Rowing, who stroked the 1967 varsity. "I dare anybody to beat Harry [Parker]. He made up the rules as we went along. There was ample cheating on all sides."

There can be serious matters to attend to, as well, such as exams: many oarsmen have taken finals at Red Top and "Harry was often the person who gave people their diplomas," Gardiner explains, because the regatta sometimes conflicted with Commencement. (This year, Harvard's revised academic calendar means that the race falls on May 29, two days after Commencement.)

"The event has changed so dramatically in terms of its importance in the world," says Clint Allen '67, who stroked the undefeated 1966 varsity that finished nine lengths ahead of Yale. In the 1920s and 1930s, as many as 100,000 spectators thronged to New London for the regatta, and a special observation train rolled along the riverbank, enabling its passengers to keep track of the race. As late as 1966, Allen recalls, "There were hundreds of yachts side by side, lining the last half mile of the course. They were all blowing their horns and it was a cacophony." Allen's victorious race made the front page of the *Boston Globe;* today, he says, "You have to hunt in the sports section to find the results," and spectators number in scores rather than thousands.

Yet spectatorship has never been the primary issue. "The striking thing to me is how participants in the regatta *continue* to cherish the experience," Parker says. "They treat it as a really special event, and that's a large part of why they are so loyal to it."

Indeed there is a timelessness to Red Top. In the dormitory, "You look at the door of your compartment and see the names of your predecessors," says Gardiner. "You are becoming part of history there." ~C.L.

Photographs by Craig Lambert

Seeing the Forest for Its Trees

An alumna works to sustain commerce and conservation

Laurie Wayburn finds both inspiration and solace in these protected woodlands, within walking distance of her San Francisco office.

Growing up in San Francisco, Laurie Wayburn '77 rarely attended church on Sundays. Instead, she and her family went hiking. Mount Tamalpais State Park, Muir Woods, and the Point Reyes National Seashore—among the most diverse and beautiful landscapes in the nation—are all within easy reach of the city and quickly became as familiar to her as her own backyard. "We were raised in that environment," she says. "Nature was our church."

Now president and co-CEO of the Pacific Forest Trust (PFT), Wayburn is still a convert—and one of the more innovative conservationists in the environmental field. "Everyone loves to be outside; nature is where we all come from, and even through millions of years of evolution, we still respond to it," she says. "Nature is central to our emotional, physical, and spiritual wealth and well-being. A central motivating force for me in this work is creating a resonance with that part of our lives at a very basic economic level: building an understanding that nature *is* where our wealth comes from."

To marry these cultural and economic realities, Wayburn and her partner, Constance Best (who co-founded PFT with Wayburn in 1993), have focused on conserving *working* forests. And through pioneering a conservation easement specifically for land still in production, they have found a way to reward landowners who engage in sustainable timber harvesting *and* long-term stewardship that preserves forests' critical role in removing greenhouse-gas emissions, providing clean water and habitats, and stabilizing the environment. "It's the old 'You can have your cake and eat it, too,'" says former PFT board member Walter Sedgwick '69. "There are people who want to protect and set aside forests through organizations like the Save the Redwood League, the Sierra Club, and the Nature Conservancy, which tend to buy forest and let it grow, and people who would cut down the forests in short rotations and monetize the resources." PFT's approach has brokered a middle ground in what has always been an extremely polarized, politicized arena.

"What's different about Laurie and Connie," Sedgwick adds, "is that they said, 'We can get almost all we want in terms of biodiversity and conservation values, but we can also cut.' The real enemy of the forests is not the big timber companies, but the permanent conversion of those forests into sprawl. From Laurie's point of view, the landowners are the good guys."

As Wayburn, who spends a lot of time with state and federal politicians these days, puts it: "I've found that a love of the land is inherently bipartisan; but so is a love of money. If you love land and you love money, this is a way to have both."

Photograph by Toni Gauthier

In numeric and environmental terms, the stakes are very high. Forests cover one-third of the United States—and two-thirds of them are in private hands, so there are only nominal regulatory controls over their development. Forests fuel the nation's $130-billion timber industry, delivering basic products and critical rural jobs. "Every year, forestlands the size of Delaware are being destroyed," Wayburn says, "and nobody wakes up realizing what that really means to our world. Frankly, you can create alternatives for a variety of timber products out of other plants and materials through recycling—but you *cannot* replace the clean air and clean water that forests nurture." She believes American culture is slowly evolving into a society that recognizes the need to pay for what it really needs—a stable, resource-rich environment.

PFT's work on two fronts—developing and practicing direct land conservation services, and promoting public policies for sustainable forestry—is meant to speed this cultural evolution. Forests are like an old-fashioned bank account, Wayburn likes to say: "They grow on their own, if we let them. But we need to apply conservative banking principles to our forest management: conserve and re-grow the principal."

The privately owned Van Eck Forest, for example, is a 2,200-acre tract that PFT manages and conserves in Humboldt County. It is a testing ground and model for PFT's brand of stewardship, and was the first emissions-reduction project registered in California under that state's new carbon-accounting standards, which PFT was instrumental in drafting, in 2006. The system rewards landowners for responsible harvesting practices by allowing them to sell carbon credits from forests in the carbon market created by the state's landmark legislation. At the same time, under its working easement, the Van Eck Forest is projected during the coming century to reduce more than 500,000 tons of CO_2 emissions through sustainable forestry techniques that sequester more carbon than conventional methods do.

Recently, PFT took this easement principle a step further toward species preservation and habitat formation. Two endangered northern spotted owls have been seen on the property, engaging in behavior that typically leads to nest building, Wayburn says. (She has vast knowledge of bird life and was executive director of the Point Reyes Bird Observatory before founding PFT.) Typically, in such a case, timber production would be restricted under the Endangered Species Act—a source of tension and conflict between landowners and conservationists. But because PFT's easement was already in place—and had, in fact, helped foster a habitat that drew the birds in—the U.S. Fish and Wildlife Service recognized the easement's inherent value and PFT was able to use that to negotiate a 99-year Safe Harbor Agreement that did not interfere with planned logging on the land.

> "You can create alternatives for the timber products—but you *can't* replace the clean air and water."

The negotiation also heartens Wayburn because it affirms the possibility of finding and forging common ground. "The number of forests that are conserved versus the number lost to development—that's very depressing," Wayburn notes. "So I prefer to focus on creating situations where there is a win-win-win. A lot of this work depends on how you look at your opportunities, saying, 'How can I find a friend here?' 'How can we work together?' That's my approach."

In January, Wayburn led a "working lands coalition" (forest landowners, mill owners and environmentalists) to Washington, D.C., to advocate for the inclusion of forests in climate and energy legislation. Group members stressed the need to maintain and increase jobs in the declining wood-products industry in order to reduce pressure on landowners to sell forest tracts for development. Specifically, they said, the climate bill should include: an accurate accounting of carbon stored in and emitted by the nation's lands; acknowledgment of emissions reductions from forests in any climate policy; and funding for conservation and stewardship to protect essential infrastructure that reduces carbon emissions.

Now that she is more immersed in developing policy, Wayburn misses working directly with private landowners. "One of the fun things is that many of them really *love* their land and keep logs on what birds return and what flowers bloom first," she notes. "They are deeply attuned to aspects of their own property and are knowledgeable about what happens there from an ecological point of view. That always makes it a real pleasure to go out walking with them."

Colleagues say that Wayburn herself can identify most of the local plants, trees, and birds outside the PFT office, at the Thoreau Center for Sustainability in San Francisco's Presidio, near the Golden Gate Bridge. It is not unusual for her to stop mid-sentence to listen to a bird's call. "Getting ourselves back in touch with the natural world," she says, "is enormously powerful."

Maybe even more so for her than for other people. Hampered throughout her teens by chronic pneumonia and kidney diseases, Wayburn spent a lot of time in the hospital. Trips outdoors to see birds and open sky, or study insects on the forest floor, were comforting. "I'm a big softie about animals—we have two mice, one magnificent cat, and a delightful dog, in addition to our nearly eight-year-old child," she says. "I think animals make us human."

At Harvard, where she transferred after a year at the University of California-Davis, Wayburn worked closely with Agassiz professor of zoology and professor of biology Farish A. Jenkins Jr., spending most of her time at the Museum of Comparative Zoology "pulling out drawers of dead birds and studying their skins." She concentrated in geology and biology, but would have chosen ecology had that been an option.

Some might argue that such formal study was less valuable than what she'd already learned growing up with her parents, Peggy and Edgar Wayburn, M.D. '30, a renowned conservationist and former Sierra Club president who died in March, at the age of 103. Campaigns that he led ultimately protected about 104 million acres of Alaskan wilderness and huge tracts throughout Northern California, including the places his daughter still loves to hike. He was also a prime mover in establishing the Golden Gate National

COURTESY OF LAURIE WAYBURN

Wayburn carries on the spirit of her late father, the conservationist Edgar Wayburn.

Recreation Area, and had the foresight to push to have the Presidio, a nearly 1,500-acre former military base at the foot of the bridge, added in time.

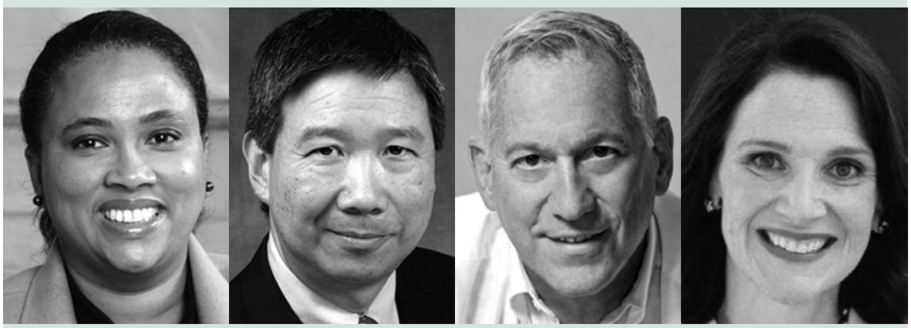
Her father also influenced her decision to transfer to Harvard, "because he had such a wonderful time there," she explains. Yet Wayburn says she felt like a foreigner in Cambridge and gravitated toward the international students. That eventually led her to work on environmental issues in Africa for the United Nations after graduation. In Kenya, she realized two things: that the working environment—when integrated into the real lives of real people—is not "about a pretty postcard or a pristine landscape"; and that the goal of environmental sustainability should be to work with what exists already. "That means, for example, not necessarily bringing in sheep, goats, and cattle, which come from a European context," she explains, "but working with what's native, with whatever natural grains can grow in small patches with less water. Environmentalism is about looking at the natural diversity and developing solutions within an existing context."

This thinking is evident throughout one of PFT's most recent conservation initiatives, for the Klamath-Cascade region, which runs from northern California across the slopes of Mount Shasta and into Oregon. These 9.8 million acres, half publicly owned, "contain the most biodiverse conifer forest in the world," Wayburn says. "The region is the source of two-thirds of California's drinking water—and most people don't even know it exists." This valuable "wood basket" also produces up to 75 percent of the timber harvested in California annually. "This is a prime opportunity to knit together different aspects of conservation," she reports: "a functional landscape in which we can grow a natural resource and sustain the economy—in an area that still has large ownership on the private side, as well as relatively low population and nice weather—which means it is under huge development pressures." The region is still fairly intact, but PFT is working closely with stakeholders and affected communities, seeking to create a "greenprint" to guide a truly viable future.

The Presidio, where Wayburn works every day, would not have become a federal park had others before her not had the same foresight to develop it responsibly. Five minutes' walk from her office is a stand of 30-foot coastal redwood sequoias known as the Wayburn Grove, dedicated to her parents; to celebrate her father's hundredth birthday, her son, Elliott, helped plant another one. Wayburn sees her own work as carrying on not so much his legacy but his spirit. "Perhaps his greatest gift was showing that if you have a vision, pursue it—it's possible to make it happen," she says. "He was a marvelous man who seized the opportunities of his time, just as we have to seize them relative to ours."

~NELL PORTER BROWN

For Overseer



Cheryl Dorsey **David Tang** **Walter Isaacson** **Diana Nelson**

David Heyman **Karen Nelson Moore** **Joseph Fuller** **Nicholas Kristof**

Cast Your Vote

THIS SPRING, alumni can choose five new Harvard Overseers and six new directors for the Harvard Alumni Association (HAA) board. The candidates' names appear in ballot order below, as determined by lot. Ballots should arrive in the mail by April 15 and are due back in Cambridge by noon on May 21 to be counted. Election results will be announced at the HAA's annual meeting on May 27, on the afternoon of Commencement day. All holders of Harvard degrees, except Corporation members and officers of instruction and government, are entitled to vote for Overseer candidates. The election for HAA directors is open to all Harvard degree-holders.

For Overseer (six-year term), the candidates are:

Cheryl Dorsey '85, M.D. '91, M.P.P. '92, New York City. President, Echoing Green.

David Tang '75, Seattle. Managing Partner, Asia K&L Gates.

Walter Isaacson '74, Washington, D.C.

For Director

Irene Wu

Roger Fairfax Jr.

Lindsay Hyde

George Newhouse Jr.

Reynaldo Valencia

M. Margaret Kemeny

Kenneth Bartels

Mark Fusco

Victoria Wells Wulsin

CEO, The Aspen Institute.

Diana Nelson '84, San Francisco. Director, Carlson Companies, Inc.

David Heyman '83, London, film producer.

Karen Nelson Moore '70, J.D. '73, Cleveland. U.S. Circuit judge, U.S. Court of Appeals for the Sixth Circuit.

Joseph Fuller '79, M.B.A. '81, Cambridge. Cofounder, vice chairman, and CEO, Monitor Group.

Nicholas Kristof '82, New York City. Columnist, the *New York Times.*

For Elected Director (three-year term), the candidates are:

Irene Wu '91, Washington, D.C. Director of international research, U.S. Federal Communications Commission; adjunct professor, Georgetown University.

Roger Fairfax Jr. '94, J.D. '98, Washington, D.C. Law professor, George Washington University Law School.

Lindsay Hyde '04, Boston. Founder and president, Strong Women, Strong Girls.

George Newhouse Jr. '76, Los Angeles.Partner, Brown, White & Newhouse, LLP.

Reynaldo Valencia, J.D. '90, San Antonio. Associate dean for administration and finance; professor of corporate and securities law, St. Mary's University School of Law.

M. Margaret Kemeny '68, New York City. Professor of surgery, Mt. Sinai School of Medicine, chief of surgical oncology, and director of the Queens Cancer Center.

Kenneth Bartels '73, M.B.A. '76, New York City. President and CEO, Paxton Properties, Inc.

Mark Fusco '83, M.B.A. '90. Westwood, Massachusetts. CEO, Aspen Tech.

Victoria Wells Wulsin '75, M.P.H. '82, D.P.H. '85, Cincinnati. Physician, Mid-City Pediatrics.

Comings and Goings

Harvard clubs offer a variety of social and intellectual events around the country. For information on future programs, contact your local club directly; call the HAA at 617-495-3070; or visit www.haa.harvard.edu. Below is a partial list of early spring happenings.

On May 10, the **Harvard Club of Andover** offers "Life, Liberty, and Happiness After the Digital Explosion," with McKay professor of computer science Harry Lewis. On May 19, Marshall Goldman, senior scholar at the Davis Center for Russian and Eurasian Studies, talks about "Putin, Petroleum, Power, and Patronage" at the **Harvard Club of Minnesota.** Also on May 20, senior admissions officer Dwight Miller reveals "Perspectives on New Jersey Admissions" for the **Harvard Club of New Jersey.** Miller then meets with members of the **Harvard Club of Phoenix** on June 7 to discuss "A Three-Decade Harvard Admissions Window on Arizona."

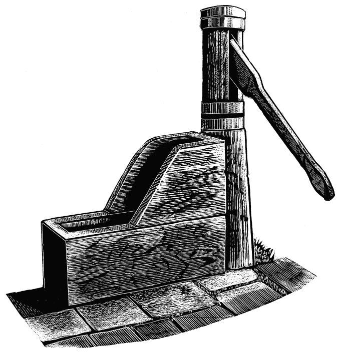
On May 20, the **Harvard Club of Indiana** explores "Stem Cells: The Science We Must All Know" with Robert Sackstein, associate professor of dermatology. On May 23, Knafel professor of music Thomas Forrest Kelly discusses "Teaching Old Music at the New Harvard: Beethoven's Ninth Then and Now" with members of the **Harvard Club of Chicago.**

On June 2, the **Harvard Club of Fairfield County** hosts William Fitzsimmons, dean of admissions and financial aid, for a look at "New Frontiers in College Admissions and Financial Aid." And on June 6, the **Harvard Club of Saint Louis** learns about "Heeding the Call to Service" with Timothy McCarthy, lecturer on history and literature and public policy director of the Human Rights and Social Movements Program at the Carr Center for Human Rights Policy.

THE HARVARD Alumni Association launched its first Global Month of Service in April; now the University is continuing that initiative by hosting a beta "Public Service on the Map" website where alumni, students, and faculty and staff members can report on their current service projects and publicize additional opportunities to help those in need.

The site's goal is to connect Harvard volunteers throughout the world. For additional details, visit http://onthemap.harvard.edu.

Cast Your Bread



"Your wooden arm you hold outstretched to shake with passers-by."

As fair harvard thrusts its tin cup at you in this reunion season, be mindful of the following early instance of philanthropy rewarded. In 1648, Puritans in Massachusetts learned that a band of brethren, religious exiles from Bermuda who were attempting to colonize the Bahamian island of Eleuthera, had come to grief through shipwreck and other misfortunes, were starving, and were in desperate need of succor. The churches of Boston and thereabouts raised a fat sum (estimated between £600 and £700) for provisions, which they shipped south on May 13, 1650, in a small chartered vessel. It reached Eleuthera on June 17.

The rescued brethren plied their axes and sent the ship back to Boston filled with 10 tons of brazilwood, a source of red dye. As Samuel Eliot Morison tells the story in *Harvard in the Seventeenth Century*, a very long letter accompanied the wood. "After several pages of pious ejaculations, biblical references, expressions of gratitude, and general sermonizing," Morison writes, the Eleutherans declared that they were sending the wood to "avoid that foule sin of ingratitude so abhorred of God, so hatefull to all men." They specified that the wood was to be disposed of for the benefit of Harvard College. This provision was doubtless orchestrated by Nathaniel White Jr., A.B. 1646, son of the Eleutheran pastor, who had sailed to the island with the provisions and back to Boston with the wood. "Harvard graduates," Morison notes, "have a way of diverting any benefactions that may be floating about into the ever empty coffers of alma mater."

Harvard sold the brazilwood for £124 and used the money to expand. The College bought the house, lot, and cowyard of Edward Goffe, which adjoined the original Yard to the west, and remodeled the house into chambers and studies for students. Young White resumed residence in college to further his studies, and the administration awarded him a scholarship, the only instance on record of such a grant to a graduate student not engaged in teaching.

This magazine reported on February 2, 1957, that some "Harvard Friends of Eleuthera" had just presented the Bahamas a 14-inch-square plaque of brazilwood with a brass plate attached, commemorating the exchange of gifts almost three centuries earlier. It is said to hang to this day in Eleuthera's public library.

In 1980, a schooner from the Abacos arrived in Boston to represent the Bahamas in a Tall Ships celebration and carried aboard a plaque recalling the gift of brazilwood to Harvard. A photograph in the *Harvard Gazette* of May 30 shows the Bahamian ambassador to the United States handing the plaque to the executive director of the Harvard Alumni Association. Primus has yet to discover its present whereabouts.

Damnable bills. Before it got Goffe, Harvard had only one building, the Old College. It was demolished about 1679, and no one knows exactly what it looked like. Four scholars affiliated with Harvard's Peabody Museum of Archaeology and Ethnology write in a chapter of a new book, *Beneath the Ivory Tower: The Archaeology of Academia*, that excavations at the site in the 1980s uncovered assorted broken remains of the building, including "an especially high concentration of window glass.…Historical documents mention major episodes of glass breaking at the College in 1651/52 and the following year," they note, "but the reason for these events is unclear.…There are also references to glass breaking at quarter-days, the final day of each fiscal quarter at the college, when each student was presented with a bill that was to be paid within a month's time. Students are known to have protested their charges by breaking windows."

~PRIMUS

Found on eBay, this barrel now belongs to Robert G. Milstein '46, of Sarasota Springs, New York. He has no idea of its original purpose. It is 15 inches high. Harvard archivists Robin McElheny and Barbara Meloni think it looks like "a reunion prop," maybe from the Depression era. Readers, any ideas?

Photograph courtesy of Robert G. Milstein

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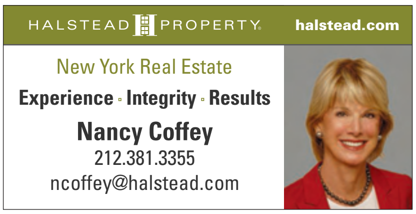
REAL ESTATE FOR SALE



MASSACHUSETTS REAL ESTATE

Metro West. French Empire style. 4300 sf. 4 bedrooms, offices, 3 full/4 half baths. 1/2 acre lot. Arlington/Lexington/Woburn line. 9 miles to Boston. $870,000, www.fr-empirehome.com, 781-775-0064.

Templeton: A secluded, 38 acre hill top, woodland setting at the end of a dead end dirt road has organic small farm potential with house and out buildings. $315,000.

Martha's Vineyard, Farm Neck Golf Club: New custom, contemporary farmhouse, 6 bedrooms, 5 baths, lap pool, guesthouse, 3+ acres, stockholder's membership, tennis, near beach. $2,500,000. Design/builder, 508-693-8697, lisareagan@comcast.net.

Lexington Center, elegant historic condominium being rebuilt after fire to please purchaser. 781-862-0614.

Cape Cod. Waterfront custom Post & Beam, light & bright with ever changing views directly outward over the Atlantic. $1,090,000. 508-255-1006, orleans@capecodera.com.

Cape Cod Crimson charmer with 3 bedrooms, 1 & 1/2 bathrooms, 2 stories, garage in Hyannis on 1/3 wooded acre and quiet residential street. 70 miles from Harvard. Walk to beach and downtown Hyannis for dining/shopping. Great summer rental history. Available furnished. Call owner at 949-498-6722.

Nantucket land. Rare opportunity for family compound. Two side by side building lots in 'Sconset. Ideal village location: walk to beach, tennis. Contact whitewhale13@me.com.

Harvard Square Riverfront Condominium. Exceptional floor-through property near Kennedy School overlooking river and athletic fields. 2050 square feet. 3 BR plus study, laundry, rare deeded parking. 987 Memorial Drive. 1.63M. 617-876-1124.

MAINE REAL ESTATE

WHITE MOUNTAINS: New luxury 3000 sq ft. lakeside retreat for sale on pristine Kezar Lake. 713-988-2382; www.maine-lakefrontproperties.com.

Parcel of 6.7, recently surveyed, wooded acres with 400' of shoreline along Old Harbor Pond in Vinalhaven. Reply to Paul McCree ('48); pmccree@att.net.

Harrington, MAINE–Waterside 2 bedroom cabin of near-Thoreauvian simplicity (plus electricity, gas, water) on four acres, under $200K. 617-929-0019.

Victorian Mansion, 5000 sq. ft. 7 bedrooms, 4 fireplaces, unique features! 7 acres convenient to Bangor/coast. Once in a lifetime opportunity. Contact Wendy Rapp, Town & Country REALTORS, 800-750-5611 or wrapp@tcreal.com.

CAMDEN. In town, very private family home. Incredible harbor views, income apartment, walk everywhere. Online virtual tour—search: CAMDEN TOWN & COUNTRY MLS 948603 or call Ann Keefe, 914-779-5561.

York: Oceanfront contemporary, 3+ bedroom, 4 bath, 3,589 square feet. 1.36 beautifully landscaped acres. Captivating ocean views—excellent Shore Road location, near beaches. $2,299,000. Contact Dick Wickert at Perkins Real Estate, 207-646-5535, dickw@perkinsre.com.

NEW HAMPSHIRE REAL ESTATE

Haverhill, NH. Charming 1700s Federalist home. 1.5 acres, totally restored. 5 bedrooms, ballroom, and sitting room. 2 parlors, spacious sunny den, fireplaces in every room. State of the art kitchen, spacious dining room. Jacuzzi. Washroom/office. $400,000 OBO. Contact K. Fox, 732-224-9140.

EXETER/SEACOAST NH. 21+ acres maintained open rolling fields surrounded by horse farms & conservation land 50 minutes from Boston. Opportunity for a wonderful equestrian/estate. Easy access to I-95. Subdivision potential. $899,000. britt@post.harvard.edu or 617-721-9002.

NH Wilderness Estate Live on or off the grid in this 3459 sq. ft. Bensonwood timberframe masterpiece. Built on a prominent mountaintop with mountain range and valley views of 396. Watch shooting stars across a truly dark night sky. Solar panels and a Tulikivi fireplace, high speed internet. Many hiking trails to peaks you own. Writer's cabin built as an exact replica of Henry David Thoreau's retreat on Walden Pond. This place will restore and inspire you. $1,895,000. Contact Broker Pam.Perkins@SothebysRealty.com or 603-526-8541.

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E. Calais: 3 bedrooms, 5+ acres, mountain views, hike, ride, cc skiing. 802-456-1414. $395,000.

RHODE ISLAND REAL ESTATE

WATCH HILL RI OCEANFRONT. Shingle style, pristine Condo in Heart of Watch Hill. Oceanviews from every room. 2 Bedrm, 2 Bath. $1,100,000. 860-449-1334.

Little Compton—Panoramic ocean frontage on very private, picturesque beach: $5.9M. Sakonnet Point 8+ acre estate hosts a multitude in style near clubs, harbor. $2.75M. Historic Commons. Pretty 1840s parsonage, with barn. $795K. Spinnaker Real Estators. www.spinnakerrealestate.com, 401-635-2300.

NEW YORK REAL ESTATE

Adirondack Park, 2 miles from Saranac Lake, waterfront lot, mountain views, "end of the road," $239K, 518-891-3745, johnsb72@post.harvard.edu.

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Mt. Auburn St. at the Jersey Shore. 1 bedroom, 1 1/2 bath condo—20 foot vaulted ceiling in living room, spiral staircase to loft and separate bedroom. 1050 square feet—landmark building in landmark town of Ocean Grove. 1 hour 15 minutes from NY by car—train nearby and bus to the door. Only 2 blocks to ocean. Asking $299.5K. Call owner at 212-736-2537.

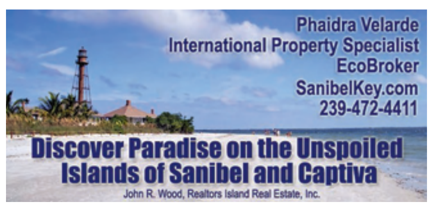
WASHINGTON, D.C., REAL ESTATE

Relocating to/from Washington, D.C.? Hans Wydler (HBS '93) Associate Broker, specializes in fine homes and condominiums in the D.C. metro area. Call Hans today at 301-986-6405, or e-mail Hans@WydlerBrothers.com. For more info or available listings, visit www.WydlerBrothers.com. Affiliated with Long and Foster Realtors (240-497-1700 x6405).

SOUTH CAROLINA REAL ESTATE

Charleston real estate. Free property search, photos, videos: www.EdHunnicutt.com, 843-270-0292.

FLORIDA REAL ESTATE



OTHER U.S. REAL ESTATE

PRIVATE COMMUNITIES REGISTRY: Discover and explore fine residential golf, tennis, and boating communities at **www.PrivateCommunities.com.**

Historic compound in Santa Fe's storied East Side. 2 adobe houses circa 1898. Lovingly restored & maintained. 3 bedrooms, 2 baths, studio, walled courtyard, gardens. An idyllic oasis and a true & increasingly rare gem of "Old Santa Fe." Featured in *Su Casa Magazine.* $1.1M. Contact: Lucinda Hoyt, 505-982-8510.

Montana: Hamilton, untouched 80 acres with open space, large ponderosa pine trees and spectacular mountain views, in the heart of the Bitterroot Valley near Missoula, Mt. $960,000. jtoole@bresnan.net.

CANADIAN REAL ESTATE

Deluxe Mountain Home located in the Canadian Rockies. Extremely private on eight acres. Adjoining 150 +/- acres also available. Visit: www.newbuildinglinks.com.

FOREIGN REAL ESTATE

Tuscan farmhouse lovingly restored by Boston architect owner. House, barn and outbuildings on 5 acres near Lucca, Italy. High on hillside, stunning views, garden terraces, olive groves. 5 bedrooms, 5 baths, pool. Contact Jenny Gale, serimm@lunet.it, 011-39-0583-495-296.

GIRONA, CATALONIA. Beautiful 18th Century apartment in medieval historical center. Completely renovated, 1,506 square feet, 3 bedrooms, 2 full baths, wood floors, stone walls, terrace, balconies. miriam_halpern@hotmail.com. +01134692051984.

Cambridge, UK Flat. Walking distance old city centre. 55 + residents. Offers over £132,000. (0044) 01223301616.

Paris: Marais Bastille. Enchanting one-bedroom recently renovated apartment in quiet cobblestone passage. Top floor with skylights. Fantastic location. Metro, markets, cafes just outside gate. 395,000 Euros. Move-in condition. Furnishings also available for sale. Photos: http://www.parisbastilleapt.com/photos.html Info: 415-282-3648 or info@parisbastilleapt.com

REAL ESTATE FOR RENT

NORTHEAST FOR RENT

Cambridge, Sparks Pl. near River and Harvard Sq. Quiet furnished one bedroom garden view. Short/long term rental–flexible dates. 617-909-3628, lsdlite@gmail.com.

Cambridge accommodations short-term, completely furnished, near Harvard Square, 617-868-3018.

Martha's Vineyard, Chilmark. Spectacular ocean/sky view, affordable retreat: 5 bedroom, 2 bath, large deck, fireplace, Internet, Chilmark beaches. Available May-October. mvupisland@verizon.net or 508-693-3670.

Cambridge, Sparks Place, near River and Harvard Sq. Contemporary single family house in unique setting. 3 bedrooms, 2 baths. Spacious kitchen/patio and living with 14 ft. ceiling. Private parking. Available mid-June. lsdlite@gmail.com, 617-909-3628.

Luxury Condo 1 BR with jacuzzi bath, furnished penthouse with piano, overlooking Charles River in luxury building with exercise room and pool. 24 hour concierge service. Garage parking, near Harvard, MIT, MGH. 617-494-1931. $2400/mo.

OTHER U.S. FOR RENT

Hudson, Ohio (a Cleveland, Ohio suburb): A beautiful home, 5,500 square feet of living space, has an open floor plan and includes 7 bedrooms, 5 1/2 baths. Available for rent IMMEDIATELY: $4800/month unfurnished or $6000/month furnished. Long term lease welcome. Contact Ron Davis at 330-554-3304 or e-mail roncdavisllc@aol.com.

FOREIGN FOR RENT

Paris (6th). Superb one-bedroom located on fashionable Rue Jacob, one block Seine. Sunny, quiet. Wifi. 508-748-0159 or chrisbale@comcast.net.

Paris, London and Venice apartments, **French** Country homes, Scottish cottages. www.PanacheRental.com, Panache 781-383-6006.

Pieds-à-Terre, Paris: Quai des Célestins, 4th: duplex/private terrace and/or next-door sunny duplex. 617-909-3628, lsdlite@gmail.com.

Paris 7th. Furnished apartment in luxury building, steps from Eiffel Tower. One bedroom, double living room, balcony, eat in kitchen, office with DSL, piano. 6 month rental or possibly longer starting July 1st. 2600 euros. For more information: Hellomarianne@gmail.com.

16th Century Tuscan Farmhouse for rent year round. Enchanting country home, an hour south of Florence. Four bedrooms (sleeps 7), library, piano. Cook/maid available. Lake and spa nearby. www.ilvallone.com.

Cambridge, England, one hour London. Furnished modernized Edwardian house, 3 bedrooms, 3 bathrooms, attractive garden, available until summer 2011. Newnham, five minutes from river, first class schools. Walk or bike to most colleges, museums, city center. US $3,500 per month, plus utilities. Roths@earthlink.net

VACATION RENTALS

London, Paris, Rome and New York—vacation rentals with a friendly difference: www.chsrentals.com.

MASSACHUSETTS VACATION RENTALS

Nantucket Cottage on eight acres at Surfside. Sleeps six. Spectacular view of beach, ocean. Completely equipped kitchen, fireplace, decks. June-September. $3,000/week. 410-653-0252.

Wellfleet waterfront. 4 bedroom 2 bath beautiful modernized cape. Spectacular bay view. Secluded, large deck, internet. 310-775-5057.

NANTUCKET ISLAND. Harbor waterfront house with beach swimming, boating. Available during June & September. 5 bedrooms, sleeps 8. Ideal for weddings or reunions. 508-228-0258, joan@nantucket.net.

Martha's Vineyard Waterfront, private beach, perfect for a family. 4 bedrooms. condliffe@yahoo.com or 416-931-5000.

For Rent or Sale: Beautiful properties on Martha's Vineyard. Visit www.beachplumrealty.com or contact Elaine Vanderhoop at 508-645-7820. We are committed to the highest standard of excellence and confidentiality for each of our clients.

Wellfleet, Cape Cod. Harvard professor's solitary, modern 4 BR house surrounded by nature preserve. $900 per week off-season; $2,000 in-season. 617-734-8012.

Truro. Year-round peace and quiet. Book-filled studio cottage with loft in painter's gardens, 1/4 mile to bay beach. Heat. Linens. $525-$625/week. 508-349-3864.

NANTUCKET— With over 500 vacation rentals from in town to on the water, let GREAT POINT PROPERTIES help you find the perfect home. Visit us at www.greatpointproperties.com or call 800-998-0890.

CHATHAM, CAPE COD. Large, classic waterfront house, beautiful sunrise views. 6 bedrooms, sleeps 10-12. Private beach, sweeping lawn, gardens, new kitchen, cable TV, wireless. $8,000/week. libbybohanon@hotmail.com. 970-319-1767.

Cape Cod Sandwich. Four bedroom house (sleeps seven) on 300 feet private lake beach. Canoe, two kayaks, rowboat. No smokers. No pets. $1,700 weekly. 301-897-5541.

Beautiful setting: Westport, MA. Walk or kayak to beach, ocean and pond views. Four bedrooms, spacious deck facing Buzzards Bay. High speed web, home theater. $2,500/wk rsanchezemergencymedicine@msn.com or 508-636-2747.

Nantucket Old Historic District. 3 bedroom home, three blocks to Main Street. Sunny garden with outdoor dining. Restored 2008. Fully equipped with all amenities. Central AC. Rental includes daily cleaning and other services. Pictures, rates at www.sconseteer.com. Available June to October. 508-257-9021 or johnmerson@gmail.com.

Martha's Vineyard: Charming home, spacious porch, large deck, close to Vineyard Haven. Wi-fi, cable, 2 baths, sleeps 6 to 8. Jerry Gerolamo, 508-693-0394, http://www.vacationrentals.com/vacation-rentals/64188.html.

Beach house Cape Cod—3 bedrooms, delightful, children yes, dogs no, June 20-July 4 or August 1-8 only. 212-989-5278.

Martha's Vineyard, Chilmark, Waterfront. The perfect cottage, private beach, sleeps 8. www.stonewallbeachcottage.com, ljwalters@gmail.com or 781-888-8222.

Martha's Vineyard. Idyllic setting on Menemsha Pond. Contemporary 3 bedroom. Panoramic water views/access. Flexible dates. 617-909-3628, lsdlite@gmail.com.

Brewster, Cape Cod. 3 bedroom, 3 bath home on quiet cul-de-sac. Eat-in kitchen, large deck, five minute walk to swimming pond, 2 miles to bay beaches. Non-smokers only. Families only. $2,000/week. 6/5-9/11. Lower other weeks. Discount for multi-weeks. Pictures available. Contact canoerefuge@gmail.com.

Stockbridge, MA–Waterfall View: Fully equipped; Two miles from Tanglewood, sweeping landscape; perennial gardens; outdoor hot tub; 3 bedrooms; 1 & 1/2 baths. See link: http://www.vrbo.com/280365, e-mail: HollyLevenkron@gmail.com.

Cape Cod, Eastham. Charming 3 bedroom home on 3 private acres in National Seashore. Walk to beautiful Coast Guard beach. $2000/wk, $1600 June & September. www.easthamhouse.com. 310-903-3052.

Historic Cape home in Falmouth, Mass. Sleeps 10 overlooking Quissett Harbor. June-Sep. $2000/wk. Photos at http://falmouthrental.blogspot.com; cranium210@aol.com.

Great Barrington in Berkshires. Charming, large 4 bedroom colonial in quiet setting by Williams River. Fully furnished and equipped. Rates: $1400/wk; $4800/4 wks. www.greatbarringtonhome.com. 781-259-8252.

MARTHA'S VINEYARD: Off Lambert's Cove Rd. All modern amenities, toddlers through grandparents. Sleeps 12+. Ferry tix. Adjoins conservation areas. mlevinvt@gmail.com.

Plymouth County furnished country home of the most cultured man in the world available summer and beyond. Peaceful pond setting, 1 hour to Boston, 10 minutes to Cape. E-mail blueelver@nyc.rr.com.

Wings Neck, Pocasset. Secluded waterfront house, sleeps 8, private tennis court and beach, guest mooring, gorgeous garden, swimming, sailing, kayaking. Two week minimum, 5/28-7/16, 8/30-9/6. sweeneyev@gmail.com, 617-868-9562.

Nantucket: Dionis. 3 bedroom, 2 baths, decks, views, sunsets. July $2700; August $3,000. doctorpaula@comcast.net.

WOODS HOLE estate. Walk to Labs and beach. Beautiful view over Buzzards Bay. $4,400/week. jjr@cox.net

Historic lighthouse. Former Cape Cod working lighthouse, attached keepers house is fully renovated for vacation rental. Sweeping views, private beach, sleeps eight. Available year round. www.wingsnecklighthouse.com, 617-899-5063.

MARTHA'S VINEYARD CHILMARK OASIS: Glorious views of pond & ocean; walk to private ocean beach. Sleeps 7. 917-912-6564, drellenluborsky@gmail.com.

Manchester-by-the-Sea Oceanview, private path to Singing Beach, 8 minute walk to village, harbor, 2 parks and the T. 4 bedrooms, 3 1/2 baths, $2,700/week, lower rates off season. 978-526-1935.

Martha's Vineyard, Edgartown. 4 bedrooms, 2 baths, sleeps 10. $1600-$2250. uc76@aol.com, 617-972-8553.

Provincetown Summer. One bedroom cottage on quiet east end lane. Private garden. Sleeps 2. 617-864-8384.

Martha's Vineyard, Edgartown waterfront 2 bedroom rustic cottage. Old Vineyard ambience. Very private. Beach and pier. Walk to town. Weekly, June-October. 617-547-7596.

Chatham, Cape Cod. Charming seaside cottage. Gorgeous views of Pleasant Bay and Atlantic Ocean. Beach access. Sleeps up to 7. $1900/week. Contact Catherine, cottagecapecod@gmail.com.

S. Dartmouth, Nonquitt. Cottage in gated summer community on Buzzards Bay. Private golf, tennis, beach, camp. July. Sleeps 10. $1,850/week. bbcbbj@aol.com, 408-741-8531.

Martha's Vineyard. Chilmark. Spacious, clean, sunny, 5-bedroom, 3.5-bath farmhouse on 5+ acres. Wide pine floors, country kitchen, large deck and porch. $2,700-$3,700/week. kfreedberg@partners.org. 781-899-2082.

MAINE VACATION RENTALS

Acadia National Park, Bar Harbor area. Private, fully furnished, 3-4-bedroom homes. Near ocean, lakes, hiking trails. Available by week/month, year-round. $575-$1175/week. No pets. www.brintonwood.com/acadia, 203-393-3608.

Mt. Desert Island: Secluded getaway on 15 waterfront acres on island's "quiet side," moments from Acadia National Park. Two comfortable houses (one sleeps 8+, one 7) owned by multi-generational Harvard family can be rented together or separately. Both have fireplaces, all appliances, w/d, dock/beach access, internet, and harbor views. www.prettymarshrental.com or 202-364-3946.

A quintessential "On-golden-pond" luxury cottage on pristine Belgrade Lakes Long Pond, 4 br, 3 bath, DSL, kayaks, private dock, boathouse; available August, $3250/week. rgleis@post.harvard.edu, 508-877-6441, birchrock.blogspot.com.

Oceanfront Cottages. Weekly rentals on Mt. Desert Island. 4 exquisitely decorated cottages on Somes Sound with mooring, dock and float. Heated swimming pool and WI-FI. 207-244-5304, www.mcmrentals.info or deb@mcmrentals.info.

Mount Desert Island. Important shorefront property, Northeast Harbor, belonging to Harvard grad. Guest house available July through September. jepburden@aol.com.

Waterfront Georgetown ME. Spectacular ocean views. Two very comfortable 4 bedroom homes in Five Islands. Each with fully equipped kitchen, 2 baths, fireplace, living room, dining room, screened porch, deck, deep water dock. 610-246-9906. elizlmoore@gmail.com.

Northeast Harbor/Acadia: Oceanfront cottage on eastern harbor mouth, few minutes' walk from Acadia, secluded in spruce trees with wraparound view of the water; sleeps 10. Dock access, fireplaces, elevator, concert-size music room with twin Steinway grands. Contact Catherine: 347-563-0038.

NEW HAMPSHIRE VACATION RENTALS

Get away from it all! No internet, TV. Secluded rustic lakefront cabin sleeps 8. June-September. $1050/week; $1,900/fortnight. thomasu@maine.rr.com, 207-781-5526.

Private cove on serene lake: swimming, fishing, canoes, rowboats, kayaks, tennis. Weekly: 2 bedroom boathouse overhanging lake; secluded 2+ bedroom cabin. Spring/summer/fall: $1,000/$1,300. Owner ('64): dcurll@post.harvard.edu or 603-835-2683.

Squam Lake: Classic "camp" with modern kitchen, 1.5 baths, 7 bedrooms, sleeps 12. Lakefront, large dock. Available weekly June through September; off-season rates June and September. 310-990-9977. jhowell@ucsd.edu.

Lake Sunapee, notable, gracious 6 bedroom house, 3 1/2 baths, master suite with sleeping porch, 3rd floor suite, stone fireplace in double living room, spectacular dining room sunsets, boathouse, dock, beach, extensive grounds, long access drive. Rowing, sailing boats available. aqopbketch@aol.com.

VERMONT VACATION RENTALS

Green Mountains southern Vermont: Affordable Bed & Breakfast for outdoor enthusiasts. Academic discount. www.stoneboatfarm.com

STOWE, VERMONT—Charming 5 bedroom 1810 farmhouse, beautifully furnished, pastoral setting, 3 minutes from village, golf, spas, restaurants and mountain trails. Photos and details: www.vrbo.com/287476; 561-307-5610.

NEW YORK VACATION RENTALS

Hudson Valley country estate. Converted barn on 24 acres. 6 bedrooms, pool, tennis court, hot tub, pond, stream, meadows, views and more. Less than two hours from NYC. $3,500-$5,500/week. 212-222-9555 brochure/information.

CONNECTICUT VACATION RENTALS

Beach House, Madison, Connecticut. 3-bedroom 2.5 bath Cape, 90 minutes from Manhattan. Abuts protected wetlands, steps from sandy beach. All amenities, newly remodeled. No smoking/pets, sleeps 6-8. Monthly: $8,000. E-mail: de11@columbia.edu.

RHODE ISLAND VACATION RENTALS

LITTLE COMPTON: Serene architect's retreat. Walk to beach and pond. Sleeps 1-11. Year 'round. **www.littlecomptonoasis.com**, 617-566-6761.

Narragansett/Scarborough Charming beach-front two bedroom cottage near scenic bike paths, shops, restaurants. 401-273-9494; mdevlind@hotmail.com.

NEWPORT. ADORABLE Cottage. 2 bedroom, renovated, hdtv, wifi, private yard w/ gate, driveway. $850/week, 646-823-3851.

FLORIDA VACATION RENTALS

Sanibel, FL. condos on gulf. Steps from beach, tennis, pool; 2 bedroom, 2 bath. Sleeps 6. 781-862-1256, 800-950-1138.

Sanibel & Captiva. Unique 1-8 bedroom cottages, condominiums, homes, & estates. Perfect for weddings and reunions. 1-800-472-5385, www.Cottages-to-Castles.com.

Sanibel Island. Newly remodeled & furnished. Luxury beachfront full-floor penthouse condo, 3 bedrooms, 3 bathrooms, private garage, roof deck, cabana. Only 3 units in elevator building. Pool, tennis. Florida's best beach, wildlife refuge. Alumni-owned. Royal Shell Vacations 800-656-9111, Web: www.royalshell.com; e-mail: rsvp@rsvpsanibel.com.

St. Augustine. THE SCULPTORS HOUSE: Exquisite 3 bedroom, 2 bath, oceanfront home in downtown historic district. Magnificent views. Professional kitchen. Pictures at www.thesculptorshouse.com. Jeanne '82, owner. abbouddesign@mac.com or 978-884-1223.

HAWAII VACATION RENTALS

Hawaii, Oahu. Beachfront on beautiful sandy Waimanalo Beach. All amenities. Reservations: sherrybroder@sherrybroder.com. Visit Hawaiiansunrise.com.

Kapalua, Maui–Luxury 2 bedroom, 2 bath, low rise condo. Sunset ocean view, fabulous beach, best snorkeling. Championship golf, tennis. 800-332-5358. www.kapaluavacation.com.

OTHER U.S. VACATION RENTALS

Sun Valley, ID. Spectacular mountain view home at base of Bald Mt. in Warm Springs area of Ketchum. Swimming pool, tennis court, hot tub. Short walk to lifts in winter. Valley bike path steps away. Five minute drive to town. Seven bedrooms sleeping two each with full bathrooms. 650-854-7000, jslewis@lewiscapital.com.

Santa Fe Living. Captivating Adobe residences in historic eastside. Fireplaces, beautiful gardens, gourmet kitchen. www.santafenmvacationrentals.com. 617-320-4911.

San Francisco. Telegraph Hill. Charming guest cottage in ideal location. One bedroom, kitchen, all amenities, nonsmoking. Weekly rental. 415-982-4850. See pictures at http://stuga.awardspace.com/.

CANADIAN VACATION RENTALS

Yarmouth, Nova Scotia. Beautiful secluded lodge on 1200-acre preserve. Private lake, minutes from ocean. 8 bedrooms, 5+ baths. Perfect for family reunions or multifamily vacations. 25 minutes from airport/ferry. $1800-$2400 per week. Novascotialake.com.

Montreal, contemporary loft, breathtaking views, top notch equipped. Close to Vieux Port. 508-740-7687. piuserena@gmail.com.

MEXICO VACATION RENTALS

Mexico, San Miguel de Allende. Grand 2-bedroom home. Maid/cook. $895/week + tax. 212-929-5317, www.casariley.com.

CARIBBEAN VACATION RENTALS

Jamaica. Montego Bay. Beachfront 5-bedroom/bath villa at Silver Sands Resort. Gorgeous beach. Snorkeling, tennis, fishing, sightseeing. Van/driver. $251-$450/per night, includes cook and maid. 860-233-6821; jamahome@hotmail.com; www.jamahome.com.

ST JOHN, USVI—2.2 acre luxury estate. 3 BR, 12'x40' pool, spectacular views. Convenient to beaches, town. 340-776-6805; www.estaterose.com.

Bahamas, Eleuthera. Beachfront villa or apartment. 301-320-2809. http://heronhill.net.

St. John USVI Private Beach 3 bedroom villa on private beach with pool. www.fortscove.com.

ST. JOHN, USVI. Luxury Villa with Spectacular Views. 3 bedrooms, 3 1/2 bath. Gorgeous deck, pool and jacuzzi. Fully equipped kitchen. Casual and formal dining areas. Stereo, iPod and WiFi. Minutes from award winning beaches and Westin Hotel. Visit vrbo.com/267825. paula@zimbalist.net.

St. John, U.S.V.I: 3-bedroom, 3-bathroom, air-conditioned, luxury oceanfront villa. Pool, hot tub, 270° view. $2900-$6450/week. 877-512-2978 toll-free, www.andantebythesea.com.

Tortola, BVI: Three-bedroom house 60 feet above Long Bay Beach. Ewinghouse@gmail.com or 646-526-7111. www.ewinghouse.com.

St. John. Pool, hot tub, tennis court, great views, walking distance to beaches. Discounts. www.GreatExpectationsUSVI.com. 1-800-553-0109.

Turks & Caicos: Luxury 3 bedroom condo on Grace Bay Beach, from $3,000/wk. amy@dmimportsltd.com.

USVI, St. John: A beautiful hillside villa, **Palladio's View**. Distinctive tropical design. Three bedrooms, 2 baths with private outdoor showers. Pool, spa, all amenities. Superb down-island views to BVI. Minutes to national park beaches. 610-544-8283. www.palladiosview.com.

COSTA RICA. 3-Bedroom, 3 1/2 bathroom oceanfront villa plus 1 bedroom apartment. Lap pool, spa, A/C. $2100-$6200/wk. 617-417-7754, www.kalindapacifica.com.

Harvard Magazine

FEATURED PROPERTY

France, Provence: Charming hilltop village of Venasque near Avignon. Restored medieval house with apartments owned by H '65 alumnus. Rooftop terraces, sensational views. $675-$1,300 per week period. Website: www.chezkubik.com. Padraic Spence, 413-298-4843.

To feature your property, contact Gretchen Bostrom at 617-496-6686 or e-mail classifieds@harvard.edu.

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Paris Apartment. Heart of City on Ile St. Louis. Elegant top-floor apartment w/ elevator, updated, well-appointed, gorgeous view. Sleeps 4, maid 3x week. Inquiries triff@mindspring.com or 678-232-8444. HMS '55.

Provence. Delightful stone farmhouse. Five bedrooms. Pool, vineyard. Faces Roman theater. 860-672-6607, www.frenchfarmhouse.com.

France. Distinctive country rentals—Dordogne, Provence and more! Paris apartments, too. Personally inspected properties, expert advice. At Home in France. www.athomeinfrance.com or 541-488-9467.

Paris–Marais. Elegant 17th-century 50 square meter, renovated, 1 bedroom, 1 1/2 bath, brand new appliances/furniture, private courtyard, high-speed internet access. 978-371-0223, asluder@yahoo.com.

Paris. Luxurious, sun-filled, large, belle époque, Left Bank apartment across from Notre Dame. Lovely details, unique recent renovation, fully equipped. Sleeps 5. Minimum week, $3,900. Call 617-491-0006.

Paris Sabbatical? Elegant, sunny one-bedroom apartment 16th, 750 square feet, 6th floor, elevator, near shops, metro. Well appointed, beautifully equipped for long stay. $1250/wk. 941-363-0925.

Aix-en-Provence, Cours Mirabeau, heart of town. Well appointed, 2-bedroom apartment, remarkably quiet, steps to shops & restaurants, garage. Perfect for exploring Provence. $1250/week: 941-363-0925.

Côte D'Azur, Nice, Grasse Lovely townhouse, medieval village Gorges du Loup, breathtaking views, 2 bedroom, 2 bath. $1250/wk; 941-363-0925.

Provence: Stunning updated farmhouse, magnificent Mediterranean/mountain views. Antiques. Lovely kitchen, gardens, pool. 609-924-7520. gam1@comcast.net.

Paris 7th. Fifth floor, quiet, studio sleeps 3. Balcony. View Eiffel Tower. www.parisgrenelle.com. 207-752-0285.

Paris & Bordeaux Wine Country: 2 bedroom Paris apartment in New Left Bank near Bibliothèque Nationale. www.relaxinfranceonline.com/ile/75001.htm. Restored spacious stone farmhouse with pool N.E. of Bordeaux. www.charente-maritime-home.com. 603-924-9535, glnward@gmail.com.

Paris, France. Elegant Left Bank apartment by the Seine, 6th arrondissement. Walk to Notre Dame, the Louvre and the Luxembourg Garden. Short- and long-term. gam1@comcast.net, 609-924-7520.

Burgundy, France. Luxurious 18th-century village house, part of historic château in Burgundian countryside. Ideal for biking, hiking, visiting vineyards and historic sites. Available year round. 802-453-7855, www.franceburgundycottage.com.

Paris 7th. Alum rents 3 bedroom Eiffel Tower view for minimum 1 month. rtoussaint@gmail.com.

Dordogne. Lovely 18th-century manor house and/or cottage with private pool, tennis, trout stream, horse riding, and cook. Telephone 011-44-77-68-74-76-10, www.dordognerental.com.

Splendid Provençal farmhouse in heart of Côtes du Rhône. 5 bedrooms, 4 baths (1 sunken bath). Modern kitchen. Weekly. Joy Huston, 011-44-207-262-4039 or info@labarraliere.com, www.labarraliere.com.

Paris, SW France, Provence. Comfortable apartments, homes, châteaux. Happy clients for 20 years. www.FrenchHomeRentals.com. FHR@earthlink.net, 503-219-9190.

France Languedoc. Stunning views from rooftop terrace of charming house in medieval village in heart of the Faugères AOC. Vineyards, beaches, hiking. Near Montpellier, Barcelona. Sleeps six. www.caussi.com or 212-595-8007.

France, Paris-Marais: Exquisite, sunny one bedroom apartment behind Place des Vosges, King-size bed, living/dining room, six chairs, full kitchen, washer, dryer. Weekly maid service. $1350 weekly. 301-654-7145, louvet@jhu.edu.

Loire Valley. Lovely 18th-century renovated château set in 60 acres of manicured grounds, fields, forest, 3 ponds. 5 minute walk from a Charming village. 201-788-2571, www.vrbo.com/181900.

SW France. 1700s farmhouse on Tarn River near Albi. 3 BR, LR/DR, kitchen. Fully equipped. Chestnut beams, fireplace, deck. Drive to Toulouse, Carcassonne, Cordes, Rocquefort. Available June 19-Oct. 2. $650 per week. Contact: Susan Vitek 561-833-0140, jimisuev@gmail.com.

Paris: Marais Bastille Enchanting one bedroom, newly renovated apartment on quiet cobblestone passage. Fantastic location. Top floor with skylights. Sleeps 2-4. Photos and information: www.parisbastilleapt.com, 415-282-3648.

Paris St. Germain, gracious 1 bedroom apartment in 17th c. building on rue Bonaparte, €1000 week. sallyforthaparis@gmail.com

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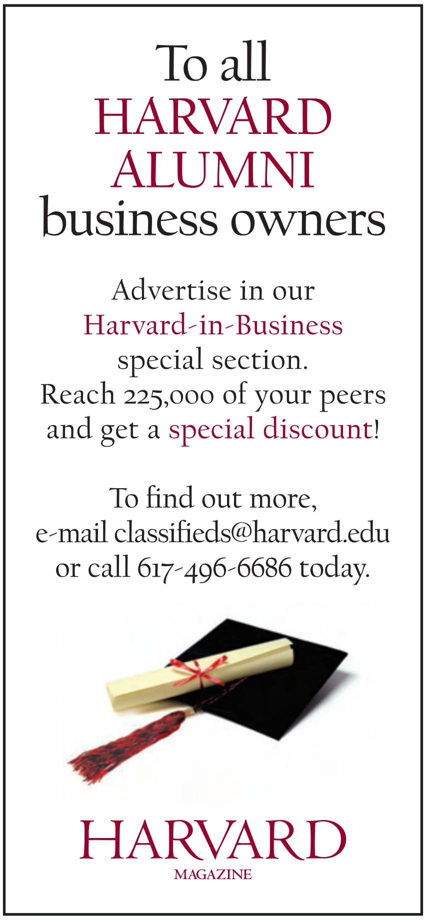

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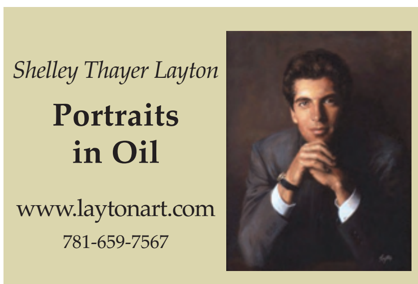

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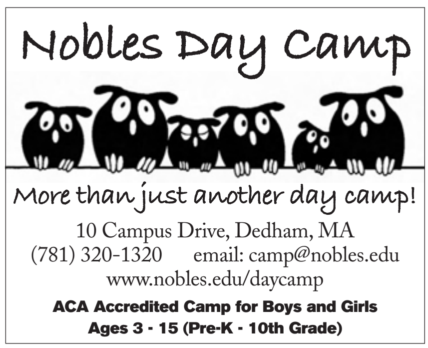

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LETTERS *(continued from page 5)*

many urban properties have been bought and now stand empty? What are the obligations of a still very rich nonprofit organization to its surrounding community, in lieu of paying taxes to support the public services of which it avails itself?

Many Harvard graduates set fine moral examples in their personal and professional lives. It's up to the entire Harvard community to ensure that the University's corporate behavior does the same.

JANE COLLINS '71
Medford, Mass.

STUDENT-FACULTY INTERACTIONS

MELANIE LONG'S "Undergraduate" column ("Friending the Faculty…and Others," March-April, page 56) rues the fact that more faculty members don't mingle with undergraduates, characterizing it as an "unfulfilled promise of the House system." Two pages earlier, there is a sidebar about the late Samuel P. Huntington. Let me connect the two.

In 1956, I was a junior in Kirkland House, enrolled in one of Huntington's popular American government courses. He was at the time an unmarried assistant professor, living just a few doors from me. I was unhappy with my major, wanted to change it to government, and asked if he knew of a faculty member who could help. Sam said he would do it himself.

This was the beginning of a wonderful teacher-student relationship. He insisted that students call him "Sam"—"except in class." I learned techniques of research that serve me to this day. He pointed me in the right direction for the research and writing of an honors thesis, and served as my thesis adviser in a senior tutorial class.

I know Sam enjoyed interface with students, and we with him and other faculty who were connected to Kirkland House. I agree with Long that ties like this are valuable and should not remain unfulfilled.

RICHARD O. NEVILLE '58
Fort Myers, Fla.

FOOTBALL FANDOM REDUX

I'M EAGER to see the responses to Spencer Ervin's query about the living Harvard alumnus who has seen the most Harvard-Yale football games (March-April, page 6). Allow me to place in contention my father, Paul Lee '46, who went to his first H-Y game in 1935 and has now witnessed 67 of those festival rites. With just one exception, he has attended every game from 1946 through 2009.

Dad's record is one to emulate, but I humbly suggest that I myself stand in an excellent position to someday surpass it. I was indoctrinated to The Game at eight, and last November's game marked my fiftieth consecutive attendance. I expect that in about another 25 years I will have seen more H-Y games than anyone, ever. Not that this is of the slightest importance in the greater scheme of things, but I think it will make a fitting epitaph someday.

JEFFREY P. LEE '74
Norwalk, Conn.

CORRECTION

IN "Veterans Day Salute" (January-February, page 63), we misspelled the name of Medal of Honor recipient Pierpont M. Hamilton '20, A.M. '46. We regret the error.

 (continued from page 41)

and white to 40 cents for color annually. Actually delivering a physical book from the HD, on the other hand, costs $2.15—much more than the delivery of a digital book to a computer screen.

But making comparisons between digital and analog libraries on issues of cost or use or preservation is not straightforward. If students want to read a book cover to cover, the printed copy may be deemed superior with respect to "bed, bath and beach," John Palfrey points out. If they just want to read a few pages for class, or mine the book for scattered references to a single subject, the digital version's searchability could be more appealing; alternatively, students can request scans of the pages or chapter they want to read as part of a program called "scan and deliver" (in use at the HD and other Harvard libraries) and receive a link to images of the pages via e-mail within four days.

One can imagine a not too radically different future in which patronless libraries such as the DRS and the HD would hold almost everything, supplying materials on request to their on-campus counterparts. Print on demand technology (POD) would allow libraries to change their collection strategies: they could buy and print a physical copy of a book only if a user requested it. When the user was done with the book, it would be shelved. It's a vision of "doing libraries 'just in time' rather than 'just in case,'" says Palfrey. (At the Harvard Book Store on Massachusetts Avenue, a POD machine dubbed Paige M. Gutenborg is already in use. Find something you like in Google's database of public-domain books—perhaps one provided by Harvard—and for $8 you can own a copy, printed and bound before your wondering eyes in minutes. Clear Plexiglas allows patrons to watch the process—hot glue, guillotine-like trimming blades, and all—until the book is ejected, like a gumball, from a chute at the bottom.)

Indeed, the HD might one day play a role as the fulcrum for "radical collaboration" with the five other law libraries in the Boston area, says Palfrey. "We're asking, 'Could we imagine deciding, as a group of six, that we're actually going to buy something and put it in the Harvard Depository,'" a central location from

DIGITAL PRESERVATION: AN UNSOLVED PROBLEM

Given the convenience and potential cost saving of digital delivery for both libraries and users, combined with the power digitization offers to search within texts, why not embrace the digital future now? The issue of preservation is one of the main obstacles.

Speaking from her experience as head of collection care for the British Library, Helen Shenton explains that "the greatest risks to printed material are the environment, wear and tear, security, and custodial neglect." Facilities such as the Harvard Depository address most of those concerns, although wear and tear is an unavoidable consequence of use. On the digital side, on the other hand, *use* of the data is one of the best ways of preserving it, because "'bit rot' is one of the biggest risks." A book left on the shelf for a hundred years might be fine, Shenton says, but digital data must be read and checked constantly to ensure their integrity.

For digital preservationists, a prime concern is that data might be kept perfectly secure and complete, but *still* be unreadable by machines and programs in the future. A *New Yorker* cover depicting an alien, come to post-apocalyptic Earth, sitting amid the detritus of modern civilization—discarded CDs, tapes, and computers—illustrates the point: the alien is reading a book, the only thing that still "works." "You have to think about moving the content along as technology changes," explains Andrea Goethals, digital-preservation and repository-services manager. In order to make this feasible, librarians try to limit the number of file formats they make use of, and store detailed technical metadata with every object so that in 10 years or 100 "it can be rendered again in a usable way." Every few years, as the programs that created a text file or a PDF become obsolete, librarians must ensure that the contents of those files remain readable by the current generation of computers and software. But opening each file manually in order to save it in a current format is not feasible when there are millions of them. "Because of the enormous amount of digital material we hold, migrating content is done at scale, not one file at a time," Goethals explains. "We have to be able to do it on a whole class of objects"—all Microsoft Word files, for example. This content management strategy *should* work, "but because digital preservation is a young science, we don't have a lot of experience with it yet."

Objects that begin in an analog format—a book, a recording of a poetry reading, or a piece of music—are easiest to preserve digitally because librarians can choose the optimal file format for long-term access. Material that is born digital—e-mail, for example, which comes in many different, often proprietary, formats—is not so easy to preserve. This is proving a vexing problem for librarians charged with maintaining records of the University's intellectual life. Harvard archivists, for example, must figure out what to do with the president's e-mail—both a technical and *legal* challenge, because of privacy laws governing its handling.

For medical librarians like Isaac Kohane, the lack of case notes from the last 20 years is an equally grave concern. He recalls his excitement, shortly after becoming director of the Countway, at being able to read the notebooks of a surgeon who was about to conduct the first successful cadaveric kidney transplant, for which he later won the Nobel Prize. "You could see the foresight and the hypothesis he had, as he made that leap. So it is stunning to realize that we are in a period of unprecedented lack of documentation of academic output." Most notes, images, and communications today are stored as e-mail. "I'm worried that, 30 years hence, people will say, 'Well, what was happening during the great genetics revolution at Harvard University?' They'll have no idea."

Nearly half of Harvard's collection is housed at the Harvard Depository, a marvel of efficient off-campus storage. Library assistant Carl Wood reshelves books in the 30-foot-high, 200-foot-long stacks.

which the physical book could be delivered to any institution? "It would cost us a sixth as much." Other Harvard libraries could explore the same strategy.

That doesn't mean Harvard's campus libraries would become less important. Because they are embedded in the residential academic community, they remain integral to University life. Students (and faculty members) are big users of the physical spaces in libraries, though they are using them differently than in the past.

"Libraries are not conservative places anymore," says Cline. "From the user perspective, it is an interesting time. Some people still want the quiet, elegant reading room. Others would be frustrated if they had to be quiet in every part of the buildings, in part because their work requires that they talk, that they work in collaborative teams, that they share some of their research strategies. We're rethinking the physical spaces to accommodate more of the type of learning that is expected now, the types of assignments that faculty are making, that have two or three students huddled around a computer working together, talking."

Libraries are also being used as social spaces, adds Helen Shenton, where people can "get a cup of coffee, connect to WiFi, and meet their friends" outside their living space. In terms of research, students are asking each other for information more now than in the past, when they might have asked a librarian. "The flip side," Shenton continues, "is that some places are embedding their library and information specialists within disciplines and within faculties. So I think the whole model is like one of those snow globes. You pick it up and shake it around and all the pieces will settle in a different way, which is incredibly exciting."

A FUTURE FOR BOOKS

"A BIG MISCONCEPTION is that digital information and analog information are incompatible," says Darnton, himself an historian of the book. "On the contrary, the whole history of books and communication shows that one medium does not displace another." Manuscript publishing survived Gutenberg, continuing into the nineteenth century. "It was often cheaper to publish a book of under a hundred copies by hiring scribes," he says, than it was to set the type and hire people to run the press. Likewise, horsepower increased in the age of railroads. "There were more horses hauling passengers in the second half of the nineteenth century than there were in the first half. And there is good evidence that now, if a book appears electronically on your computer screen, and it's available for free, it will stimulate sales of the printed version."

Jeffrey Hamburger—a scholar of an even earlier medium, the medieval manuscript—who was recently named chair of a library advisory group, says that "the notion that we are going to abandon the codex as we have known it—the traditional book—and go digital overnight is very misguided. It is going to be a much longer transition than anyone suspects, just as the transition in the past between the oral tradition of literature in antiquity and silent reading as we've known it for almost two millennia was a long transition, taking the better part of a millennium itself."

Hamburger, the Francke professor of German art and culture, has worked extensively here and in Germany on projects involving the application of new media to the study of medieval manuscripts, but he says there are "still many, many things that new media cannot do as effectively as a good old-fashioned book": for example, combining text and an associated image on opposing pages. "It's instructive how many of the words we use to describe computer interfaces—tabs, bookmarks, scrolling—are derived from our experience with the book, and that's not just because of experience or familiarity," he adds. "It's because they have a certain practicality, and all of those, it so happens, are inventions of the Middle Ages." Computers, in reverting to scrolling, have "gone back to a much older technology, which had its merits but was deficient in its own ways, which is why it was replaced."

In advocating for the continued importance of books, and raising his concern that this could become the "lost decade" for acquisitions to Harvard's library collections, Hamburger emphasizes that he is not framing the University's current crisis in terms of books versus new media. "We need both, and we'll continue to need both. I think we have to take as a premise that the library is a vast, far-flung, varied institution, as varied and diverse as the intellectual community of the University itself, working for a range of constituents almost impossible to conceive of, and it's not *just* a service organization. I would even go so far as to call it the nervous system of our corporate body."

It would be a terrible mistake, Hamburger continues, "if different factions within the faculty, be it scientists and humanists, be it Western- or non-Western-focused scholars, started squabbling over resources. As a university, we have by definition a catholic, all-embracing mission, and the question is how to coordinate resources, not compete for them. The greatness of this university in the past and in the future rests on the greatness of our library. Without the library—old, new, digital, printed—this institution wouldn't be what it is."

Jonathan Shaw '89 is managing editor of this magazine.

Photograph by Jim Harrison

Martian Grass

What lead, chromium, and oxygen can do

Among the 3,200 rocks on display at the Harvard Museum of Natural History's Mineralogical Museum—and the tens of thousands more in drawers—are many dazzlers, including this lead chromate piece, about 10 inches wide, called crocoite. The name comes from the Greek *krokos,* meaning "saffron," a reference to the bright red-orange color of the mineral, which typically forms prismatic crystals sometimes two or more inches in length.

Nature makes this eye candy by infiltrating veins of oxidized lead with chromium-bearing fluids. Its chemical formula is $PbCrO_4$. The mineral is of little economic value but has been used in paint. The man-made color chrome yellow has the same chemical formula, although crocoite is far prettier than any school bus. The mineral was first described scientifically after its discovery in the 1760s in Berezovskoe, a gold-mining district on the east slope of Russia's Ural Mountains. Frank Mihajlowits mined the specimen below in the 1970s at the Adelaide Mine in the Dundas area of Tasmania, Australia, where the crocoite most coveted by collectors is found. "Specimens from Berezovskoe typically lie flat on a buff-colored sandstone," says Carl A. Francis, associate curator of the Mineralogical Museum, "so they don't have the aesthetic appeal of the specimens from Dundas." Harvard also has crocoite from Minas Gerais, Brazil; Saxony, Germany; and Otjozondjupa, Namibia, but Tasmania takes the prize.

Visit harvardmag.com/extras to see more images from the mineral collection

In 2000, that state's governor, the Honorable Sir Guy Stephen Montague Green, proclaimed the adoption of crocoite as the mineral emblem of Tasmania. Reporting the event, the *Tasmanian Government Gazette* called specimens of crocoite "amongst nature's most brilliant creations" and "amongst the most beautiful objects to originate underground."

~C.R.

Photograph by Jim Harrison


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It's knowing your life insurance can help provide income for retirement. And peace of mind until you get there.
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