

HARVARD

MAGAZINE



JIM HARRISON

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On the cover: Christopher Higgins in Busia, Uganda. Photographed in July 2009 by Ian MacLellan

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LESTER KRAUS/OXFORD UNIVERSITY PRESS

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Cambridge 02138

Harder Harvard, presidential speech, endowment-swoon song

ATUL GAWANDE

FLOREAT Atul Gawande.

DAVID J. KENNEY '55, M.B.A. '61
Upperville, Va.

WHILE I APPLAUD and appreciate Atul Gawande the surgeon as writer ("The Unlikely Writer," by Elizabeth Gudrais, September-October, page 30), I wish you had engaged a health professional with some knowledge of infection control as medical editor.

The cover photo of Gawande depicts him in scrubs, mask hanging on his chest, and his hand on his chin.

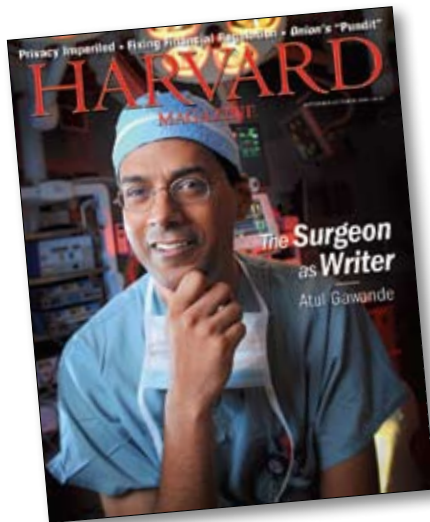
Early in the article, Gudrais writes: "After examining the patient, Gawande conferred with the resident in the corridor outside the man's room. He went through a familiar...set of actions...slipping his ring finger into his mouth to moisten it, working his wedding band off, unbuckling his watchband, threading it through the ring, refastening it, all while carrying on a conversation about stopping the patient's anti-clotting medication and getting a vascular surgeon to assist."

Nor was I thrilled to read of Gawande's late lunch: "He took a few bites between bursts of typing, but then it was on to appointment number 10. By 5:30 p.m., when he saw his twelfth and final patient, the sandwich was still not fully eaten, and he had barely touched the water, or for that matter had anything to drink all afternoon."

The disconnects between the article and best medical practice troubled me.

SANDRA RASMUSSEN, PH.D. '73
Mechanicsville, Va.

Editor's note: Rasmussen should not be troubled. The cover portrait is just that: a portrait. It does not purport to be an image from an operation. Dr. Gawande obviously



practices proper hygienic procedures when he is in a sterile facility and working with a patient; he was depicted outside the patient's room. As for his lunch habits: many professionals work hard and keep unusual hours, as described; his surgical peers, as reported, are clearly comfortable with Gawande's performance.

FINANCIAL REGULATION

I HOPE DAVID MOSS will extend his superb analysis, "An Ounce of Prevention" (September-October, page 24), to deal with a moral hazard he did not mention. Decision-makers in financial institutions gamble with other people's money. Even if they did not do so, they are likely to have risk aversion that is not appropriate for the nation as a whole.

GLENN J. BATTAGLIA, M.B.A. '53
Harrisburg, Pa.

I DISAGREE with David Moss where he said, "Regulators should not have to wait until the very last minute." They did not have to wait. They had many regulatory capabilities, and could have requested more. The fact that they did wait was because of

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either a failed notion of how markets work or just plain lethargy. The plain truth is that our regulators failed us. The market is just too sensitive and self-reinforcing, both on the up and the down swing, to be left to its own resources, or tardy authorities.

EDMUND HELFFRICH '49
Allentown, Pa.

PROFESSOR MOSS repeats the recently formed conventional wisdom that New Deal financial regulation was a "successful" strategy that "helped ensure financial stability and financial innovation." According to this new wisdom, "the success of New Deal financial regulation actually contributed to its own undoing" as "academics and policymakers may have taken stability for granted" and viewed regulation as an "unnecessary burden."

Before 2007, the story of banking "deregulation" starting in the 1970s was very different. The "stable" and "innovative" commercial-banking system was losing retail deposits to money-market funds. At the "wholesale" level, dollar deposits were moving to the "Eurodollar" market. Regulation Q's hard caps on deposit interest rates could only work in a stable, low-interest-rate world. The relatively stable and remarkably low-interest-rate world of the 1950s started to end in the mid 1960s. By 1968 it was over. While most people have heard of the elevated rates of the late 1970s and early '80s, a less well remembered but at the time startling rate increase took place in the late 1960s and again in 1973-74. The Federal Reserve's website provides easy access to this historic rate information (www.federalreserve.gov/releases/h15/data.htm). The dollar, of course, lost its "stability" by the early 1970s.

It has long been recognized that these events put great stress on the banking system. Along with interest-rate and currency fluctuations and the loss of funding to less regulated money markets and Euro-markets, on the asset side banks were losing investment-grade customers to the commercial-paper market and other capital markets (including the Eurobond market that avoided U.S. securities law issues). They were also losing "lower-end" customers to finance companies and other less-regulated sources of credit. At least one recently published book, Daniel Tarullo's *Banking on Basel*, recalls this history. Perhaps Moss believes the 1970s concerns about the

operation of New Deal financial regulation in the world as it then existed were misplaced. If so, it would be interesting to read his explanation. Simply ignoring the problems the banking industry faced from the late 1960s on serves no purpose other than to perpetuate the myth that somehow 1980s "deregulation" was a mindless action that emerged from the "stability" created by New Deal regulation.

BOB LOCKNER, J.D. '79
Chicago, Ill.

CULTURAL CARICATURES

PAUL M. BARRETT's critique of Christopher Caldwell's application of the "clash of civilizations" theory to Muslim immigration in Europe (review of *Reflections on the Revolution in Europe*, July-August, page 20) is generally on point. However, Barrett is wrong to stereotype Europe's post-World War II immigrant workers (and their children) as less "ambitious" than their American immigrant counterparts. It is true that starting in the 1970s many immigrant workers in Western Europe had difficulty finding work to replace their former jobs in the declining manufacturing sector. Rather than evidence of any lack of ambition, unemployment was reinforced by racism on the part of employers and lack of transferable skills on the part of immigrant workers. Many of these immigrants, as former European colonial subjects, were products of a European colonial and neo-colonial system characterized by structural inequality, a system that continues to fuel international migration today. Muslim communities of immigrant origin, whether Algerian or Pakistani, have set down roots in Europe whether or not Europe has accepted them. Moreover, contrary to Barrett's suggestive stereotype, it is clear to anyone who has visited Europe recently that members of the second and third generations of immigrant origin are not characterized by any lack of ambition and are able to realize their dreams of professional success when given the education and opportunity necessary to do so.

LEILA KAWAR '98
Politics Department, Bates College
Lewiston, Me.

MAKING HARVARD HARDER

IN "WHY HARVARD NEEDS to Get Harder" (September-October, page 54), Christian Flow '10 correctly observes that many



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Harvard undergraduates devote much more time, energy, and passion to extracurricular organizations than to academics. Yet his proposed solution of making undergraduate academics more demanding addresses only half of the equation. Another way that academics might assume a more prominent role in the undergraduate experience would be for Harvard students not to take their extracurricular pursuits so seriously. So here's my advice to *Crimson* editors, Model UN directors, WHRBies and the rest: *Lighten up. It's just a college club.*

THOMAS A. GENTILE '92, J.D. '95
Glen Ridge, N.J.

As A FORMER Crimed, I relished "Why Harvard Needs to Get Harder." I majored in physics, so I found it much harder to cram at the last minute and fudge my way through exams, but the same pattern of devotion to the *Crimson* at the expense of academics can be discerned in my grades (we had those, then). I, too, explored the

boundaries of the sufficient in the classroom and spent many an early morning in the newsroom on Plympton Street. Cutting down the (already inadequate) teaching staff won't do anything for holding—restoring, sadly—Harvard's preeminence. Spend the endowment! Let's drop this obsession with conservative correctness; Harvard has a history of excellence that's worth pursuing with originality and courage.

TOM STEARNS '53
Nashua, N.H.

I READ Christian Flow's article with interest. I have long believed, and I think it is widely known, that the hardest thing about Harvard is getting in. The students are so smart they teach themselves. Flow is hardly the first to point this out. Is there any evidence that the University is interested in changing this?

GREG MILLER, A.M. '76
(Yale '74—that was hard!)
Bethesda, Md.

News from our website



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A Freshman Tradition Begins

A new convocation ceremony welcomed freshmen with hints of the Commencement rites to come. Read about it and see video highlights at harvardmag.com/convocation



Swine Flu and Global Security

Harvard School of Public Health dean Julio Frenk explains why H1N1 flu is a security issue.

harvardmag.com/h1n1

A Glimpse of General Education

In the program replacing the Core, new courses include "Gregorian Chants," "American Food: A Global History," and "Fat Chance" (on probability).

harvardmag.com/gened



Plus: A cow in Harvard Yard; Harvard's faculty and alumni MacArthur Fellows; James Watson and E.O. Wilson face off; and Brittney Moraski '09 writes about teaching English in Seoul.

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CAR AND DRIVER

BARGAIN BIMMER

IN THIS SERIES HIGHLIGHTING CERTIFIED PRE-OWNED CARS, WE START WITH ONE OF OUR FAVORITES, A BMW 335i.

BY CSABA CSERE
PHOTOGRAPHY BY AARON KILEY

INSURANCE FOR SIX MONTHS

These numbers for most of two different locations, ages, and marital statuses are from Progressive. However, other insurers might emphasize different factors, so you'd be wise to shop around.

	Ann Arbor, Michigan		Torrance, California	
	SINGLE, 26	MARRIED, 37	SINGLE, 26	MARRIED, 37
2006 325i	\$600	\$479	\$1540	\$1204
2006 328i	\$693	\$530	\$1590	\$1430
2007 328i	\$795	\$644	\$1605	\$1413
2007 325i	\$822	\$629	\$1617	\$1435
2008 328i	\$895	\$731	\$1645	\$1482
2008 325i	\$840	\$639	\$1618	\$1458
2009 328i	\$869	\$699	\$1674	\$1509
2009 325i	\$851			

Certified pre-owned vehicles, or CPOs, are just the thing for the tightwad car buyer. You sidestep the hit from the initial depreciation and still get a thoroughly checked-over car, backed by the assurance of a CPO sales have been using. It's a great way to get into a new car for a lower initial outlay.

Car and Driver will be looking at all sorts of desirable CPO cars in the months to come. First up is the BMW 3-series, in part because no other car has impressed and seduced the staff more consistently over the years and partly because this writer recently needed to buy a practical daily driver.

But BMWs have never been bargains. As an inveterate chipmunk, I decided to investigate a certified pre-owned BMW. BMW started its CPO program in 1995. To qualify as a CPO car, a BMW cannot be more than five years old, have more than 60,000 miles on the odometer, and cannot have been seriously crashed. If the tires or the brakes are more than 50,000 miles, they are replaced. A CPO car is supposed to perform like a brand-new BMW.

A BMW CPO's warranty takes over when the new car's four-year, 50,000-mile coverage ends. In January, I bought a 2007 BMW 325i sedan with 23,421 miles on it, so I wound up with a warranty for two years and two months, or 76,500 miles. That's longer coverage than the original buyer received.

BMW WARRANTIES AND PERKS

Free service/maintenance	NEW WARRANTY YEARS	MILES	CPO WARRANTY YEARS	MILES
Vehicle warranty	4	50,000	0	100,000
BMW roadside assistance	4	50,000	plan 2	unlimited

Note: The CPO warranty is transferable if the car is sold, and if a CPO vehicle is sold, it can be resold by the dealer, which accounts for the secondary CPO car with 50,000 miles on its clock.

But there are a few catches. The CPO warranty isn't as extensive as new-car coverage. All of the principal mechanical, electrical, and body components are covered, but the navigation and stereo systems, as well as "wear items" that are covered under the new-car warranty—tires, plugs, wiper inserts, fluid, etc.—are not. Finally, each warranty is issued under BMW's CPO program is assigned a "handling charge" of \$50. Even with these caveats, the CPO coverage protects against expensive major failures.

Finding a CPO BMW was easy. At www.bmwusa.com, every CPO BMW available in the country is listed by price, location, body style, and transmission type (this is BMW, after all). And because BMW has records on every car, the listed colors, interiors, and options are accurate, unlike the incomplete descriptions that accompany the listings on sites such as www.autotrader.com.

While perusing these offerings, remember that there are 600 used cars, with widely varying prices, and one subject to negotiation. If you're willing to search farther from home, you are more likely to find a car with

PRICES OF CPO 3-SERIES CARS

	LOW	AVERAGE	HIGH
2006 325i	\$19,300	\$25,000	\$28,350
2006 325d	\$23,900	\$27,200	\$30,995
2006 330i	\$22,900	\$27,200	\$30,995
2006 330d	\$18,900	\$25,000	\$28,350
2007 328i	\$21,800	\$25,000	\$28,350
2007 325i	\$22,551	\$24,400	\$28,350
2008 328i	\$29,900	\$34,000	\$38,900
2008 325d	\$31,900	\$36,500	\$40,995
2008 335i	\$37,900	\$39,000	\$41,995
2009 325d	\$29,900	\$36,000	\$41,995

HOW MUCH DO

I just drove a used BMW. The dealership had to be certified if I knew where the car was. BMW charges a fee for any further work, but if they spend package another grand, model could



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Critics never gush. Well, almost never.

Car and Driver recently reviewed a Certified Pre-Owned BMW. They said things like "It has the look of a new car inside and out" and "it can slice through traffic with its effortless power and precise, nimble handling, yet when cruising at 75 mph, it achieves nearly 30 miles per gallon." They continued with "When I drove it, there was the same unworldly smoothness that always impresses in new BMWs" and "Finding a CPO BMW was easy." As you can see, they titled it "Bargain Bimmer." Read the full article on our website, and stop by your BMW center today for a test drive. Prepare to gush.

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DO TELL

RE: "DON'T TELL," a letter from Charles A. Johnson (September-October, page 4)—Let us all hope earnestly that President Drew Faust continues to speak out on issues of general interest, and does not confine her public remarks exclusively to "the business or mission of the University."

College presidents were once a great font of civic leadership in this country, and a few still have the courage to offer challenging views. Far too many tend only to their knitting, fearing to offend donors or crotchety alums.

ROBERT L. TURNER, M.P.A. '82
Milton, Mass.

CHARLES A. JOHNSON'S letter viciously attacking President Faust for writing a letter to the Secretary of Defense objecting to the military's "Don't Ask, Don't Tell" policy is full of baseless arguments. Johnson says Faust overstepped her authority, did not know the difference between military and civil law, and misinterpreted the Emancipation Proclamation. Then he throws in the tired canard that this is all the fault of

some mythical "new" social science at Harvard. His letter tells me, to borrow Johnson's own language, that he should have his degrees revoked.

As president of a university that must host ROTC on its campus or lose its federal funds, Faust has every right to oppose vociferously the policies of ROTC and the United States military. In fact, she has moral, ethical, and professional duties to defend Harvard's LGBT students, graduates, and employees from discrimination, especially on the campus she governs.

She clearly knows the difference between military and civil law; if Johnson had bothered to read any of Faust's other statements on the issue, including her comments at the June 3, 2009, ROTC commissioning ceremony, this would be obvious. That said, since "Don't Ask, Don't Tell" is written into the Uniform Code of Military Justice, which can only be changed by act of Congress, it may only affect the military, but it is a law made by civilians.

Faust's interpretation of the Emancipation Proclamation as guaranteeing "the right to military service" to freed slaves

is hardly, as Johnson so arrogantly and bizarrely claims, "nonsense." While Lincoln never used the word "right"—writing neither that anyone has a "right" to freedom from slavery nor a "right" to military service—Lincoln clearly stated that the slaves shall forever be free and that those slaves will be accepted into the military. As Faust is considered one of the greatest living historians of the Civil War and antebellum South, I trust her interpretation that these are Lincoln's guarantees of freedom and military service. Rights, if you will. For sure, the "right to military service" is a topic of contentious debate. That Faust takes a side does not make her scholarship suspect; it's what makes her a scholar.

What I found most infuriating about Johnson's letter was that it came from a Harvard graduate. As a social science concentrator in the 1990s—probably after this "new" social science came to take over the school—I was taught always to research my claims and always to be respectful. That's why I checked Faust's, Johnson's, and my facts before I wrote this letter. I assumed that even in the late '40s and early

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'50s, when Johnson was an undergraduate, the "old" social science encouraged such scholarship, too. Maybe I was wrong?

TED GIDEONSE '96
San Diego

CHARLES JOHNSON'S LETTER has it exactly right. Scholarship at Harvard has taken a back seat to the faculty's and administration's radical social agenda. Common sense has been abandoned and replaced by venomous anti-American posturing and political correctness. Members of the faculty and administration should tend to their primary responsibility, i.e., to educate. The College is not intended to be a propaganda mill spewing out radical messages. Harvard should be known for its educational agenda, not its activist radical social agenda.

WALTER BILOWZ '52
Chatham, Mass.

SO PRESIDENT FAUST should be fired, the Harvard Corporation should be seriously chided, and the "new" social sciences at Harvard should be excoriated...all on the strength of one letter by Faust.

FAIR HARVARD, SWOONING ENDOWMENT

RECALLING the distant memory of "Fair Harvard," sung at the end of football games and on other sentimental occasions, I offer a topical revision of the first stanza, inspired by recent articles on the University's currently declining endowment:

Poor Harvard, thy grads to thy endowment must give,
If their grandchildren hope to attend.
High-risk deals of the age that is past,
The new age must seek to amend.
With amenities lost and dorm thermostats down,
Old memories will still keep them warm.
As confidence builds, the decline will reverse,
And Fair Harvard will weather the storm.

E. M. GILBERT '54
San Miguel de Allende, Mexico

Having retired last year after over 30 years as a college president, I am proud that Harvard's president is a scholar who uses the bully pulpit to express a point of view, and I believe in the rhetoric about the university as a marketplace of ideas.

I also believe in civility. If Mr. Charles A. Johnson disagrees with Harvard's president about "Don't Ask, Don't Tell," perhaps

he can express himself in a way that invites dialogue?

JONATHAN M. DAUBE, Ed.D. '68
Manchester, Conn.

CHARLES JOHNSON '52 wants President Faust fired for her letter in support of full rights for gays and lesbians in the military. To most if not all of us, Harvard stands for

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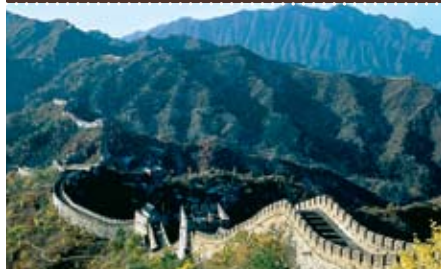
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LETTERS

academic freedom and freedom of speech. If those are not for the University's president, whom are they for? If not for a professor, then for whom? If for Johnson, then for me and everybody!

I suggest that Johnson use his letter-writing abilities to enlighten us as to why he apparently thinks only partial rights for any segment of our society are good for either the military or our country. Not only the "good" but the very best for those two entities is the right and the need of us all.

DAVE DOCKHAM '58
Hood River, Ore.

ON RADCLIFFE AND REUNIONS

TERENCE ROCHE MURPHY's sweet letter of concern about the shoddy treatment of Radcliffe women at the fiftieth reunion (September-October, page 6) calls forth this memory.

When I began the practice of law in New York City, there sat on the bench a famous jurist who eased his boredom by vicious ridicule of lawyers appearing before him. In my first appearance, I no sooner opened my mouth than his sharp wit and tongue began its attack. After two parries, I lightheartedly delivered a crippling blow. The 200 lawyers in the room roared with laughter as the judge smiled and sheathed his sword.

Then, and for years after, my "balls" were admired for besting this master of intimidation and harassment. It was easy work, requiring no effort. Sandbox play, for I came from an arena of unsurpassed viciousness directed unrelentingly towards women. I had spent four years as a Radcliffe student at Harvard in the late 1950s. And thus, kind Murphy, spare your efforts. As the U.S. Supreme Court records in stone, "Past Is Prologue." Purse closed.

KATHLEEN G. HEIRICH-CASEY,
RADCLIFFE '59
Orinda, Calif.

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Right Now

The expanding Harvard universe

PRIMITIVE PROTECTION RACKET

Evolution by Fire

ANTHROPOLOGISTS and evolutionary biologists have long sought to understand what makes humans special. How did we develop large brains, for example? Moore professor of biological anthropology Richard Wrangham offers a fresh perspective in his new book, *Catching Fire: How Cooking Made Us Human*, in which he argues that cooking—because it made more calories available from existing foods and reduced the caloric cost of digestion—was the breakthrough technological innovation that allowed humans to support big brains. He also suggests that cooking shaped the human mating system, among many other effects.

Wrangham observes that chimpanzees, from whom humans diverged millions of years ago, eat many things raw that humans can't, suggesting that *Homo sapiens* evolved away from this ability. In fact, he notes that people who choose to consume only raw food generally don't get enough calories unless they do something that essentially pre-digests it, such as running it through a blender. Women on such a diet typically stop menstruating.

That is because cooking—thanks to chemical processes that differ for starches, meats, and connective tissue—increases the number of calories in the food available to the human digestive system. Cook-

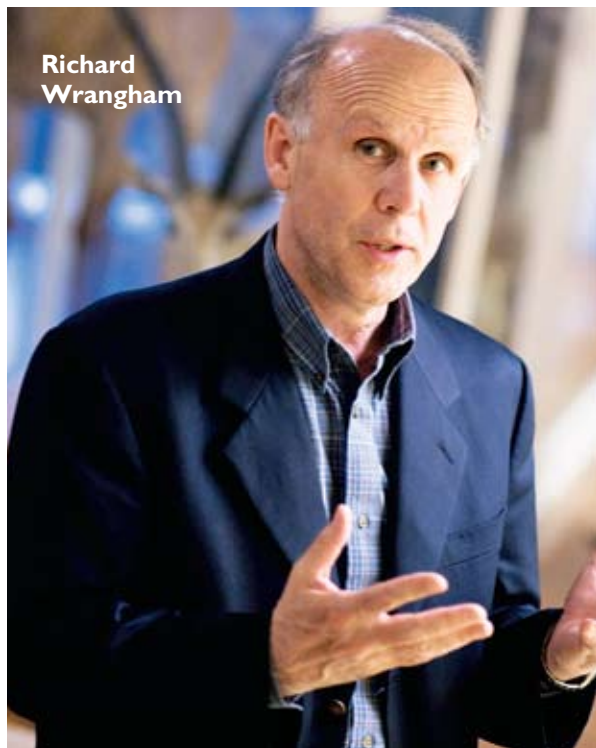


ing also reduces the energy cost of digestion: gorillas, for example, must chew all day to absorb enough nutrition. Cooking makes more metabolic energy available for other things: the development of a large brain relative to gut size, or later, in prehistoric societies, more time available for hunting.

Wrangham believes that the control of

fire and physiological changes resulting from a cooked diet would have occurred relatively quickly, citing the famous example of the beaks of finches in the Galápagos, which have changed rapidly from generation to generation in response to environmental cues. The taming of fire, through cooking, would have changed everything about us, he says, from the size of

Richard Wrangham



STEPHANIE MITCHELL/HARVARD NEWS OFFICE

Cooking shaped social relations between human males and females, from the sexual division of labor to a mating system based not on sex but on food.

Wrangham's ideas is that cooking shaped social relations between human males and females, from the sexual division of labor to the mating system itself, which, he argues, is based not on sex but on food. Among other primates, males and females looking for food collect the same things. Wrangham believes cooking, by providing quick calories, allowed human males to focus on hunting, leaving gathering and cooking to the females. This would explain the eventual sexual division of labor and our practice of sharing food.

But it also left cooks vulnerable to exploitation. Cooking, he points out, "is a conspicuous and lengthy process."

In the bush, the sight or smell of smoke reveals a cook's location at a long distance, allowing hungry individuals who have no food to easily locate cooks in action...The effect among *Homo erectus* is easily imagined. Because females were smaller and physically weaker, they were vulnerable to bullying by domineer-

ing males who wanted food. Each female therefore obtained protection from other males' wheedling, scrounging, or bullying by forming a special friendship with her own particular male. Her bond with him protected her food from other males, and he also gave her meat. These bonds were so critical for the successful feeding of both sexes that they generated a particular kind of evolutionary psychology in our ancestors that shaped female-male relationships and continues to affect us today.

Wrangham describes the resulting pair-bond as a "primitive protection racket" in which husbands "used their bonds with other men in the community to protect their wives from being robbed, and women returned the favor by preparing their husbands' meals." Cooking brought many benefits to humans, he concludes, but it "trapped women into a newly subservient role enforced by male-dominated culture. Cooking created and perpetuated a novel system of male cultural superiority. It is not a pretty picture." —JONATHAN SHAW

our faces and our brains to our social organization.

When this great leap forward took place is hard to say, even roughly. Wrangham favors a period 1.8 million years ago, when *Homo erectus* emerged. But as his colleague, MacCurdy professor of prehistoric archaeology Ofer Bar Yosef, has pointed out, there is still no evidence for the use of fire before 800,000 years ago.

Perhaps the most provocative of

TEST AND DIGEST

Learning by Degrees

THE IMAGE IS GRIM: "binge and purge" learning. It's what students do when they cram for a test: consume subject matter in a large lump (binge) and then spit it back on the exam (purge). This mode of study doesn't seem to produce durable learning. During the past four years, associate professor of surgery B. Price Kerfoot, M.D.

'96, Ed.M. '00, has developed a scheme that's more like grazing: "spaced education." More than 10 rigorous studies on medical students and residents using randomized trials have shown its efficacy: it can increase knowledge by up to 50 percent, and strengthen re-

The SpacedEd course catalog, at right, offers students the chance to "Learn most anything in 3 minutes a day." Although most courses at the moment are on medical subjects, there are also offerings in bartending, basic music theory, and fantasy football.



A free course on “iPhone Tips & Tricks” teaches students a new “power user” tip every other day. The 10-question mini-course aims to make students’ iPhone use easier and more efficient.

tention for up to two years. Furthermore, students report enjoying spaced education; its website (www.spaceded.com) even calls it “addictive.”

The website offers, online, the first courses structured in this mode. (Harvard has applied for a patent on the technology, and already licenses it to an Internet start-up company, SpacedEd.) The methodology, which Kerfoot, a urological surgeon, invented, breaks information down into discrete packages and then applies two learning principles that he gleaned from the psychological literature on learning and memory. The first principle is the *spacing effect*—“When you present and repeat information over intervals of time [as opposed to “binges”], you can increase the uptake of knowledge,” he explains. “And it’s encoded in ways that cause it to be preferentially retained.” The second principle is the *testing effect*: “When you present information in a ‘test’ format, rather than just reading it, long-term retention is dramatically improved.”

Kerfoot had his interest in education and educational reform sparked when, as a student, he took part in the Medical School’s New Pathways curriculum. During his residency, he also earned a master’s degree at the Graduate School of Education. He knew that Web-based teaching modules are a gold standard for online education, but in a study done at four medical schools, Kerfoot found that “most students hated them and long-term retention was quite poor. Why waste a week of their time and \$1,000 of

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TURN TO PAGE 77**

HARVARD
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their tuition teaching them about a medical subspecialty when the knowledge will disappear from memory in five to 12 months?"

In contrast, spaced education "turns online education on its head," he asserts. Instead of a test at the end of the course, it presents the material itself entirely in a test-question format. New information appears when the correct answer is explained and elaborated upon. (The online courses have an "answer blog" at the conclusion of each explanation, for students' comments and discussion.) Typically, a

Instead of a test at the end of the course, SpacedEd presents the material itself entirely in a test-question format.

course contains 20 to 40 questions, spread across one to two months. The spacing de-

pends on the student's answers: an incorrectly answered question might repeat one week later, for example, and a correctly answered one after three weeks. After two consecutive correct answers, a question is retired.

Close to home, Kerfoot used Spaced Ed to improve prostate-cancer screening by 95 primary-care providers at the Veterans Administration Medical Center in Jamaica Plain, where he works. Participants showed a 26 percent decrease in inappropriate cancer screenings, saving money and minimizing patients' anxiety.

BEES' KNEES

Taming Turbulence

W AFT THE SCENT of cinnamon, wintergreen, or eucalyptus into the tropical air of Central and South America and beautifully colored bees in hues of red, gold, green, and blue will appear as if out of nowhere, says Stacey Combes, assistant professor of organismic and evolutionary biology. These male orchid bees will travel almost anywhere in pursuit of exotic fragrances—aromatic hydrocarbons that they collect over a lifetime and store in pockets in their massive hind legs. (Like all males in the order Hymenoptera, they have no stingers.)

So powerful a motivator is the orchid bee's fixation on fragrance (the scents are thought to be used in sexual selection) that it can be used to measure their flying abilities, Combes says. She places a scent in a receptacle in front of a fan, and the bees lock on to it. "I can turn the speed up faster and faster, like a treadmill," she says, "and they keep flying." She had suspected that once the bees reached maximum flight speed, they wouldn't be able to keep up anymore, but it was instability they had trouble with. As the speeds increased, the bees started rolling over and were ejected out of the airstream. To prove that

turbulence, rather than speed, caused the problem, Combes used a grid with squares to disrupt the airflow and a 3-D sonic anemometer to map the resulting turbulence in the air stream. The higher the turbulence, the lower the bees' maximum speed before failure.

Combes also observed a counterintuitive behavior: as the speeds increased

beyond two meters per second, the bees straightened their hind legs—which increased drag as much as 30 percent. By moving the mass in their legs away from their bodies, Combes explains, the bees increase their *moment of inertia*, or resistance to rotation, in the same way figure skaters will emerge from a blurringly fast spin by extending their arms. Flying with straight legs requires more energy, but helps the bees stabilize themselves in the turbulent conditions they may encounter in the upper levels of the rainforest, where the orchids they frequent are most abundant.

"Wind is a universal part of life for all flying animals," says Combes, who is part of a research team working on the development of small-scale mobile robotic devices (see "Tinker, Tailor, Robot, Fly," January-February 2008, page 8.) "Yet we know remarkably little about how animals navigate windy conditions and unpredictable airflows, since most studies of animal flight have taken place in simplified environments, such as in still air or perfect laminar flows. Our work shows clearly that the effect of environmental turbulence on flight stability is an important and previously unrecognized determinant of flight performance."

~JONATHAN SHAW



Visit harvardmag.com/extras to see videos of orchid bees in flight.



Orchid bees navigate turbulence by extending their massive hind legs to prevent rolling.

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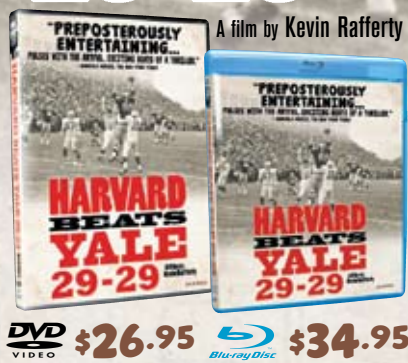
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(The SpacedEd website offers discussion boards where students can hash out controversial medical practices like the prostate-specific antigen [PSA] test.) Kerfoot is also going global, having just completed a spaced-education randomized trial on urology clinical-practice guidelines involving 1,470 surgeons in 63 countries.

There are now dozens of courses on the SpacedEd website, which went live in May. Many are for doctors and medical students, but there are also offerings on bartending, iPhone tips, and music theory (which includes video of the instructor playing his guitar in each question). Nearly all are free; a few have very modest fees—\$1.99 to \$9.99. Kerfoot feels that the platform can work with almost any type of course, including K-12 educa-

tion, and plans to enlist teachers all over the world to develop the curriculum, with course authors keeping 60 to 80 percent of the revenue if there is a tuition fee. His ambition is to cultivate a "social learning community" where course authors and students interact online, becoming engaged in creative and effective courses and generating comment and discussion on the curricular topic. "Our goal is to get the methodology out beyond the Harvard firewall," he says. He'd also love to see a course in Spanish, which he has studied three times previously. As he says, "I won't have to forget it a fourth time."

—CRAIG LAMBERT

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IMPRINTING BABY

A New Twist on Nature/Nurture

COMPARED TO other primates, humans spend a relatively short time nursing, yet take an unusually long time to become adults. An orangutan will suckle its young for seven to eight years, a chimpanzee for about five years; a human mother typically suckles hers for only two. This allows for shorter intervals between pregnancies. Yet long after weaning, human children remain nutritionally (and otherwise) dependent on parents. This unique life pattern may be the result of an evolutionary compromise between the competing interests of mothers, whose "fitness" is measured by how many surviving children they bear, and offspring, whose goal is maximizing access to maternal resources while adapting to a complex social world.



BRUCE ROSCH

In earlier work, professor of organismic and evolutionary biology David Haig explored the role of imprinted genes—genes that behave differently depending on whether they are inherited through the mother or the father—in mediating the transfer of nutrients between mother and fetus. His research has led him to describe pregnancy as a precariously balanced tug-of-war that may go awry, for example, if the paternal genes controlling the growth of the placenta begin to trump the mater-

Long after weaning, human children remain nutritionally (and otherwise) dependent on parents.

nal genes seeking to moderate the flow of resources to the fetus in order to ensure the mother's future reproductive fitness (see "Prenatal Competition," September-October 2006, page 18).

Recent evidence suggests that the same selective forces operate within the child's genome *after* birth. "I predict that paternal genes of the child will be promoting more intense suckling demands on the mother, and thus longer birth intervals," Haig explains, while maternally derived genes will do the opposite. If for some reason the imprinted genes of one parent are under-expressed or over-expressed in the offspring, he hypothesizes, irregularities in the child's feeding behaviors and growth pattern are likely to result.

To explore his hypothesis, Haig has looked at various rare childhood disorders that may shed light on the genetic conflict underlying the parent-offspring relationship. For example, children with Prader-Willi syndrome—caused by the deletion of a paternal variant of a gene associated with strong suckling—have little or no suckling reflex and often have to be force-fed to obtain enough nutrients in early infancy. Temple syndrome and Silver-Russell syndrome are similarly linked to chromosomal abnormalities favoring maternal over paternal gene expression; children with these diseases also have low appetite, poor suck, and retarded growth. Conversely, Beckwith-Wiedemann syn-

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Harvard Square History

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SEE

A Masterpiece Reconstructed

A scholar at Harvard's Center for Italian Renaissance Studies solves the mystery of a trio of fifteenth-century religious paintings, revealing that they were once part of a set of 60. View illustrations of the full altarpiece as she and colleagues reconstructed it.



LISTEN

The Sound of Son

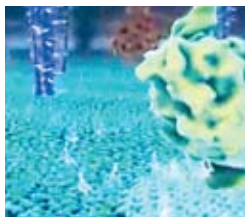
David Wax '06 and acoustic trio La Tuza play *son*, traditional Mexican folk music drawing on Spanish, African, and native sources. Hear one of their selections, "El Colás."



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Students' Stories from Africa

Four undergraduates' service and research projects in Africa are profiled in this issue. Read six additional profiles and view photo slide shows online.



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Professor Video

Faculty members are adapting the traditional lecture format with visual and multimedia elements—a new form of teaching. View examples of twenty-first-century pedagogy now in use in Harvard classrooms.



VIEW

Activist Art

ACT UP New York: Activism, Art, and the AIDS Crisis, 1987–1993, now on display at the Carpenter Center for the Visual Arts, recalls a pivotal time in the history of the response to HIV and AIDS. Watch videos from the exhibit.

RIGHT NOW

drome, caused by the over-expression of the paternal IGF2 gene (or the inactivation of the maternal copy of the CDKN1C gene), leads to large infants with oversized tongues and mouths.

The competing effects of imprinted genes continue to influence a child's appetite and rate of maturation after infancy, Haig believes. Although children with Prader-Willi syndrome begin life as poor feeders, in early childhood they become voracious eaters prone to obesity. "The

Imprinted genes appear to play a role in the timing of puberty, with maternal genes favoring earlier onset of many of puberty's physical precursors.

paternal genes are promoting intense suckling, but they're also inhibiting the offspring's desire for alternative foods," he explains. "When you take these paternal genes away, as in Prader-Willi syndrome, you have infants with little or no appetite for mother's milk. But later, *after* weaning, they develop this insatiable appetite, eating everything in sight." Imprinted genes also appear to play a role in the timing of puberty, with maternal genes favoring earlier onset of many of puberty's physical precursors.

But Haig cautions that longitudinal studies of children with various imprinting disorders are still needed in order to test his hypotheses. "I believe that these rare childhood conditions are telling us something about how humans' unusual life-cycle evolved," he says. "Our slow rate of development is likely an adaptation of offspring to be able to learn about the world in comparative safety while being looked after by mothers. Meanwhile, early weaning is the maternal response, enabling mothers to have shorter birth intervals and thus more offspring."

—ASHLEY PETTUS

DAVID HAIG E-MAIL ADDRESS:

dhaig@oeb.harvard.edu

Montage

Art, books, diverse creations



- 18 Open Book
- 19 Again, A Dangerous Art
- 20 Chapter and Verse
- 23 The Son Also Rises
- 23 Sharks, Fiction, and Wall Street
- 24 Off the Shelf



The Donkey Show in rehearsal, with Paulus (above, far left, and inset) directing Tytania atop a cube, assisted by the four Fairies.

roots”)—and theater in general, should be. “I’m deeply interested in the audience,” she says. “I’m a populist. I believe in the audience’s intelligence, and want them to have a voice. Opera is the one theatrical place in America where people will actually boo. Why? Because opera fans are so passionate about what they be-

lieve and what they want. I would rather have an audience boo than fall asleep.”

More often, her audiences have been singing, dancing, and cheering. For *The Donkey Show*, her first ART production, Paulus (with her husband and collaborator, Randy Weiner ’87) has changed the company’s Zero Arrow Theatre into a club named OBERON, a 1970s disco setting for a radically re-imagined version of

Theater As If It Matters

The dynamic Diane Paulus breaks all four walls.

by CRAIG LAMBERT

IMMEDIATELY after college, Diane Paulus ’88 returned home to New York City and enrolled in a two-year training program at The New Actors Workshop. It’s a prestigious program: Hollywood director Mike Nichols and theater director Paul Sills taught her. On the final night, several students stayed up late at a café, saying goodbyes and discussing their ambitions. Some just wanted to get an agent. Some wanted to become film stars; others hoped to act or direct on Broadway or do improv comedy or win a lead role on a TV

series. Paulus announced a different goal. “I want to be Robert Brustein,” she said, “and run the American Repertory Theatre.”

This past summer, nearly two decades later, she realized her dream, becoming artistic director of the repertory company that Brustein, professor of English emeritus, founded at Yale and brought to Harvard’s Loeb Drama Center nearly 30 years ago. She brings an ambitious vision of what the ART (American Repertory Theater, the spelling of “Theater” now anglicized at her suggestion, accenting its “American

O P E N B O O K

The High-rise Ecotopia

Metropolis: What the City Can Teach the Country about True Sustainability (Riverhead, \$25.95) explains. From chapter one:

My wife and I got married right out of college, in 1978. We were young and naïve and unashamedly idealistic, and we decided to make our first home in a utopian environmentalist community in New York State. For seven years we lived quite contentedly in circumstances that would strike most

the United States. The most devastating damage that humans have done to the environment has arisen from the burning of fossil fuels, a category in which New Yorkers are practically prehistoric by comparison with other Americans, including people who live in rural areas or in such putatively eco-friendly cities as

Portland, Oregon, and Boulder, Colorado. The average Manhattanite consumes gasoline at a rate that the country as a whole hasn't matched since the mid 1920s, when the most widely owned car in the United States was the Ford Model T. Thanks to New York City, the average resident of New York uses less gasoline than the average resident of any other state, and uses less than half as much as the average resident of Wyoming. Eighty-two percent of employed Manhattan residents travel to work by public transit, by bicycle, or on foot. That's 10 times the rate for Americans in general, and eight times the rate for workers in Los Angeles County.... The average New Yorker (if we take into consideration all five boroughs of the city) annually generates 7.1 metric tons of greenhouse gases, a lower rate than that of residents of any other American city, and less than 30 percent of the national average, which is 24.5 metric tons; Manhattanites generate even less.

Though dense and paved, Manhattan is exemplary in energy use and greenhouse-gas emissions.

Americans as austere in the extreme: our living space measured just 700 square feet, and we didn't have a lawn, a clothes dryer, or a car. We did our grocery shopping on foot, and when we needed to travel longer distances we used public transportation. Because space at home was scarce, we seldom acquired new possessions of significant size. Our electric bill worked out to about a dollar a day.

The utopian community was Manhattan. Most Americans...think of New York City as an ecological nightmare, a wasteland of concrete and garbage and diesel fumes and traffic jams, but in comparison with the rest of America it's a model of environmental responsibility. In fact, by the most significant measures, New York is the greenest community in



© KLAAS LINGBECK/VAN KRAEVENISTOCK

A Midsummer Night's Dream. (The renaming of Zero Arrow, reportedly, is permanent.) The audience throngs into the nightclub (yes, adult beverages are available) and dances for the first half-hour amid a cast, in costume and in character, that mingles and dances with them. Four Fairies—chiseled young men wearing little more than glorified loincloths and eyeliner—gyrate atop cubes on the dance floor and invite theatergoers to gyrate with them. The play unfolds in blackout sketches that pop up in spotlights all over the room, played at times almost literally in audience members' laps. Not a single word of Shakespeare's dialogue is uttered, but the action is true to his characters and their relationships, and moves ahead via disco anthems like "I Love the Nightlife," "We Are Family," and "Last Dance."

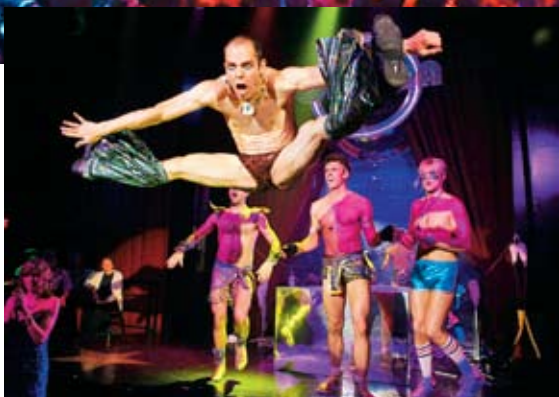
The Donkey Show, which premiered in 1998 in New York and has since run in Edinburgh, London, Madrid, and Evian, France, is the first of Paulus's "Exploding Shakespeare" triptych, the trio of productions that open her first season. For October, she booked the innovative British theater company Punchdrunk to stage—*install* might be a better word—*Sleep No More*, "an immersive production inspired by Shakespeare's *Macbeth*, told through the lens of a Hitchcock thriller" at the Old Lincoln School near Brookline Village, Massachusetts. In late November, *The Best of Both Worlds* will tell *The Winter's Tale* with the musical sounds of R&B and gospel. (An unexploded *Winter's Tale*, performed by the ART's Institute for Advanced Theater Training class of 2010, was also on the Loeb theater docket for early October.)

"I am serious about the mission of ART—to expand the boundaries of theater," Paulus says. "I am very passionate about theater not being defined as an 'elite' art form. I want to see it return to a vibrant, vital place, not only as a center of culture, but at the center of our society. In fifth-century B.C. Athens, theater was at the center of social and religious life; Aeschylus was competing with Sophocles amid the birth of democracy. The theatrical experience should not be confined to rituals of what we *think* theater is—to sit in chairs bolted to the floor: that's *one* kind of theater. Look at Indian culture or medieval Europe—theater hasn't only been about realism and naturalism.

"[Richard] Wagner said to turn the



Above: A disco ball and DJ overlook the *Donkey Show* audience as cast members enact a scene. Left: A *Fairy* leaps.



MARCUS STERN/ART

house lights out to keep the audience focused on the stage," she continues. "But people once went to the theater to *flirt*—to see other people in the boxes, to eat and

six hours a day by myself didn't feel like the heart of what the arts meant to me," she says. "I loved the creative process in a *group*—many people coming together and making something great." There were four formative years of the "wild creative activity that undergraduates engage in" at Harvard, where Paulus

drink and shout. For the groundlings of Shakespeare's day, it was very earthy. I look at other forms of live entertainment—pro wrestling, rock concerts—to get my inspiration."

Paulus grew up as a "theater arts kid" in New York City; her father acted and directed, and she danced with the New York City Ballet as a girl and studied piano for 10 years. But

co-founded CityStep, "haunted the Loeb," and wrote a senior social-studies thesis on The Living Theatre, the New York-based experimental theatre group. She didn't want to be an actor "and wait by the phone, hoping for a job," so after completing her two-year workshop training, she earned an M.F.A. in directing at Columbia; she has worked as a freelance director since 1997. Paulus has done plenty of musical theater, including opera (all the Mozart-Da Ponte operas, for example) and, two years ago, a London opera based on the David Lynch film *Lost Highway*. In 2007 and 2008, she directed a revival of *Hair* in Central Park and then took it to Broadway, where it won a 2009 Tony Award.

Traditionally, at the end of *Hair*, the audience mounts the stage and dances until they are spent. That's part of the plan. "You've touched them and made some kind of transformation," Paulus explains. "You want that to have an *outlet*. It's not just the play on the stage—it's the gathering of people." Paulus's invitation is direct and sincere: "Come *be* in my shows."

Again, A Dangerous Art

The brutal, desperate poetry of Frederick Seidel

by ADAM KIRSCH

IT MAY BE HARD TO BELIEVE, reading the small epiphanies and self-flattering revelations that are standard in contemporary American poetry, but for much of the twentieth century poetry was a dangerous art. When T.S. Eliot fused sordid urban scenes with high literary allusions in *The Waste Land*, or Robert Lowell confessed his childhood traumas and mental illness in *Life Studies*, or Sylvia Plath recreated herself as a suicidal avenging angel in *Ariel*, readers reacted as those poets wanted them to: with shock, sometimes with outrage, but always with the fascination that only genuine risk can bring. What made modern poetry modern was not really its experiments with obscurity or formlessness—much

contemporary poetry is obscure and formless, yet utterly unchallenging—but its willingness to confront areas of experience that we are more comfortable ignoring.

No poet working today knows that dangerous truth better than Frederick Seidel '57, whose heartbreaking and deliberately scandalous poetry is collected in *Poems 1959-2009* (Farrar Straus Giroux). "I am civilized," Seidel writes in the bluntly titled "Kill Poem," "but/I see the silence/And write the words for the thought balloon." Those words—the ones we think but know better than to say out loud—are the ones Seidel can't stop himself from repeating. One of the most notorious examples is "Broadway Melody," from his 2006 collection *Ooga-Booga*:



Frederick Seidel

©MARK MAHANEY

A naked woman my age is a total
nightmare.
A woman my age naked is a
nightmare.
It doesn't matter. One doesn't care.
One doesn't say it out loud because
it's rare
For anyone to be willing to say it,
Because it's the equivalent of buying
billboard space to display it,

Display how horrible life after
death is,
How horrible to draw your last
breath is,
When you go on living.

It is typical of Seidel to lead off with a statement of such brutality, as though daring the reader to close the book in righteous anger. In this way the righteous are weeded out, and only readers curious or sympathetic enough to go on are allowed to see what leads Seidel to write this way: not misogyny or "ageism," but a desperation so profound that it can speak only in a tone of cruel flippancy. It may be horrible to

draw your last breath and go on living, but the poem concludes by showing us that not all old women and men feel that they are trapped in a living death. On the contrary:

I hate the old couples on their
walkers giving
Off odors of love, and in City Diner
eating a ray
Of hope, and then paying and
trembling back out on Broadway,

Drumming and dancing, chanting
something nearly unbearable,
Spreading their wings in order to be
more beautiful and more terrible.

Love, Seidel seems to be saying, is stronger than death: the old couples who cling to one another in the face of physical decay remain "beautiful" in their fidelity and defiance. If they are also "terrible" to the poet, it can only be because they represent a kind of consolation that is unavailable to him. He hates them because their happiness exposes his misery as a self-inflicted punishment.

Sartre may have said that hell is other

people, but poets have long known that, in fact, hell is being trapped in the self. "Which way I fly is Hell, myself am Hell," says Milton's Satan, and Gerard Manley Hopkins concurs: "The lost are like this, and their scourge to be/As I am mine, their sweating selves; but worse." But few poets have written more horribly and convincingly than Seidel about the torment of self-hood. Reading *Poems 1959-2009*, one is struck by how often Seidel returns to images of people cut off, abandoned, imprisoned. In "Dune Road, Southampton," from his 1998 book *Going Fast*, he writes about the famous case of Sunny von Bülow, who was allegedly poisoned into a coma by her husband:

The neurologist on call introduces
herself to the murderer and
concurs.
Locked-in syndrome, just about the
worst.
Alive, with staring eyes.
The mind is unaffected.

And with the patient looking on
expressionlessly,

Chapter & Verse

Correspondence on not-so-famous lost words

Charles Miller seeks an identification, and the exact words, of the German historian referred to by the late Harvard Law School professor Paul Freund in a 1950 essay: "No one would have been more entitled [than Justice Brandeis], or less inclined, to echo the words of the German historian, 'I have spent sleepless nights that others might rest.'"

Josh Gibson hopes someone can identify a short story about a Nazi (not, he thinks, Dietrich von Choltitz, the military governor of Paris after D-Day) who refuses an order to demolish a cathedral and/or its windows. The text describes the man looking through binoculars or a rifle scope as he has his second thoughts.

John Ehrenreich thinks Churchill once said, "Love and war change everything"—meaning certain events such as falling in love, or starting a war, change things irre-

versibly, creating a discontinuity with the past. He would like a verified citation.

"When the Camp says: 'Dig graves now,'...I'll know and be with you" (March-April 2004). Kathleen O'Higgins identified Peter Viereck's poem "To Be Sung," published in *Time and Continuities: Last and First Poems* (1995).

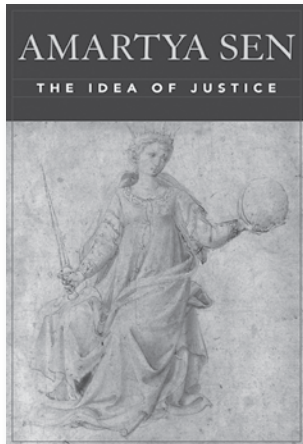
"in Harvard balance" (July-August). Responding to Robert Hoffman's reply, Ernest Bergel (with 20 years' more medical experience) reports hearing "dying in balance" (no "Harvard") in the mid 1950s in the early days of the study of serum electrolyte balance. Doctors focused on sodium, potassium, chloride, and bicarbonate, not realizing the importance of magnesium: "Thus, as they 'corrected' patients' acid/base balance, they often intensified their hypomagnesemia, which led to death." Bergel and Irving Rudman, M.D.,

both cite an earlier recording, *The Exanguination Blues* (attributed to a student or house officer at North Carolina Memorial Hospital) that included a song ending, "He died in balance." Bergel suggests "Harvard" might have been added later because of the research of Harvard biochemist A. Baird Hastings, who lectured widely on acid/base balance: "It seems at least plausible that after such a lecture, someone attached the adjective as shorthand to refer to the subject."

"selling the Stradivarius" (September-October). Sean Condon recognized "The Shanahan Strad," by Paul Jones, published by *Collier's* in 1948 and reprinted in *Best Short Shorts*, edited by Eric Berger (1967).

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

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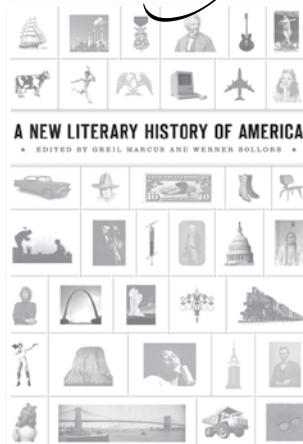


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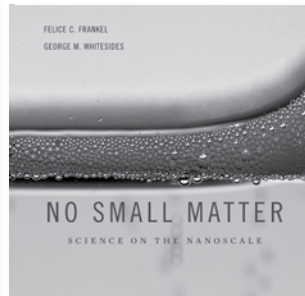


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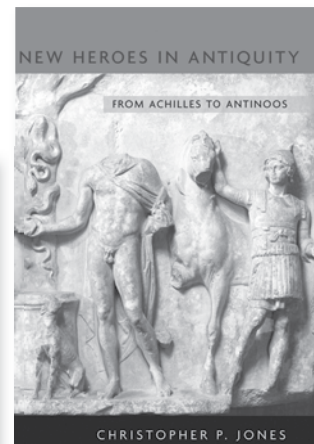


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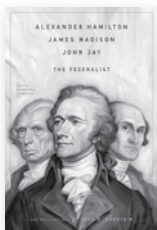
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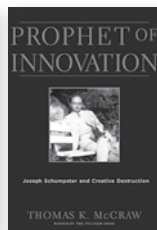
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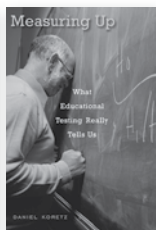
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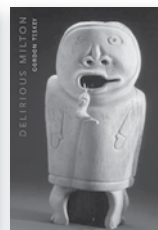
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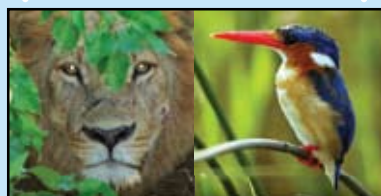
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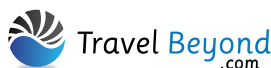
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MONTAGE

Screaming don't let him take me
home, without a sign or sound,
The doctor tells the murderer he can
take her home,
If that's their wish.

There is no mistaking Seidel's terrified
sympathy with the victim: he knows all
too well what it is like to be conscious and
articulate, but unable to make genuine con-
tact with other people. He finds another un-
forgettable metaphor for this state in "Con-
tents Under Pressure," where he imagines
an astronaut cut adrift from his ship:

Absolutely nothing can be done.
The spacecraft is under orders not to
try and to return and does.
He urinates and defecates
And looks out at the universe.
He is looking out at it through his
helmet mask.

If this kind of feeling were pathological,
Seidel would be interesting only as a case
study. But his manic, disconcerting eloquence
convinces us that it is not pathological—that
all of us, in some degree, know what this
kind of isolation feels like, just as we can all
understand Plath's rage and Lowell's despair
and Eliot's disgust. In fact, Seidel has a good
claim to be the best poetic interpreter of his
age, the second half of the twentieth century,
when capitalism and technology combined
to snap so many of the traditional bonds that
once connected person to person.

That is why so many of Seidel's po-
ems are not just deeply confessional but
outward-looking, socially and politically
and historically informed, with a satirical
edge sharpened by the poet's long famili-
arity with a peculiar corner of international
high society. It is, again, easy to be put off by
the *luxe* settings and properties of Seidel's
poems—the Hotel Carlyle in Manhattan,
beach mansions in the Hamptons, Italian
motorcycle races, French country estates.
He seems to wallow in wealth—but if so, it
is only because he remembers what it is that
pigs love to wallow in. "The Master Jeweler
Joel Rosenthal," a poem from Seidel's Dan-
tesque sequence *The Cosmos Trilogy*, gloats
that "the richest in the world stick out their
necks/And hands and ears for JAR's gems,"
but then turns around to observe, "Death
is loading in the van/The women and cam-
els of King Solomon it is repossessing." The
preceding poem in the sequence, "Eternity,"

has this to say about rich people who pur-
sue youth through plastic surgery:

A man who wanted to look better
But not younger is red
Swells of raw.
Later they will remove the staples.

Ten weeks later
They are younger.
They pull over
Their head a sock of skin.

Harvard, Seidel makes clear in his early
work, was the first place he encountered
this world of alluring and threatening
wealth. In *Final Solutions*, his first book,
published in 1963, he recalls:

I had given up violin and left St. Louis,
I had given up being Jewish,
To be at Harvard just another
Greek nose in street clothes in
Harvard Yard.

Already, Harvard is the deeply ambiva-
lent symbol it will remain in Seidel's work, a
name for success and self-betrayal. It is where
he learned to love literature, he suggests in
"Untitled": "The steps of Widener led one
to the doom of reading." But it is also where
he learned the aristocratic accent which his
poems so perfectly imitate and travesty: "The
very back of the throat without the use of the
lips/Produces the bloated drawl of the upper
class./You hear it in a certain set, you see it in
a certain scene," he writes in "On Wings of
Song." And for Seidel, there is no doubt about
the nightmare to which all such dreams of el-
egance must lead:

The king is in his counting-house
counting out his money.
His head will be hacked off and
saved;
The carcass goes to the dogs—after
the servants drink the blood
And defecate. There is another
accent, that goes to Harvard,
That anyone who does can have. My
babysitter
Harold Brodkey will. One day I, too,
I will.

Adam Kirsch '97 is a senior editor at the New
Republic and a columnist for the online maga-
zine Tablet. His most recent collection of poems is
Invasions (Ivan R. Dee).



The Son Also Rises

Gifted gringo David Wax sings and plays Mexican roots music.

DAVID WAX '06 never took a music course at Harvard. But while traveling and studying music in Mexico on a Sheldon Fellowship after graduation, he realized that what he really wanted to do was learn to perform the Mexican “roots” music he loved so much. Instead of pursuing the academic career he seemed destined for, the history and literature concentrator is now a professional musician, the founder of La Tuza, a Mexican roots-music trio that has been performing around New England for the last couple of years. La Tuza recently

issued its first CD, *Son del Otro Lado* (“Sound from the Other Side,” available from www.latuzamusic.com).

Son—“sound”—is the collective word for Mexican folk and popular music. *Música*, Wax explains, was the word for the art music of courts and cathedrals; *son* “was the ‘noise’ everyone else made.” *Son* (rhymes with *bone*) exists in many styles and forms, most of them regional in origin, yet also reflecting the complicated cultural history of Mexico. *Son* therefore mingles indigenous music with Spanish, African,

David Wax plays *jaranas*, Mexican guitars of various sizes.



and Caribbean influences, not to mention polkas and waltzes that came to Mexico by way of German immigrants to Texas.

Wax focused on three kinds of *son* he

F O L I O

Sharks, Fiction, and Wall Street

If research is essential to fiction, then the new thriller *Top Producer* by Norb Vonnegut '80, M.B.A. '86, boasts sterling credentials. This is Vonnegut's first novel (yes, he is a fourth cousin to Kurt; “all Vonneguts are related,” he explains), but it builds on his two decades as a Wall Street stockbroker and investment adviser to wealthy clients. “I didn’t start with the idea of writing a mystery,” he says. “I just tried to tell the best story I could about Wall Street—funny, shocking, horrific, a story where you would learn a little something. Wall Street is so rich with stories, and it was something I understood and enjoyed.”

The book opens with a terrifying scene in which Charlie Keleman, a spectacularly rich, high-living investment manager who runs his own firm, hosts a black-tie gala for 500 friends to celebrate his wife's birthday. The New York convoy flies in to party at Boston's New England Aquarium, with its four-story-tall Giant Ocean Tank filled with live sea creatures. At the height of the festivities, Charlie momentarily disappears, and is next spotted *inside* that tank with a caterer's cart roped to his ankle, pulling him down like an anchor. The guests then helplessly witness his savage execution by shark bites.

The question, as always, is, “Whodunit?” Charlie's reputation as the most amiable of men only deepens the mystery. His best friend, narrator Grover

O'Rourke—a Wall Streeter himself and 32-year-old widower—becomes enmeshed in the homicide investigation. “Grover goes through life keeping his head down, trying to do the right thing,” Vonnegut explains. “Then suddenly something big and bad comes along and turns his world upside down.” He adds that, “In the wake of [the financial collapse of] 2008, a lot of us can relate.”

Indeed, *Top Producer*, written in 2006 and 2007, resonates so clearly with certain recent financial news that at one point Vonnegut called his agent and his editor at Minotaur Books/St. Martin's to say, “My novel just came true.” He keeps a hand in the financial world with a blog called Acrimoney (acrimoney.com), but has become a full-time writer now. *Top Producer* had a huge first printing of 100,000 copies, and Vonnegut is now working on a second novel.

“A stockbroker's life means waking up really early,” he says. “You are constantly on the phone, in the middle of sensory overload. There are two TV screens, tuned to CNBC and Fox Business, 200 or 300 e-mails a day, and the squawk box. You're totally a conduit for information and you quickly lose control of your day.” To write *Top Producer*, Vonnegut woke even earlier, at 5 A.M., and wrote until 7 o'clock, as well as on evenings and weekends. “Writing, I was in charge,” he says. “I loved the process. It gave me the opportunity to decompress.”

The novel also gave Vonnegut the chance to explain the workings of Wall Street, which “outside a 50-mile radius of New York City,” he says, “is a four-letter word.” And though his background does share certain elements with his narrator, there are also bedrock differences. Grover O'Rourke, for example, “is a stunning athlete,” Vonnegut says. “I'm not.” —C.L.

Novelist and Wall Streeter Norb Vonnegut, during a book tour in Sydney, Australia



Visit harvardmag.com/extras to hear excerpts from an interview with Norb Vonnegut

MARY VONNEGUT

Off the Shelf

Recent books with Harvard connections

The Idea of Justice, by Amartya Sen, Lamont University Professor (Harvard, \$29.95). The Nobel Laureate explores philosophical notions of the “just society,” motivated, as ever, not just by theoretical reasoning, but by the search for applications to (and appreciation of) different societies, their conceptions of what is just, and the “advancement or retreat” of what is just.

1688: The First Modern Revolution, by Steve Pincus, Ph.D. '90, JF '94 (Oxford, \$35). A sweeping reinterpretation of England's Glorious Revolution—embracing foreign policy, religious culture, and political economy—that argues for its status as the first modern, truly transformative revolution. The author is a professor of history at Yale.

The Modern Period: Menstruation in Twentieth-Century America, by Lara Freidenfelds '94, Ph.D. '03 (Johns Hopkins, \$60). An examination of middle-class mores and modernity through close study of menstrual products and practices. Illustrated by advertising and instructional materials—for instance, a Kimberly-Clark pamphlet instructing girls to take walks but not to hike or jump rope during their periods.

The Hardest Questions Aren't on the Test: Lessons from an Innovative Urban School, by Linda F. Nathan, Ed.D. '95 (Beacon Press, \$25.95). A practical discussion of teaching, race, the achieve-

ment gap, and more, by the founding principal of the Boston Arts Academy.

Genius of Common Sense, written and illustrated by Glenna Lang and Marjory Wunsch, M.A.T. '65, M.Arch. '74 (Godine, \$17.95). A young-readers' introduction to Jane Jacobs and the revolution in urban planning effected by *The Death and Life of Great American Cities*.

The Virgin Warrior, by Larissa Juliet Taylor, A.L.B. '81 (Oxford, \$35). A life of Joan of Arc as electrifying leader, in the context of her times, by an associate professor of history at Colby College.

Engineering Invention, by Frederick Dalzell, Ph.D. '93 (MIT, \$30). A lively business history of Frank Sprague, Edison colleague and competitor and serial innovator, who pioneered inventions that led to electric railroads, elevators, and more.

A Fiery Peace in a Cold War: Bernard Schriever and the Ultimate Weapon, by Neil Sheehan '58 (Random House, \$35). A sweeping history of the Cold War, nuclear deterrence, and the development of the intercontinental ballistic missile, by the Pulitzer Prize-winning journalist who obtained the Pentagon Papers.

Nerds on Wall Street: Math, Machines, and Wired Markets, by David J. Leinweber, Ph.D. '77 (Wiley, \$39/95). It takes an applied-math doctorate to unveil the technologies and algorithms that drive modern Wall Street. Not always

easy reading, but leavened with humor: a derivatives-driven program used by Fannie Mae is described as “a divining rod...held by a suicide bomber.”

Sowing the Seeds of Character, by Judd Kruger Levingston '86 (Praeger, \$44.95). A rabbi and educator, the author addresses the challenges of and techniques for conducting the moral education of adolescents, in public or private schools—recognizing that this is a fundamental part of their mission, whether conducted explicitly or only implicitly.

American Chinatown: A People's History of Five Neighborhoods, by Bonnie Tsui '99 (Free Press, \$25). A journalistic exploration, from the oldest (San Francisco) to the biggest (New York) and beyond (Los Angeles, Honolulu, Las Vegas).

Inventing Equal Opportunity, by Frank Dobbin, professor of sociology (Princeton, \$35). In this closely researched work, Dobbin argues that corporate personnel managers and norms defined the policies and procedures that have come to govern hiring, promotion, and firing—and thus defined discrimination. Legislation and litigation, he argues, merely followed, codifying what have become ever-widening affirmative-action and diversity practices.

Strength in What Remains: A Journey of Remembrance and Forgiveness, by Tracy Kidder '67 (Random House, \$26). Kidder follows the pilgrimage of Deogratias Niyizonkiza, A.M. '02, from genocide in Burundi through camping out in Central Park, making his way through Columbia to the Harvard School of Public Health, and back to his native land to provide care to his impoverished community.

Amartya Sen



STEPHANIE MITCHELL/HARVARD NEWS OFFICE

felt he could learn. *Son jarocho*, which comes from Veracruz on the Gulf of Mexico, is probably the best known outside Mexico because of the international popularity of the 1958 Ritchie Valens hit “La Bamba,” an adaptation of a local folk song.

Son Huasteco, from northeastern Mexico,

is music for dancing. “The meter never changes,” Wax says, “and when people hear it, their feet start moving into a *huan-pango*—there is no excuse not to dance.” The singing is tricky, because the melodies lie high and require acrobatic leaps into falsetto. The fiddle-driven *son calentano*,

from southern Mexico's Tierra Caliente, also requires dancing but of a more sophisticated kind, because the interlocking rhythms are more complex; a pair of dancers usually performs a foot-clicking *zapateado* on a platform alongside the musicians. Though the names of many *son*

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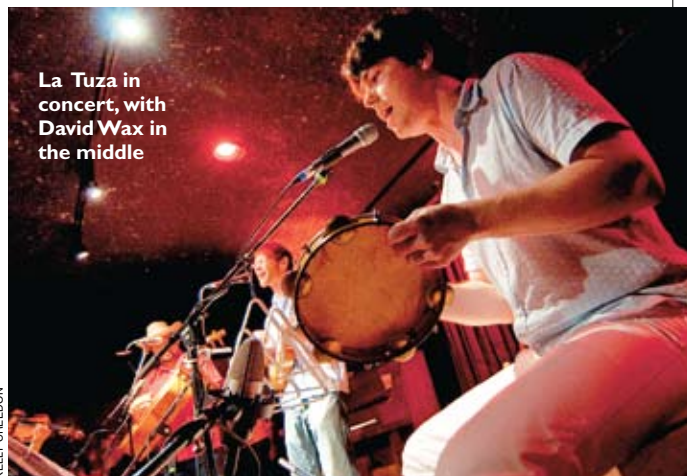
composers are lost, Wax says that some key creators of *son calentano* are famous in Mexico.

Part of La Tuza's mission is to demonstrate that there is a lot more to Mexican music than the familiar strains of mariachi bands. He admits he is no ethnomusicologist, but explains that the popularity of mariachi derives from the golden age of Mexican cowboy movies in the 1940s; it's an urban descendant of *son calentano* that reflects nostalgia for a rural life. "In the 1930s, cornets and then trumpets were added to the violins in mariachi music," Wax says, "because they made the music sound better on the radio."

Traditional *son* ensembles usually include a violin; guitars of various sizes, timbres, and tunings; and percussion instruments—yes, that strange sound you hear in *son jarocho* is the clattering teeth in the jawbone of an ass, the *quijada*. The lyrics, sometimes traditional, sometimes improvised on traditional texts, range widely. Many are about love, of course, sometimes filled with bawdy innuendo, sometimes expressed as fables about personified animals. But there are also songs of battles and heroes, and others reflecting the conditions of daily rural life.

Assimilating different styles of Mexican music comes naturally to the soft-spoken Wax, who for most of his life has engaged with many kinds of music. Growing up in Columbia, Missouri, he learned classical piano but soon shifted to jazz; he also played in a klezmer ensemble. (In La Tuza he sings and plays guitar and its Mexican cousin, the *jarana*.) In high school, he was the drum major in the school's marching band, played in a rock band, and played the electric bass in church. Wax has also written songs from an early age. (Besides La Tuza, he's created another group, The David Wax Museum, to perform his own songs. One is an adaptation of a Mexican song in La Tuza's repertoire, though it sounds quite different

La Tuza in concert, with David Wax in the middle



because he added folk, country, and bluegrass to the mix, along with a saxophone, which evokes the world of jazz.) He says poetry classes at Harvard helped hone his skills as a lyricist, and his concentration in Latin American history and literature helped him understand the roots of roots music.

Wax transferred to Harvard after two years at Deep Springs, a tiny, all-male experimental college on a ranch in California. He first went to Mexico in the summer between his two Deep Springs years. "I was mesmerized by *son* even then," he recalls. "Because I was doing rural development work in a very small town, I could see very clearly the role music plays in bringing people together. They would get together for a fandango, their version of a hootenanny, and play music all night."

Wax says he hasn't encountered much resistance to the idea of an American crossing the border to perform Mexican music. "Some people in this country dehumanize Mexicans because of immigration issues," he says. "But there is a rich culture in Mexico, and this beautiful music deserves to find a wider audience. Perhaps it can help

people to think about Mexico in a different light. Most of the musicians I encountered in Mexico were thrilled that someone else was trying to learn their music. Nobody cared that I am a gringo."

—RICHARD DYER



Visit harvardmag.com/extras to hear "El Colás" from the CD "Son del Otro Lado."



THE PH.D. PROBLEM

On the professionalization of faculty life,
doctoral training, and the academy's self-renewal

by Louis Menand



Bass professor of English Louis Menand is a literary critic and intellectual and cultural historian—author of the Pulitzer Prize-winning *The Metaphysical Club* and a regular contributor to the *New Yorker*. He is also a scholar of his discipline (he co-edited the modernism volume in the *Cambridge History of Literary Criticism*) and of the very notion of the academy itself (Menand edited *The Future of Academic Freedom*, 1997). His new book, *The Marketplace of Ideas*, to be published in December by W.W. Norton, is informed in part by his recent service as faculty co-leader in the development of Harvard College's new General Education curriculum, introduced this fall (the book is dedicated to his colleagues in that protracted task).

In this work, Menand examines general education, the state of the humanities, the tensions between disciplinary and interdisciplinary work, and, in chapter four, "Why Do Professors All Think Alike?" The following excerpts, from the third and fourth chapters and his conclusion, probe the professionalization of a research-oriented professoriate and the practice and consequences of contemporary doctoral education, and the resulting implications for liberal-arts colleges, universities, and the wider society.

~The Editors

IT IS EASY TO SEE how the modern academic discipline reproduces all the salient features of the professionalized occupation. It is a self-governing and largely closed community of practitioners who have an almost absolute power to determine the standards for entry, promotion, and dismissal in their fields. The discipline relies on the principle of disinterestedness, according to which the production of new knowledge is regulated by measuring it against existing scholarship through a process of peer review, rather than by the extent to which it meets the needs of interests external to the field. The history department does not ask the mayor or the alumni or the physics department who is qualified to be a history professor. The academic credential is non-transferable (as every Ph.D. looking for work outside the academy quickly learns). And disciplines encourage—in fact, they more or less require—a high degree of specialization. The return to the disciplines for this method of organizing themselves is social authority: the product is guaranteed by the expertise the system is designed to create. Incompetent practitioners are not admitted to practice, and incompetent scholarship is not disseminated.

Since it is the system that ratifies the product—*ipso facto*, no one outside the community of experts is qualified to rate the value of the work produced within it—the most important function of the system is not the production of knowledge. It is the reproduction of the system. To put it another way, the most important function of the system, both for purposes of its continued survival and for purposes of controlling the market for its products, is the production of the producers. The academic disciplines effectively monopolize (or attempt to monopolize) the production of knowledge in their fields, and they monopolize the production of knowledge producers as well. This is why, for example, you cannot take a course in the law (apart from legal history) outside a law school. In fact, law schools urge applicants to major in areas outside the law. They say that this makes lawyers well-rounded, but it also helps to ensure that future lawyers will be trained only by other lawyers. It helps lawyers retain a monopoly on knowledge of the law.

Weirdly, the less social authority a profession enjoys, the more restrictive the barriers to entry and the more rigid the process

The most important function of the system is not the production of knowledge. It is the reproduction of the system. To put it another way, the most important function of the system is the production of the producers.

of producing new producers tend to become. You can become a lawyer in three years, an M.D. in four years, and an M.D.-Ph.D. in six years, but the median time to a doctoral degree in the humanities disciplines is nine years. And the more self-limiting the profession, the harder it is to acquire the credential and enter into practice, and the tighter the identification between the individual practitioner and the discipline.

Disciplines are self-regulating in this way for good academic freedom reasons. The system of credentialing and specialization maintains quality and protects people within the field from being interfered with by external forces. The system has enormous benefits, *but only for the professionals*. The weakest professional, because he or she is backed by the collective authority of the group, has an almost unassailable advantage over the strongest non-professional (the so-called independent scholar) operating alone, since the non-professional must build a reputation by his or her own toil, while the professional's credibility is given by the institution. That is one of the reasons that people are willing to pay the enormous price in time and income forgone it takes to get the degree: the credential gives them access to the resources of scholarship and to the networks of scholars that circulate their work around the world. The non-academic writer or scholar is largely deprived of those things. This double motive—ensuring quality by restricting access—is reflected in the argument all professions offer as their justification: in order to serve the needs of others properly, professions must be accountable only to themselves.



A NATIONAL CONVERSATION about the condition and future of the Ph.D. has been going on for about 10 years. The conversation has been greatly helped by two major studies: "Re-envisioning the Ph.D.," which was conducted by researchers at the University of Washington, and "Ph.D.s—Ten Years Later," which was carried out at Berkeley. Both studies identified roughly the same areas where the investigators thought that reform is desirable in doctoral education. These are: interdisciplinarity, practical training, and time to degree.

The studies were necessary in part because data on graduate education are notoriously difficult to come by. Until very recently, departments tended not to track their graduate students very as-

siduously. Departments knew how many students they admitted, and they knew how many they graduated; but they did not have a handle on what happened in between—that is, on where students were in their progress through the program. This was partly because of the pattern of benign neglect that is historically an aspect of the culture of graduate education in the United States, and it was partly because when some students finish in four years and other students in the same program finish in 12 years, there is really no meaningful way to quantify what is going on. “Are you still here?” is a thought that often pops into a professor’s head when she sees a vaguely familiar face in the hall. “Yes, I am still here,” is the usual answer, “and I’m working on that Incomplete for you.” There was also, traditionally, very little hard information about where students went after they graduated. Graduate programs today are increasingly asked to provide reports on job placement—although, for understandable reasons, these reports tend to emit an unnatural glow. An employed graduate, wherever he or she happens to be working, is ipso facto a successfully placed graduate, and, at that moment, departmental attention relaxes. What happens to people after their initial placement is largely a matter of rumor and self-report.

English was one of the fields surveyed in the two studies of the Ph.D. It is useful to look at, in part because it is a large field where employment practices have a significance that goes beyond courses for English majors. What the surveys suggest is that if doctoral education in English were a cartoon character, then about 30 years ago, it zoomed straight off a cliff, went into a terrifying fall, grabbed a branch on the way down, and has been clinging to that branch ever since. Things went south very quickly, not gradually, and then they stabilized. Statistically, the state of the discipline has been fairly steady for about 25 years, and the result of this is a kind of normalization of what in any other context would seem to be a plainly inefficient and intolerable process. The profession has just gotten used to a serious imbalance between supply and demand.

Up to half of all doctoral students in English drop out before getting their degrees (something that appears to be the case in doctoral education generally), and only about half of the rest end up with the jobs they entered graduate school to get—that is, tenured professorships. Over the three decades since the branch was grabbed, a kind of protective shell has grown up around this process, a culture of “realism,” in which exogenous constraints are internalized, and the very conditions that make doctoral education problematic are turned into elements of that education. Students are told from the very start, almost from the minute they apply to graduate school, that they are effectively entering a lottery. This has to have an effect on professional self-conception.

The hinge whereby things swung into their present alignment, the ledge of the cliff, is located somewhere around 1970. That is when a shift in the nature of the Ph.D. occurred. The shift was the consequence of a bad synchronicity, one of those historical pincer effects where one trend intersects with its opposite, when an upward curve meets a downward curve. One arm of the pincer has to do with the increased professionalization of academic work, the conversion of the professoriate into a group of people who were more likely to identify with their disciplines than with their campuses. This had two, contradictory effects on the Ph.D.: it raised and lowered the value of the degree at the same time. The value was raised because when institutions began prizing re-

search above teaching and service, the dissertation changed from a kind of final term paper into the first draft of a scholarly monograph. The dissertation became more difficult to write because more hung on its success, and the increased pressure to produce an ultimately publishable work increased, in turn, the time to achieving a degree. That was a change from the faculty point of view. It enhanced the selectivity of the profession.

The change from the institutional point of view, though, had the opposite effect. In order to raise the prominence of research in their institutional profile, schools began adding doctoral programs. Between 1945 and 1975, the number of American undergraduates increased 500 percent, but the number of graduate students increased by nearly 900 percent. On the one hand, a doctorate was harder to get; on the other, it became less valuable because the market began to be flooded with Ph.D.s.

This fact registered after 1970, when the rapid expansion of American higher education abruptly slowed to a crawl, depositing on generational shores a huge tenured faculty and too many doctoral programs churning out Ph.D.s. The year 1970 is also the point from which we can trace the decline in the proportion of students majoring in liberal-arts fields, and, within that decline, a proportionally larger decline in undergraduates majoring in the humanities. In 1970–71, English departments awarded 64,342 bachelor’s degrees; that represented 7.6 percent of all bachelor’s degrees, including those awarded in non-liberal-arts fields, such as business. The only liberal-arts category that awarded more degrees than English was history and social science, a category that combines several disciplines. Thirty years later, in 2000–01, the number of bachelor’s degrees awarded in all fields was 50 percent higher than in 1970–71, but the number of degrees in English was down both in absolute numbers—from 64,342 to 51,419—and as a percentage of all bachelor’s degrees, from 7.6 percent to around 4 percent.

Fewer students major in English. This means that the demand for English literature specialists has declined. Even if a department requires, say, a course in eighteenth-century literature of its majors, the fact that there are fewer majors means that there is less demand for eighteenth-century specialists. But although the average number of credit hours devoted to courses in English literature has gone down over the last 20 years, the number-one subject, measured by the credit hours that students devote to it, has remained the same. That subject is English composition. Who

If doctoral education in English were a cartoon character, then about 30 years ago, it zoomed straight off a cliff, went into a terrifying fall, grabbed a branch on the way down, and has been clinging to that branch ever since.

teaches that? Not, mainly, English Ph.D.s. Mainly, ABDs—graduate students who have completed all but their dissertations. There is a sense in which the system is now designed to produce ABDs.

The same trend can be observed in most of the liberal-arts fields. In 1971, 24,801 students received bachelor's degrees in mathematics and statistics, about 3 percent of all bachelor's degrees. In 2001, there were 11,171 undergraduate degrees in those fields, less than 1 percent of the total number. Again, it is not that students do not take math; it is that fewer students need specialized courses in mathematics, which are the courses that graduate students are trained to teach. There was a similar fall-off in bachelor's degrees awarded in the social sciences and history. There was upward movement in only two major liberal-arts areas: psychology and the life sciences. American higher education has been expanding, but the liberal arts part of the system has been shrinking.

The Berkeley study, "Ph.D.s—Ten Years Later," was based on lengthy questionnaires sent to just under 6,000 people, in six fields, who received Ph.D.s between 1982 and 1985. One of those fields was English. People who received their Ph.D.s in English between 1982 and 1985 had a median time to degree of 10 years. A third of them took more than 11 years to finish, and the median age at the time of completion was 35. By 1995, 53 percent of those with Ph.D.s that had been awarded from 10 to 15 years earlier had tenure; another 5 percent were in tenure-track positions. This means that about two-fifths of English Ph.D.s were effectively out of the profession as it is usually understood. (Some of these people were non-tenure-track faculty, and some were educational administrators. Most of the rest worked in what is called BGN—business, government, and NGOs.) Of those who had tenure, less than a fifth had positions in the kind of research universities in which they had been trained—that is, about 5 percent of all English Ph.D.s. Ph.D.s who began in a tenure-track position took an average of 6.1 years to get tenure. Ph.D.s who began in non-tenure track positions but who eventually received tenure, which about half did, took an average of 8.1 years to get tenure.

The placement rate for Ph.D.s has fluctuated. Between 1989 and 1996, the number of starting positions advertised in history dropped 11 percent; in art and art history, 26 percent; in foreign languages, 35 percent; and in political science, 37 percent. Yet every year during that period, universities gave out more Ph.D.s than they had the year before. It was plain that the supply curve had completely lost touch with the demand curve in American academic life. That meant if not quite a lost generation of scholars, a lost cohort. This was a period that coincided with attacks on the university for "political correctness," and it is not a coincidence that many of the most prominent critics of academia were themselves graduate-school dropouts: Dinesh D'Souza, Roger Kimball, Richard Bernstein, David Lehman. Apart from their specific criticisms and their politics, they articulated a mood of disenchantment with the university as a congenial place to work.

There were efforts after 1996 to cut down the size of doctoral programs, with apparently some positive effect on the job mar-



That it takes longer to get a Ph.D. in the humanities than it does in the social or natural sciences (although those fields also have longer times-to-degree than they once did) seems anomalous, since normally a dissertation in the humanities does not require extensive archival, field, or laboratory work.

ket. But time-to-degree numbers did not improve. In the sixties, the time-to-degree as a registered student was about 4.5 years in the natural sciences and about six years in the humanities. The current median time to degree in the humanities is nine years. That does not include what is called stop-time, which is when students take a leave or drop out for a semester or longer. And it obviously does not take into account students who never finish. It is not nine years from the receipt of the bachelor's degree, either; it is nine years as a registered student in a graduate program. The median total time it takes to achieve a degree in the humanities including stop-time is 11.3 years. In the social sciences, it is 10 years, or 7.8 as a registered student. In the natural sciences, time-to-degree as a registered student is just under seven years. If we put all these numbers together, we get the following composite: only about half of the people who enter doctoral programs in English finish them, and only about half of those who finish end up as tenured faculty, the majority of them at institutions that are not

research universities. An estimate of the total elapsed time from college graduation to tenure would be somewhere between 15 and 20 years. It is a lengthy apprenticeship.

That it takes longer to get a Ph.D. in the humanities than it does in the social or natural sciences (although those fields also have longer times-to-degree than they once did) seems anomalous, since normally a dissertation in the humanities does not require extensive archival, field, or laboratory work. William Bowen and Neil Rudenstine, in their landmark study *In Pursuit of the Ph.D.*, suggested that one reason for this might be that the paradigms for scholarship in the humanities have become less clear. People are uncertain just what research in the humanities is supposed to constitute, and graduate students therefore spend an inordinate amount of time trying to come up with a novel theoretical twist on canonical texts or an unusual contextualization. Inquiry in the humanities has become quite eclectic without becoming contentious. This makes it a challenge for entering scholars to know where to make their mark.

The conclusion of the researchers who compiled the statistics on English Ph.D.s for the Berkeley study was, See? It's not so bad! The reason they give for this is the reason that is often heard when the issues of time-to-degree and job placement are raised, which is that most people who get Ph.D.s, whether they end up teaching or not, report high job satisfaction. (Job satisfaction is actually higher among Ph.D.s with non-academic careers than it is among academics, partly because spousal problems—commuting marriages—are not as great outside academia.) And the majority say that they do not regret the time they spent in graduate school (although they have a lot of complaints about the quality of the mentorship they received). Students continue to check into the doctoral motel, and they don't seem terribly eager to check out. They like being in a university, and, since there is usually plenty of demand for their quite inexpensive teaching, universities like having them. Business is good. Where is the problem?

The effort to reinvent the Ph.D. as a degree qualifying people for non-academic as well as academic employment, to make the degree more practical, was an initiative of the Woodrow Wilson Foundation when it was headed by Robert Weisbuch. These efforts are a worthy form of humanitarianism; but there is no obvious efficiency in requiring people to devote 10 or more years to the mastery of a specialized area of scholarship on the theory that they are developing skills in research, or critical thinking, or communication. Professors are not themselves, for the most part, terribly practical people, and practical skills are not what they are trained to teach. They are trained to teach people to do what they do and to know what they know. Those skills and that knowledge are not self-evidently transferable. The ability to analyze *Finnegans Wake* does not translate into an ability to analyze a stock offering. If a person wanted to analyze stock offerings, he should not waste his time with Joyce. He should go to business school. Or get a job analyzing stock offerings.



IT MAY BE that the increased time-to-degree, combined with the weakening job market for liberal arts Ph.D.s, is what is responsible for squeezing the profession into a single ideological box. It takes three years to become a lawyer. It takes four years to become a doctor. But it takes from six to nine years, and some-

times longer, to be eligible to teach college students for a living. Tightening up the oversight on student progress might reduce the time-to-degree by a little, but as long as the requirements remain, as long as students in most fields have general exams, field (or oral) exams, and monograph-length dissertations, it is not easy to see how the reduction will be significant. What is clear is that students who spend eight or nine years in graduate school are being seriously over-trained for the jobs that are available. The argument that they need the training to be qualified to teach undergraduates is belied by the fact that they are already teaching undergraduates. Undergraduate teaching is part of doctoral education; at many institutions, graduate students begin teaching classes the year they arrive. And the idea that the doctoral thesis is a rigorous requirement is belied by the quality of most doctoral theses. If every graduate student were required to publish a single peer-reviewed article instead of writing a thesis, the net result would probably be a plus for scholarship.

One pressure on universities to reduce radically the time-to-degree is simple humanitarianism. Lives are warped because of the length and uncertainty of the doctoral education process. Many people drop in and drop out and then drop in again; a large proportion of students never finish; and some people have to re-tool at relatively advanced ages. Put in less personal terms, there is a huge social inefficiency in taking people of high intelligence and devoting resources to training them in programs that half will never complete and for jobs that most will not get. Unfortunately, there is an institutional efficiency, which is that graduate students constitute a cheap labor force. There are not even search costs involved in appointing a graduate student to teach. The system works well from the institutional point of view not when it is producing Ph.D.s, but when it is producing ABDs. It is mainly ABDs who run sections for lecture courses and often offer courses of their own. The longer students remain in graduate school, the more people are available to staff undergraduate classes. Of course, overproduction of Ph.D.s also creates a buyer's advantage in the market for academic labor. These circumstances explain the graduate-student union movement that has been going on in higher education since the mid 1990s.

But the main reason for academics to be concerned about the time it takes to get a degree has to do with the barrier this represents to admission to the profession. The obstacles to entering the academic profession are now so well known that the students who brave them are already self-sorted before they apply to graduate school. A college student who has some interest in further education, but who is unsure whether she wants a career as a professor, is not going to risk investing eight or more years finding out. The result is a narrowing of the intellectual range and diversity of those entering the field, and a widening of the philosophical and attitudinal gap that separates academic from non-academic intellectuals. Students who go to graduate school already talk the talk, and they learn to walk the walk as well. There is less ferment from the bottom than is healthy in a field of intellectual inquiry. Liberalism needs conservatism, and orthodoxy needs heterodoxy, if only in order to keep on its toes.

And the obstacles at the other end of the process, the anxieties over placement and tenure, do not encourage iconoclasm either. The academic profession in some areas is not reproducing itself so much as cloning itself. If it were (please turn to page 91)

Ayn Rand

Brief life of an iconoclastic individualist: 1905-1982

by JENNIFER BURNS

AYN RAND WAS FINALLY getting her due. After *Time* magazine had called her masterpiece—the novel *Atlas Shrugged*—“a nightmare,” after the eminent philosopher Sidney Hook had savaged her in the *New York Times Book Review*, she had been invited to Harvard to present a paper on her philosophy of art. Her host, John Hospers, a rising young philosopher from Brooklyn College, belonged to the American Society for Aesthetics, which was meeting in Cambridge in October 1962.

Rand's appearance at Harvard marked a pinnacle in her already astonishing career. Born Alisa Rosenbaum in St. Petersburg, the eldest daughter of affluent Jewish parents, she fled Russia in 1926, embittered by the Bolshevik Revolution, which had destroyed her family's livelihood. Upon arrival in New York, she assumed the more glamorous *nom de plume* Ayn Rand and headed for Hollywood.

Rand's new name was the first of her many reinventions. She began as a hack Hollywood writer but then wrote two plays and a novel. Soon she was a political activist, too, working to defeat Franklin Roosevelt's New Deal, which she feared was only the first step toward communism in America. Her second novel, *The Fountainhead*, published in 1943, was treasured by a small band of conservatives who applauded her attack upon collectivism and her bold defense of selfishness. It was also a bestseller that vaulted Rand to literary fame, and would become a successful film six years later.

But already her ambitions were changing. Rand's early writing reflected her belief in individualism and commitment to free-market capitalism, developed during her years under Soviet rule. By 1957, when she published her third novel, *Atlas Shrugged*, she had codified and extended her ideas into a system she called Objectivism, which elevated selfishness to a virtue. Rand now understood herself as a philosopher as much as a novelist. In 1961 she published her first work of nonfiction, *For the New Intellectual*, and one of her young acolytes, Nathaniel Branden, began offering courses in Objectivist philosophy in New York.

The problem was that few of Rand's contemporaries accorded her philosophy any respect. *Atlas Shrugged* was panned by critics and hated by academics, who detested both her politics and her romantic writing style. Some professors automatically failed any student who wrote about Rand; others published articles warning of her terrible influence on youth. Hospers was one of the few scholars genuinely interested in her ideas, and his allegiance was priceless.

As much as she preached a philosophy of unfettered individualism and independence, Rand craved the respect and esteem of her fellow intellectuals. It was intellectuals, after all, who shaped history: in a political fundraising letter, she asserted that “only a handful of *eighteen* men” had transformed the country of her birth

from a proud center of European civilization to a wasted land of starvation, stagnation, and murderous labor camps.

Her Harvard talk, then, offered Rand a rare opportunity to establish herself as a philosopher before a receptive academic audience. She spoke on “Art as Sense of Life,” one of her minor, if favored, themes. “Sense of life” in the Randian corpus refers to the sum total of an artist's assumptions, experiences, and judgments about life: his or her evaluation of the universe. Sense of life was critical to art, Rand argued, because art was a metaphysical estimate of humanity's existence. By all accounts, Rand was an excellent teacher; despite her thick Russian accent, there is little doubt she presented her thesis clearly and logically. Still, some of her preferences were apt to surprise. In her writing, for example, she savaged Thomas Wolfe, whose sprawling semibiographical epics suggested an undisciplined mind and a universe that was dark, sordid, and capricious. She preferred the pulpy crime novels of Mickey Spillane, who depicted a black-and-white universe where good defeated evil.

What happened next is a matter of some dispute. As the designated commentator, Hospers rose and delivered some remarks on Rand's presentation. At least one of her entourage remembered his words as surprisingly sarcastic and harsh. Hospers himself thought his comments, while critical, were entirely typical. “I could not simply say how great her remarks were and then sit down,” he recalled.

But there was no mistaking Rand's reaction. She lashed out at him immediately from the dais, raising eyebrows in the crowd. At a party afterwards, she refused to speak to him. He had criticized her before the very audience she hoped to win over; the sin was unforgivable, and the breach would never heal. It was a significant turning point for Rand, who gave up on professors altogether and devoted herself instead to her growing band of supporters.

As it turned out, Hospers would not long be alone in his admiration for Rand's ideas. In 1972, he was chosen the first presidential candidate of the Libertarian Party, which considered Rand a primary influence. Libertarians took her ideas to Washington, D.C., making her a touchstone of the emerging conservative movement. (Her most famous follower, Alan Greenspan, became chairman of the Federal Reserve.) Nowadays *Atlas Shrugged* sells more than 200,000 copies each year, and professors are more likely to assign than attack Rand's writing. Nearly 30 years after her death, Rand's once controversial philosophy of individualism and capitalism has become part of the warp and woof of American political culture. ♡

Jennifer Burns '97, assistant professor of history at the University of Virginia, is the author of a just-published biography, *Goddess of the Market: Ayn Rand and the American Right* (Oxford).



Ayn Rand on Wall Street in 1964. Her dollar-sign brooch was a favorite accessory.

NEAR THE University of Bologna—the world’s oldest, founded in 1088—is a medieval museum displaying carved memorial plaques that honor great professors of the past. “They all show the professor on the podium, with the students below,” says Thomas Forrest Kelly, Knafel professor of music. “Often the students are asleep, playing dice or cards, or fornicating.”

Much has changed since the Middle Ages, but one thing that persists is the lecture. The medieval university invented lecturing—the word comes from the Latin verb *legere*, to read—to cope with the scarcity of books: a lecturer would read the only available copy of a book to the gathering of students. “That was high technology in the thirteenth century,” says Kelly, “but not high technology for the twenty-first century!”

Now sit in one of Kelly’s lectures in his undergraduate course Literature and the Arts B-51, “First Nights: Five Performance Premieres” (see “First Nights,” January-February 2000, page 52). This morning in Sanders Theatre, he is describing the 1913 Paris premiere of Igor Stravinsky’s ballet *The Rite of Spring*. He does not

Professor Video

Visual, audio, and interactive media are transforming the college classroom.

by Craig Lambert

read from books. Instead, Kelly punches up audio recordings of Stravinsky reflecting on the tumultuous performance, and projects color slides of oil paintings and photographs of the composer, plus photographs of the dancers and conductor Pierre Monteux. Next come pictures of the ballet’s score and the original costumes, plus paintings by Nicholas Roerich, the set designer. There’s another audio track of Stravinsky, this time disparaging the work of the choreographer, Vaslav Nijinsky, and a modern video of the opening dance performed by the Joffrey Ballet. Next, as the *Rite*’s primal rhythms and fierce dissonances thump and cascade through the loudspeakers, Kelly breaks down the piece into its musical units, walking the class through the score with a flashlight pointer.

The old-style classroom, grounded in spoken lectures and reading lists, is becoming obsolete. Images now dominate a new style of teaching in which visual, audio, and interactive formats rule, often trumping words as the dominant means of communication. Media enhancements aren’t exactly new: 50 years ago, one of Kelly’s predecessors, G. Wallace “Woody” Woodworth, prepared a 78-rpm record for a Music 1 class by taking a piece of blackboard chalk and marking an “X” on a groove at the entry cue. But new technologies, and a generation reared on them, are propelling the modes of teaching toward nonverbal media and briefer, more compact transactions. Communications—and pedagogy—are moving away from Tolstoy’s thousand-plus pages and toward Twitter, which limits its messages, or “tweets,” to 140 characters.





In the last two or three decades, Western culture has shifted its appetites toward images, film, and video. Word-driven media like newspapers are thinning out while video agoras like YouTube grow exponentially and threaten to eclipse even television. “The change has been so rapid that people and institutions haven’t been able to adjust,” says Shigehisa Kuriyama, Reischauer Institute professor of cultural history, who teaches in both the departments of history of science and East Asian languages and civilizations. “You have academic tenure, which works in a time frame of decades. Yet we now have technologies that are changing yearly.”

The student audience is primed. Thronging into classrooms is a generation saturated since early childhood with images and interactive media. Pictures, both still and moving, are their native vocabulary. “They don’t read books,” says Bernbaum professor of literature Leo Damrosch, who liberally lards his courses on humor and the Enlightenment with visual exhibits. “Even English concentrators finish high school having read *The Great Gatsby*, three or four other novels, and some short stories. I have three short novels on my reading list, and students ask, ‘What? Read a novel in a week?’ Many are not very good writers, either, and it is too late for Expos [Harvard’s required expository writing course] to fix it. Whenever I have had great writers as students, they were avid readers as kids.”

In the lecture hall, students multitask. With their laptops open to take notes, they’ll also monitor breaking news stories, check a fact on Wikipedia, and arrange their travel plans for the Christmas holiday. “They’re wired differently than we are,” says Rob Lue, professor of the practice of molecular and cellular biology. “This is such a digital generation that their expectations, in terms of multiple types of information input, are much different from ours. They are used to being on computers with multiple windows open. They research information on the Web and are connected to various social networking environments like Facebook. They play video games, so they’re accustomed to working in simulated environments. In some ways, as teachers we have not yet tapped that resource: their ability to work in created environments and learn from that experience.”

But faculty members are adapting.

► In Physical Sciences 3, “Electromagnetism, Waves, Imaging, and Information,” lecturer on chemistry and chemical biology Logan McCarty asks, “Why do we see colors on a soap bubble or oil slick?” and projects three examples of this phenomenon onto the screen in a Science Center lecture hall. Next, he draws annotations on a projected diagram of wave-interference patterns while discussing light wavelengths and the Huygens principle. Later, the discussion segues into diffraction, and the screen pulsates with an animation of light waves propagating through a slit.

► In a lecture on Chinese communism, William Kirby, Chang professor of China studies and Spangler Family professor of business administration, uses color slides to show students how the quality of clothing deteriorated when party leaders switched from Shanghai to Russian tailors.

► In his course on “Wit and Humor,” Damrosch screens clips of British comedian Eddie Izzard performing his transgressive, quasi-surreal standup act; later, he projects a B. Kliban cartoon of a large hole in the ground, titled, “The Nixon Monument,” and toward the end of the hour, runs a 10-minute film clip called *Il Mostro*, with Ital-

ian actor Roberto Benigni, to illustrate repetition and *double entendre* in physical comedy.

In Kuriyama's General Education course, "Medicine and the Body in East Asia and in Europe," students each week make brief (90-second- to two-minute-long) videos, or audio podcasts, instead of writing response papers. They post them on the course website the night before their section meets, view each other's work, then discuss the videos and podcasts in sections. (The final course project can be a written term paper, a video, a podcast, or a PowerPoint-style presentation; less than 30 percent of the students opt for the traditional term paper.) "The technological revolution that's happened means that you don't need expensive equipment," Kuriyama says. "You can make video clips with a digital camera, or a cell phone, or the webcam on your computer. The things that used to require expertise and specialized equipment are now accessible to everybody.

"There is no question that students spend much more time on these [weekly video/audio] assignments than they would on writing a short response paper," he continues. "First, it's more fun. Second, it is no longer just for the professor, but a place where you can show off for your classmates—it becomes this kind of friendly competition. You can see what other people have come up with, and incorporate that into your own next video—the students teach each other. We've found that the repetition of the exercise is really beneficial: as you work on it, you make better videos. Yes, you could have other students' response papers available—but you don't read them, that's a chore."

The new media aren't just a new way to teach the same things. New ways of recording and expressing information change what a researcher can see and discover, and so change the knowledge base—the content of the discipline itself. They also challenge some hoary precepts of academe, like the ideal of "pure" dispassionate intellectual work. In Kuriyama's Gen Ed course, for example, the students commonly add musical soundtracks to their video presentations. And "music raises the whole question of the role of affect in intellectual life," Kuriyama says. "Video with music has a powerful emotional component. That can be controversial, because there is a tradition of eliminating affect from academic life—the idea that emotion clouds the understanding. But with cultural history, true understanding has to include an affective understanding as well as intellectual grasp. The 'feel' of a period is essential to understanding what it was like to live in that time."

"WE'RE AT THE BEGINNING of a new age in how we teach," says biologist Lue. "Fifteen years ago, when I talked about this [visual pedagogy], few of my colleagues embraced it. That has changed. You will see a lot of visualization tools used at any sci-

entific meeting—when, for example, you discuss a model with other biologists. It allows you to communicate swiftly, and it's not just the speed, but the level of sophistication you can get across."

A field like biochem-



istry, for example, often involves assembling many discrete bits of data into a holistic, coherent model of a life process—say, how genes and their protein products support a complex phenomenon like hormone signaling. For this kind of modeling, a lab tool like electron microscopy, valuable as it is, "doesn't show motion over time," Lue explains. "It's a frozen snapshot of a dead cell." In contrast, the videos he uses show processes in motion; they represent particular models of how these processes work. "We'll stop the video and discuss it," he says. "It is not about students just swallowing it whole—it's a critical process."

To enrich both teaching and research, the Howard Hughes Medical Institute (HHMI) has supported Lue in directing the development of BioVisions (multimedia.mcb.harvard.edu), which aims to combine "the highest quality multimedia development with rigorous scientific models of how biological processes occur." The BioVisions eight-minute film *The Inner Life of the Cell* has become the most-downloaded science animation in history. It uses sophisticated 3D software developed in Hollywood animation studios like Industrial Light & Magic and Disney's Pixar to portray complex life processes like polymerization and intracellular signaling in a breathtaking visual display that ushers the viewer right inside the cell walls. "Until recent years, only someone like George Lucas could do things like this," Lue says.

"We are essentially opening a window on a world that we don't have the tools to see with our eyes," Lue explains. "Multimedia is the perfect way to set up the interactions of multiple players within that cellular environment. Scientists create visual models in their heads, and now we have the tools to share those models with students. It takes years for a scientist to develop the skill of



Visit harvardmag.com/extras to watch a trailer for Shigehisa Kuriyama's class and hear samples of student work.

keeping all those contingencies in mind—that’s synthetic thinking. I’d love to get students started earlier on it.”

With support from HHMI, Lue has studied three pedagogical aspects of BioVisions animations: retention of basic facts, ability to interpret new data and to integrate them into a coherent model, and the motivation to learn. Lue’s study, to be published within the next year, compares animations and storyboards to textbook learning. The use of animations resulted in significant gains in all three areas, especially in the capacity for synthetic thinking. Motivation to learn also increased by more than 25 percent. “This is a very serious matter for me,” Lue says. “There is a tendency to think, ‘These animations are seductive, but are they really making a difference?’”

HUMANS, of course, have always learned through their eyes. “Understanding itself has never been exclusively verbal,” says Johnstone Family professor of psychology Steven Pinker, who has written extensively about the brain and its functioning. “We’re primates, who are visual creatures, with a third of our brains devoted to vision. In the chalk-talk days, students would be forming images in their minds, especially when the subject matter was spatial—the anatomy of the brain, timelines in history, hierarchical organization charts. The use of visual images to teach allows us to tap into visual representations without the mediation of words. It’s not as if we didn’t do this before, but now we’re doing it more effectively.”

In his own teaching, Pinker uses visuals extensively. For example, a computer animation that shows how the intricate structures of the human ear transform sound waves into electrical nerve impulses is so powerful that Pinker says, “As a professor, I understood the mechanism of hearing for the first time.”

Biologist Mary Beth Saffo, RI ’03, says there are three reasons to use visual illustrations in teaching: to make things memorable, to clarify a concept or discussion, and to foster interactive learning. “You don’t own something until you have wrestled with it somehow, like writing a paper about it,” says Saffo, a science project officer at the Derek Bok Center for Teaching and Learning from 2007 until 2009 (she is currently an adjunct scientist at the Marine Biological Laboratory in Woods Hole). She cites pedagogical research showing that 15 minutes after a lecture ends, students typically recall 10 percent of its content, “but that becomes 90 percent if they had to work with the concepts.”

Historian Laurel Thatcher Ulrich agrees. With or without visual elements, “Big lecture courses are not the most effective way to teach,” she declares. “I don’t think passively receiving material does it. You want them to work with actual historical evidence and arrive at conclusions. People learn when they *do* something.” Accordingly, the 300th Anniversary University Professor uses an elaborate website (www.courses.fas.harvard.edu/~hsb41) to define tasks for her students in Historical Study B-41, “Inventing New England.” The site, for example, takes students inside an old farmhouse where they confront an Endicott chair and have to figure out if it really is 200 years old.

In Ulrich’s course, the students read fiction alongside history; a novel like Nathaniel Hawthorne’s *The House of the Seven Gables* (1851), for example, explores the history of the titular house, built in the late seventeenth century. “We looked at historical materials from the seventeenth century to see how a nineteenth-century writer

recast that early history,” Ulrich says. “People use objects to create an image of the past.”

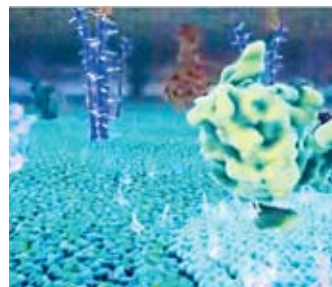
For her course on the American Revolution, Ulrich posts raw historical data on a website: offering, for example, a town-by-town Massachusetts tax inventory for 1771. “You can look up the percentage of taxpayers who owned sheep in each town in 1771,” she says. “That’s important because they were boycotting British woolens. We’ll ask students this fall: which towns are able to support the boycott? You can link the data to towns that had spinning meetings to promote the boycott.” Posting such data engages students with interactive media, but isn’t necessarily visual; words and numbers still work alongside the new options, albeit in an online format. The information may describe your great-grandfather, but it no longer comes in the hardcover, clothbound book he would recognize.

When Ulrich arrived at Harvard from the University of New Hampshire in 1995, she “was shocked that nobody was using anything visual. Harvard has been slower to pick that up. Nobody was doing websites or e-mail. Years ago, the Instructional Computing Group helped me build a custom site—it’s a shock to change from those really razzle-dazzle websites. Now, you automatically get a website when you set up your course, and there’s a standard template. Regardless, it is more work to set up an effective illustrated lecture: you have to find the right images and get it all to work together.”

“The thing most faculty are struggling with is creating that [visual/audio] material,” says Kuriyama. “Most of them are using things created by other people, but if you create your own media, that is very powerful. The big shift now is from still pictures to video, incorporating sound.” Kuriyama, who does create original video to show in his lectures, notes “an important distinction between film and video. Film is an analog medium, but video is a digital medium, so you can play with it, edit it, upload or download it easily. And economically there is no comparison: video is far less expensive.”

The media revolution means new skills to acquire for faculty members, who are already hard-pressed for time and want to know, say, if the start-up cost of learning a new piece of software will be justified. The 2008 book *Born Digital* by John Palfrey, Ess librarian and professor of law, and Urs Gasser, executive director of the Berkman Center for Internet and Society at the Law School, describes the generation of young people who have grown up with digital technology. Referencing this work, Alexander Parker, Ed.M. ’96, director of research computing in the humanities, observes that today we often see “students who were born digital, and faculty who were born analog. You sometimes have a situation where students have a greater facility with these tools than the faculty do.” This fall, under the auspices of Diana Sorensen, dean of arts and humanities, Parker is organizing four “tool talks”—“by faculty, for faculty”—on new media at the Barker Center.

Visual and interactive pedagogy “work pretty well,” says Ul-



Visit harvardmag.com/extras to watch the BioVisions film, “The Inner Life of a Cell,” the most downloaded science animation in history.

rich. “We have a very visually oriented group [of undergraduates] out there. But they are not necessarily savvy at *analyzing* visual images. They absorb it, they’re used to it, they expect it, but it sometimes fades into the background like wallpaper. I’m trying to make them more aware of the things they constantly consume. You have to teach people to *look*.”

INDEED, IF IMAGES and soundtracks are the future of pedagogy, then teaching the young to *look* must become a high priority. This is yet another area in which technology has outpaced the human capacity to cope with it. People believe—complacently—that they know how to read, but can they really *see*? Engaging with images in a sophisticated and critical manner is an uncommon skill, even among the younger generation that has grown up with them. Educational institutions have evolved an advanced verbal culture, but sounds and images occupy a far more primitive academic habitat. Librarians deploy powerful tools, for example, for cataloging books and words, but the intellectual technology for classifying images lags far behind. Professors of the future will need not only to expose their classes to pictures, but to teach students how to question them.

Perhaps no Harvard professor has taught more students to look thoughtfully at their surroundings than John Stilgoe, Orchard professor in the history of landscape development, who for decades has expertly deployed visual media, especially photographs, in his celebrated courses on the North American built environment and landscape history. He began using slides in his lectures in 1977, when “outside of fine arts, I was the only guy doing it.” Today Stilgoe personally owns 150,000 slides, many of which he made himself with a Rolleiflex square-image camera.

Yet Stilgoe knows well that pictures also harbor dangers. It is “really easy to manipulate people with images,” he warns, “if you don’t tell them the context, or where an image came from.” To illustrate this point, he shows students a sequential series of his own photographs. The first picture depicts a purely bucolic landscape—a cornfield at sunset. The next image is the same scene, shot from 10 paces further back: now we see grass and a wire fence in front of the cornfield. Ten more paces, and the foreground includes a curbstone. To frame the final photograph, Stilgoe walked across the lanes of an interstate highway; seeing it, he says, “You realize that the cornfield is right next to a truck stop.”

Understanding images frequently requires knowledge from outside the frame. A professor at the Fashion Institute of Technology once helped Stilgoe date a photographic portrait simply by observing, “Given that hat, it has to be after 1923.” Scholars who lack such skills can go off on wild-goose chases. A colleague once asked Stilgoe to help her date a photograph; she had worked for a couple of years on an analysis that depended on the date of 1932 inscribed on its back. When Stilgoe observed that there was a 1934 Ford in the background of the picture, the scholar’s art-historical argument instantly collapsed, and she began to cry in Stilgoe’s office. “She thought she had no way of dating the picture by its content,” he explains.

Furthermore, academicians sometimes attempt to analyze images that they don’t have the background to understand. Stilgoe once attended a conference presentation that included several black-and-white photographs of Conestoga wagons headed west. Afterward, he asked the presenter if he realized that those images

did not date from the 1870s and 1880s, but were pictures taken at twentieth-century centennial celebrations in Midwestern towns, with modern people wearing period costumes. The speaker spurned this view until they projected one of the slides and Stilgoe pointed out a utility pole on the far right of the image.

“There’s no point,” Stilgoe adds, “in using images simply to dress up something that doesn’t need them.”

“IT’S ALWAYS BEEN true at Harvard: you have to have a good show,” says Leo Damrosch. He cites Baird professor of history Mark Kishlansky, who once observed that “All of us became better teachers once we got to Harvard,” because the student audience sets such a high standard.

In this regard, “The Q Guide is very powerful,” Damrosch asserts. That annual summary of undergraduates’ course evaluations “doesn’t ask what you learned—it’s all about performance. And performance is important: a teacher who drones on is not doing his or her job. It’s also possible to take a shallow course and goose it up with lots of visuals and prance around the stage with an affect that students like, and attract a big enrollment and a high Q rating. That doesn’t signify a good course.”

Tom Kelly agrees. “There’s something unattractive about trying to draw students with surfaces and bells and whistles,” he says. “I’ve taught in colleges where professors would put up big posters to attract students, because their department budgets were based on course enrollments. That’s the beginning of having students decide what a college education ought to be. Student satisfaction is important, but students are most satisfied when they’ve worked hard and taught themselves something—the teaching is really done by the student. Attractiveness and entertainment are fine, but they’re not the purpose of the course.”

Entertainment value is clear in Damrosch’s “Wit and Humor”—and visual elements often are the very material under study. “The way you respond to visual humor is much different from the way you respond to verbal humor, which requires decoding,” Damrosch explains. “In a humor course, it’s essential to move back and forth between the verbal and the visual.” Sometimes a verbal pun can be reborn as a visual one.

Visual media, with their rich endowment of stimuli, have a head start in evoking humor. “Verbal humor is unbelievably difficult to create,” Damrosch notes. “To make people laugh with nothing but words on a page—no actors, costumes, or visual elements—is a rare trick. The humor course assigns a text and a film each week for 13 weeks. If you took away my 13 texts, I could not replace them; if you took away my 13 movies, any one of us could come up with 13 films that would work just as well.”

In his course on the eighteenth-century novel, Damrosch also screens movies. “Most of those novels have been filmed,” he says. “It’s a huge asset to show film clips.” It allows the class, for example, to view the 2005 version of *Pride and Prejudice* starring Keira Knightley and ask, “Why did they make it more of a Charlotte Brontë romance than the kind of controlled, austere, ironic story you get in Jane Austen’s text?” Damrosch explains.

“The language of movies is just so different from literature,” he adds. “I don’t think there’s ever been a great novel that made a good movie. A *bad* novel can make a good movie—it becomes a kind of scaffolding. But take something like *Les Liaisons dangereuses* [the 1782 French epistolary novel by Pierre Ambroise Fran-



çois Choderlos de Laclos], which I consider the greatest novel of the eighteenth century. There have been repeated attempts to film it—for example, a [1988] version that starred Glenn Close and John Malkovich. It's god-awful; it truly is a terrible movie. Every single student can see that the novel is so disturbing and amoral—the characters are so predatory, in a society with no immune system. The novel is told in letters, and you never know if the characters are telling the truth—are they taunting each other, or caring, hurt, and jealous? All you've got is their words. As soon as you put actors in the roles, it can't stay ambiguous any longer, because you're looking at their faces, their body language."

William Blake, on the other hand, wanted his poems always to be read with the relief etchings he made to accompany them, and "the picture often contradicts the word," says Damrosch. "Most think of the poem, 'Tyger! Tyger! burning bright' as a poem of religious awe, but the picture Blake made to accompany it shows a smiling pussycat, which seems to contradict the language. Those who only know the text from reading it in an anthology have no idea what Blake wanted to do with it. He was *suspicious* of religious awe; Blake was a very lucid thinker. It has been assumed that you could teach these works just as poems, but that violates Blake's intention—those images are not just illustrations, like in *The Pickwick Papers*. You need binocular vision to see Blake's picture and poem together. If you cover one eye, you'll miss the point."

PITFALLS ACCOMPANY BRACING opportunities as the digital era, with its visual powers, steadily percolates its way into higher education. For example, the density of content that a tool like PowerPoint (now giving way to Keynote, which allows users to

drop in audio and video tracks far more easily) makes possible can overwhelm an audience. "A scientist at a blackboard is always writing things down at a pace the students can take notes on and understand," Mary Beth Saffo explains. "But when you are flashing a slide on a screen showing material the students have never seen before, you have to give them time to absorb the concept before going on to the next one—especially in fields where one concept builds on another."

Some will worry about the penetration of entertainment technology—and entertainment values—into higher education, as has already happened in politics, sports, and journalism. But Homer and Dante also sought to entertain. Without a show there is no audience, and with no audience, there is no learning. "Harvard is an institution that trains future professors," says Kuriyama. "The students of *our* students will also be the consumers of their scholarship. All of them have grown up on YouTube. Unless you can connect with them, you have no audience."

Some faculty members now eschew lectures entirely; they can provide the lecture material as readings or podcasts and gather the class together in a lecture hall purely for discussion. That format doesn't work for Tom Kelly and the 300 students in his "First Nights" course. "I put on a show," Kelly says. "I play the piano, I cue up CDs and pictures and slides, I mark up scores on the overhead projector in real time with red and blue markers. I once had a staff person volunteer to put all the slides and music on one DVD—I could just push buttons! But that completely misses the point. If I don't have to run across the stage to play the piano, and trip over the cord on my way to the overheads, and bump into a table when I'm running to the computer, half the production values are lost!"

"If 300 students all come to Sanders Theatre at the same time on Tuesday and Thursday mornings, you've got to give them value," he continues. "My course is about performance and the experience of performance in real time. Each year we commission an original piece of music for the course, and it is performed for the first time at the final lecture. These students are the only ones in the world to have heard it. They write papers on the performance and I take a bouquet of those papers to the composer, who usually says, 'No one has ever paid this much attention to my music before.'"

Screens and digital technology launch a whole range of learning

experiences that weren't available even a decade ago. Still, the ultimate criterion of visual learning isn't the visual, but the learning. If these media expand awareness and knowledge, then they enhance education; if they only draw attention to themselves, they become a distraction or even an obstacle. And although these technologies themselves will someday become obsolete, the student-teacher relationship will not. "There's a feeling you get in a class—you can tell when students are catching on," Saffo explains. "It is something you cannot get from a computer screen. I like to see the whites of their eyes." ▀

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



Visit harvardmag.com/extras to watch a clip from Tom Kelly's "First Nights" lecture on the boisterous premiere of Stravinsky's "Rite of Spring."



Immersed in AFRICA



*In "a class situated in the world,"
students and service at a new frontier*

by Elizabeth Gudraïs

FINANCIAL SELF-SUFFICIENCY for an orphanage in Uganda that houses 75 children. A performing-arts summer camp in Nigeria for 43 talented but underprivileged girls. More than 5,000 bed nets distributed to households in rural Sierra Leone to protect against malaria infection. Vertical planters that enable residents of a Nairobi slum to grow their own food.

These examples, a handful chosen from many, demonstrate the outcomes of Harvard undergraduates' projects in developing countries. Youthful idealism is nothing new, but among the generation of students in college today, a desire to change the world combines with facility in traveling abroad and a can-do attitude. The result: no problem is too big, too persistent, or too far from home to confront.

At Harvard, courses and programs have sprung up to provide the academic scaffolding to support students' bold ideas. One of these, the social-engagement initiative in the department of African and African American studies, will graduate its first seniors this year. Students in this program undertake a service project as an alternative thesis (read about Oluwadara Johnson's and Sangu Delle's projects below, and see the sidebar at harvardmag.com/students-in-africa). Department chair Evelyn Brooks Higginbotham says the initiative embodies the idea that there need not be a strict division between knowledge gathering and knowledge application—that applied learning through service or entrepreneurship can feed back into the classroom. "There is no reason," she says, "why academic

Children at the New Hope orphanage in Busia, Uganda, make their nightly walk to get water for drinking and washing. The children handle all the chores themselves—an important part of director Ken Mulago's strategy for running the orphanage. "We want our children to behave as responsible adults," he says. "We don't want to raise them up just to think about themselves."



Find more online
 Institutional changes have also made it easier for Harvard students to have international experiences. Read about study-abroad policies, funding for travel, and more in “Institutional, International” at harvardmag.com/studentsinafrica.

work and doing good have to be bifurcated.”

In developing Engineering Sciences 147, “Idea Translation”—a course offered for the first time in 2006 (see “Artful Engineering,” May-June 2007, page 12)—McKay professor of the practice of biomedical engineering David Edwards aimed for a similar balance of contemplation and action. The course challenges students to take on big problems of our time (with a focus on the developing world)—HIV, malaria, hunger, lack of access to education—and to imagine creative solutions (attempts by Elizabeth Nowak and David Sengeh are described below). Then it gets pragmatic, prompting them to consider the reasons for success or failure of previous efforts to solve the same problems. As the students prepare to go on location with their startups, the course connects them to mentors with technical

and cultural expertise—and to potential funders. As director of the Idea Translation Lab at Harvard—an incubator founded by Edwards and affiliated with the course—W. Hugo Van Vuuren ’07 supports students’ hunch that they can have an impact even before getting their college diplomas. In fact, he advocates a shift from regarding such projects as add-ons to an undergraduate education to viewing them as core components. “Thinking Harvard is just in 02138 undervalues what Harvard can be,” says Van Vuuren, a onetime student in the Idea Translation course. “The truly exciting thing to me is how Harvard people engage with the world. ...And if you agree with the assumption that you learn more by doing, then we should encourage students to act more, to do more, to experience more.”

Harvard College dean Evelyn M. Hammonds is sympathetic to the idea that such international ventures don’t distract but rather enhance a student’s education here in Cambridge. As she reads reports written by students who received Harvard funding to go abroad, she says, “What I’m seeing is the students being very good at taking what they’re learning at Harvard, applying it in a new context, and coming back with different kinds of questions that they will then explore here.”



A Leap of Faith, and a Prayer Answered

IN BUSIA, UGANDA, a dusty, gritty, border town of 50,000, the main drag is lined with hotels that cater to truckers. At many of these, more than lodging is provided. The HIV infection rate is significantly higher here than elsewhere in Uganda.

This is where, in 2002, a former children’s social worker named Ken Mulago opened an orphanage. Dubbed New Hope, it quickly met and surpassed its capacity, doubling up its charges in their narrow bunks. There were children of commercial sex workers, children abandoned or abused by their parents, and children whose parents—sick with HIV or addicted to drugs or drink—were simply unable to care for them.

In 2007, Christopher Higgins ’10 arrived to find New Hope on the precipice. Mulago was able to keep the children fed, clothed, and in school, but just barely. He didn’t take a salary; in bad months, his wife or another relative would bail out the orphanage.

Higgins, a social-studies concentrator and ROTC cadet in



Christopher Higgins ’10 plays with Ida, one of New Hope’s youngest residents.

Winthrop House, came for what he thought was a one-time visit. (Seduced by friends’ gap-year stories, he’d decided to take a year off from Harvard to travel.) He found New Hope by stumbling on its website; it was, he says, “a leap of faith.” For Mulago, it was the answer to a prayer. “I don’t want to be pessimistic,” he says, “but I think we would have closed if he had not come. The situation was so bad, so bad, so bad.”

Despite the challenges, Higgins found himself charmed by the children and impressed with the way Mulago ran the orphanage, how he taught the children to care for each other and pitch in with chores. Though Higgins continued his trip, spending the first half of 2008 traveling mostly overland from Indonesia to Turkey, his heart was in Busia. In between writing grant proposals, soliciting donations, building a new website, and recruiting volunteers (contacting friends and family from Internet cafés across Asia), Higgins pondered how to set up the orphan-

Above left: Higgins talks with Ken Mulago about the income-generating projects he helped start last summer at New Hope (including raising pigs, chickens, and cows; growing sweet potatoes; and operating an Internet café). Left: On the orphanage grounds, children hang laundry to dry.





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➤ Nakuru, Kenya: Megan Shutzer '10 (right) interviewed people dislocated by the 2007 election violence.



MEGAN SHUTZER

➤ Arusha, Tanzania: Rashmi Jasrasaria '10 studied the impact of a microfinance program on women's empowerment, in general and specifically with regard to sex and health.

➤ Rwinkwavu, Rwanda: Elisa Nabel '11 shot footage for a documentary film about conceptions of childhood and innocence.

age so it wouldn't require external support to stay afloat.

In the two years since, he has returned twice and worked with Mulago and the other three orphanage staffers, along with American volunteers (he has recruited more than 20, including several Harvard students), to implement projects that include opening an Internet café (which earns money and serves as a computer school for the orphans); buying a pickup truck that neighbors can rent for a fee; constructing buildings on the orphanage grounds to house pigs and chickens, bred for food and for sale; and planting a sweet-potato crop that, by itself, should fetch a price equal to New Hope's annual operating costs. In fact, the orphanage expects to have enough income to cover university tuition for its inhabitants as they reach the enrollment age.

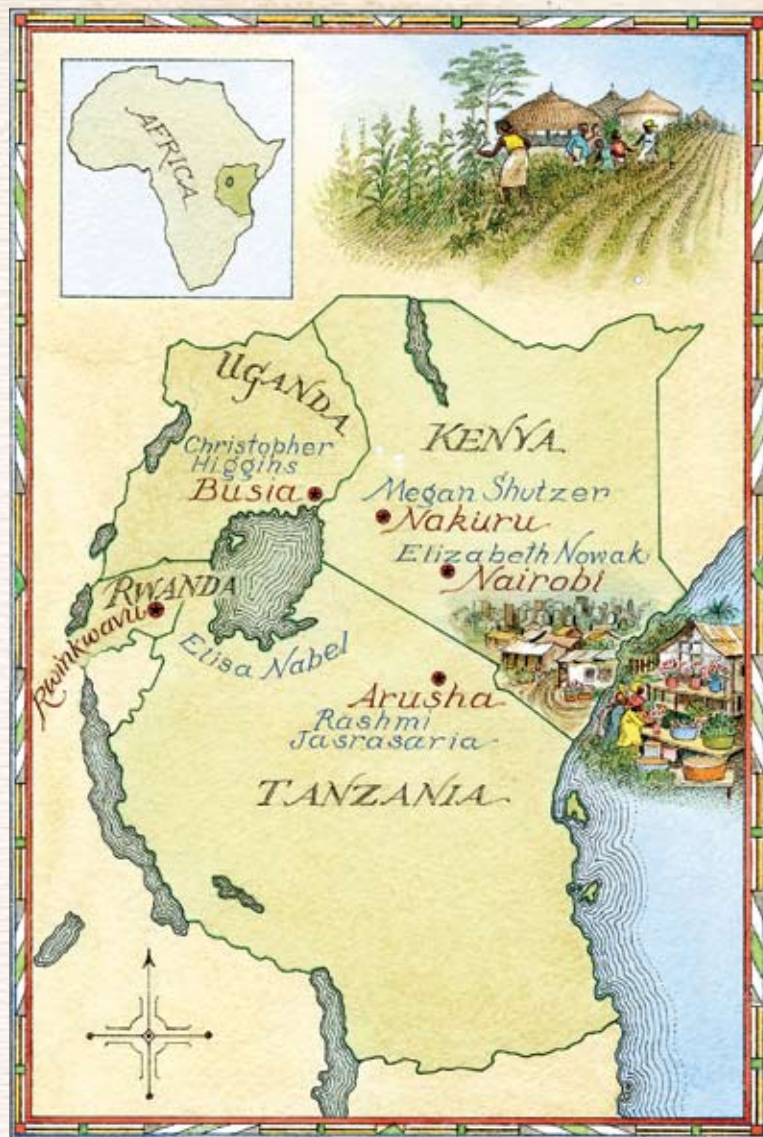
New Hope has left reciprocal impressions on Higgins. He plans a senior thesis on trade and foreign-policy links between China and Africa. He picked up some practical skills—figuring out how to buy a load of pigs in Kampala, to take just one example. And there is his relationship with Mulago, whom he calls “incredibly humble, generous, and inspirational”—a friendship based on deep respect for what one man, armed with passion and principles, prepared to work hard, can accomplish. 🇰🇪



Finding Sunshine in the Slum

IT'S IMPORTANT TO BE fleet of foot in Kibera. Traversing trash piles, bobbing and weaving along the edges of open sewers, one must take care to step on dry ground whenever possible. Kibera, a section of Nairobi reputed to be Africa's largest slum—no one really knows, as population estimates range from 300,000 to 1.3 million—is a place even many Kenyans fear to go.

Elizabeth Nowak '10 isn't entirely sure why. Visiting Kibera last summer to test VertiGrow—a planter designed to take advantage of vertical space so “you don't have to have a lot of land in order to grow food”—she found the residents friendly and welcoming. Despite the lack of street signs, or even streets, she learned her



In Nairobi's Kibera slum last August, Elizabeth Nowak '10 worked with residents to build prototypes of VertiGrow, a vertical planter she designed with classmates in a Harvard course.

way around within a few days, hopping nimbly back and forth through the lanes, the sun flashing off her blond hair.

Nowak designed VertiGrow with her classmates Windsor Hanger and Yongtian Tina Tan in the “Idea Translation” course.

The course also connected them to Rye Barcott, M.B.A.-M.P.A. '09, who during his own undergraduate days at the University of North Carolina had founded Carolina for Kibera (CFK), a non-governmental organization (NGO) whose credo is, in his words, "The poor have the solutions to the problems they face." Barcott agreed to connect Nowak with CFK social workers who could translate for her and make introductions in the community; with funding from the Harvard Initiative for Global Health, she was on her way.

Nowak, a pre-med African studies concentrator in Pforzheimer House who is writing a thesis on technology in the developing world, initially planned to conduct surveys, gathering information for a follow-up visit in January. As she traveled from home to home in the slum's Gatwekera section, she told people about the planter idea. One day, two women showed up at the Gatwekera clinic looking for her. They said they wanted to get started.

Not wanting to squander this enthusiasm, Nowak hastily reworked her plan. Remembering Barcott's words, she let the women of Gatwekera decide which materials to use and which seeds to plant. The VertiGrow team still plans a January trip, but now the goal is to follow up on the three planters Nowak left behind with seeds already sprouting. Meanwhile, in Cambridge, they are mulling production and distribution models to determine whether VertiGrow makes more sense as a set of instructions for a product constructed where it will be used, or as a finished




At left: Women plant seeds in a prototype of the VertiGrow planter, designed to maximize vertical space and enable growing food without much land. The original prototype, designed at Harvard, was made of PVC pipe. In Kibera, Nowak asked the women how to construct the planter out of cheap, readily available local materials. Below left: Nowak discuss the prototype with Faith Mwikali, a social worker who translated for her, introduced her to community members, and helped conduct her nutritional survey.



product constructed elsewhere and then bought by or donated to people in developing countries.

Nowak was never sure what she would find each day when she arrived at the designated construction sites for the planters in Kibera. But she says her approach of letting the residents take the lead resulted in a product that merges

the undergraduates' ideas with local preferences and customs in a way that something designed wholly in a Harvard classroom never could.

"It's kind of cool to come in with an idea and see that they're already doing that, or they have a better idea," she said one August morning, looking around and surveying the women. One stood cracking rocks with a sledgehammer, hacking them down to a suitable size for use in a planter. Another was extricating garbage from a large pile of dirt that would be used for planting; the garbage would be burned to heat a knife for cutting water-runoff holes in the tough plastic of the planting tubs. In the resourceful fashion typical of Kibera, nothing would go to waste. Said Nowak: "They come up with things I never would have thought of." 



Destination Nollywood

FILMS ARE BIG business in Nigeria. The country's motion-picture industry ranks third in the world in size, behind only the United States and India. As in India, the industry has earned a play-on-words nickname: *Nollywood*. So, too, have Nigerian children come to idolize film stars—and Oluwadara Johnson '10 seeks to channel this idol worship into zeal for education.

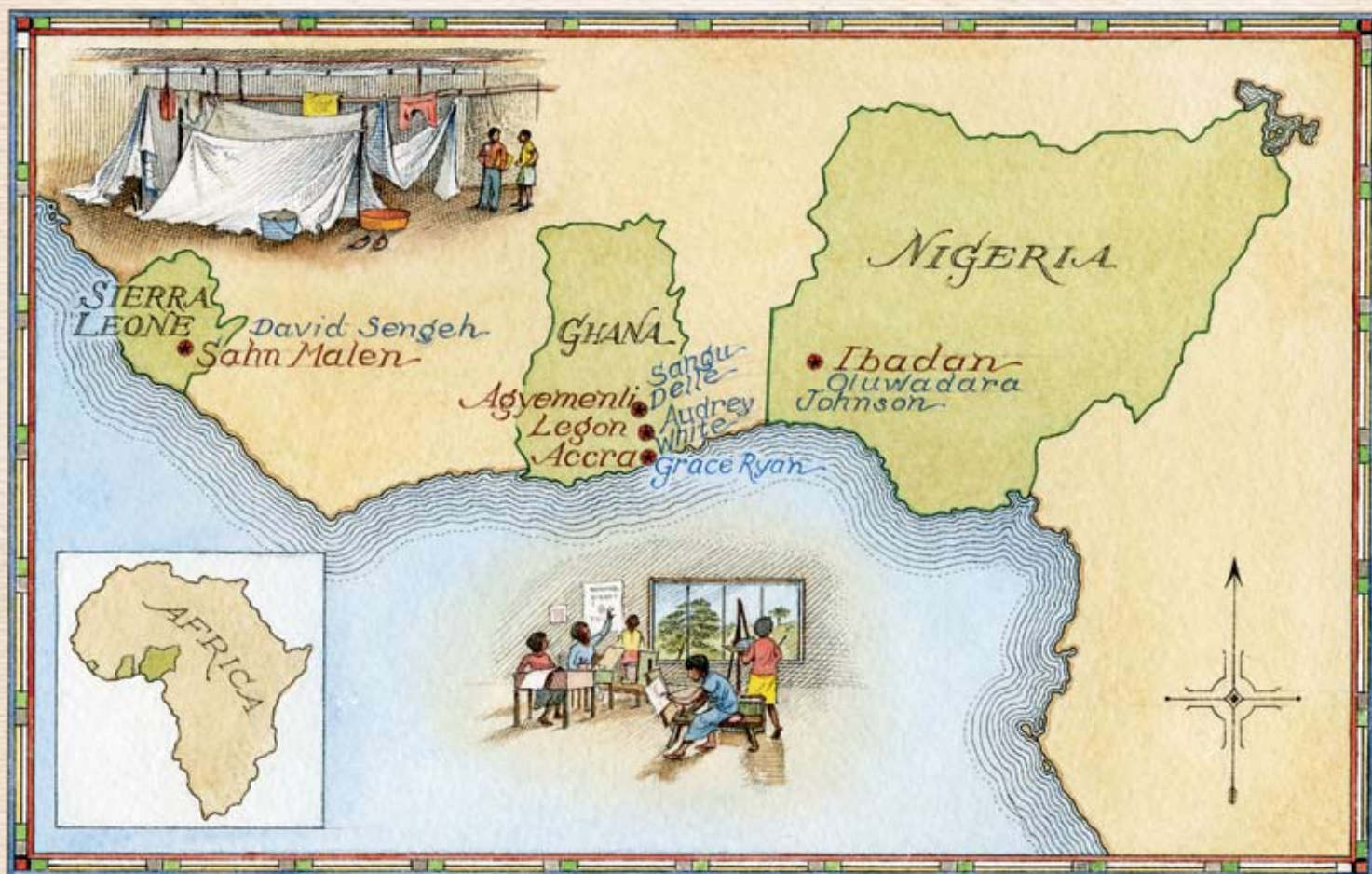
Troubled by her country's social inequalities, Johnson set out to craft a meaningful community-service project. The result was a performing-arts-themed camp for disadvantaged girls, held last summer in her native city, Ibadan. An African American studies concentrator in Quincy House who has produced plays and a student fashion show at Harvard, Johnson chose this approach for its ability to get youths *excited* about learning. Through play-reading and -writing, the students explored concepts such as plot, character development, and symbolism (while building their facility in reading and writing). Performing prepares them for public speaking; staging a play together gives a chance to practice teamwork.

Johnson had spent the first half of the summer working in asset management for Goldman Sachs. With her savings from that job and a donation from the school where the camp was held (and



Oluwadara Johnson '10 with participants in the performing-arts-themed camp she led last summer in Ibadan, Nigeria

where her mother is the director), Johnson was able to cover the camp's \$15,000 cost. To select the participants—43 in all, ages 9 to 16—she worked with teachers in public schools to identify girls who excelled academically but were nevertheless in danger of dropping out due to their families' economic circumstances.



Find more
online

⇒ Accra, Ghana: Grace Ryan '10 (left) interviewed staff and patients at psychiatric hospitals for a documentary film on mental illness and mental-health care.

⇒ Agyementi, Ghana: Sangu Delle '10 constructed a borehole and household latrines to provide a safe water supply and sanitation to a village.

⇒ Legon, Ghana: Audrey White '11 researched the history of the slave trade.

The camp itself lasted just one week; preceding it was a four-week preparatory period in which the girls met twice a week with camp staff for full-day sessions, but went home to sleep. During this time, there were some performing-arts activities, as well as lessons in hygiene and etiquette. Johnson says the preparatory period was necessary to minimize the culture shock of

the sleepaway-camp week, which was full of new experiences: many of the girls had never before seen a computer, had never tasted ice cream. Many did not own shoes or know their shoe size. Before buying shoes (the program provided clothing and school supplies), the camp staff had to measure the girls' feet.

With the start of school in September, the teachers and volunteers who had led the camp launched an after-school program, meeting with the girls twice a month. Johnson herself will lead a retreat in December, when she goes home for winter break. She foresees a similar rhythm for her life after graduation: she has already accepted a job offer from Goldman Sachs, and has already made plans to use her vacation time to run the camp next summer.



Above right: Camp participants Alabi Dolapo and Ayoade Basirat show off their artwork. **Right:** The girls take a tour of the Nigerian Television Authority office in Ibadan.

Back in Cambridge, she is at work on her alternative thesis for the African and African American studies concentration's new social-engagement initiative. She'll make a documentary about her project, in addition to the more standard written document examining its lessons, links to economic and social theory, and comparisons to other educational projects.

Johnson spent much of last spring making arrangements for the summer camp. But lest anyone think this project distracted her from her coursework, Johnson says that if anything, it made her *more* engaged. "My classes are so *real* to me," she says. "I can see how to use what I learn directly."



A Better Bed-Net Strategy

DAVID SENGEH '10 has decided that the most important asset in development work is not experience. Nor is it training in economics, public administration, or medicine. What's most important for development workers, he says, is humility.

Sengeh spent last summer in his native Sierra Leone, distributing bed nets to prevent malaria, a drain on adult productivity and economic growth as well as on children's educational achievement. Through GMin, an NGO Sengeh and a high-school friend founded in 2006, he and 10 other young men—four Harvard students or recent graduates among them—distributed 4,000 nets to more than 1,000 households, nearly 9,000 people in all. During the course of the summer, Sengeh estimates that each of them walked 120 miles.

Their results thus far are heartening: a follow-up study of the households that received nets in 2007 found that 93 percent were using them, compared to rates below 50 percent for distribution campaigns by major humanitarian organizations. (Before-and-after numbers for malaria prevalence aren't yet available.)

How did college students operating on a shoestring—GMin has spent less than \$40,000 to date, raised almost entirely through charitable contributions from individuals—figure out how to improve on the models of those with far more experience and deeper pockets? Sengeh believes that those organizations failed to recognize that their strategies weren't working. Following a UNICEF edict that pregnant women and children under the age of 5 were the

Above right: Members of the GMin team (from left) Sam Slaughter '09, David Sengeh '10, Clement Wright '09, and Justin Grinstead '10. Right: In Nganyahun village, a Red Cross volunteer and a community leader who work with GMin teach residents how to put up bed nets.



HM Find more online
Read about six more student projects, view photo slide shows, and find links to websites from the student projects—all at harvardmag.com/studentsinafrica



A young (and proud) recipient of a GMin mosquito net

most vulnerable groups, programs distributed only enough bed nets for those constituencies, meaning a household of 10 might get just one or two nets.

But in Sierra Leone, respect comes with age, so the best food and nicest sleeping spaces are reserved for adults. The nets were designed to go over beds, but children typically sleep on mats on the floor—meaning the nets were being used to protect parents instead. Sengeh says he heard relief-organization workers berate Sierra Leoneans for relegating their children to the floor. But cultural factors are difficult to change, so GMin's approach skirted the issue by distributing bed nets to cover every sleeping space in each household, even if that meant reaching fewer households in all.

Sengeh, a biomedical sciences and engineering concentrator in Currier House, is glad to have taken courses that informed his startup projects, which also include distributing and testing microbial fuel cells in South Africa and Namibia, and an advisory role in the Sierra Leone youth center on which Elizabeth Nowak worked. (Sengeh took the Idea Translation course, and considers David Edwards a pivotal mentor.) But he says his work on the ground has been just as pivotal as any classroom experience: "I don't consider it an extracurricular. It's a class that's situated in the world... If you want to learn about global health challenges, you go into the field and do it."

Elizabeth Gudrais '01 is associate editor of this magazine. The profiles from Kenya and Uganda were reported on location, in a trip supported by a generous gift for international reporting. Further reports from these travels are forthcoming.

Photographs courtesy of David Sengeh

From AIDS to Art

LIKE OTHER PLAGUES, HIV/AIDS has brought death and grief, fear and prejudice, passion and—in the modern context—biomedical progress. It has also left many marks on contemporary culture. It is impossible to imagine fictions like Armistead Maupin's *Tales of the City* series, or Tony Kushner's epic drama *Angels in America*, or Abraham Verghese's factual *My Own Country* without the new epidemic rolling across the land.

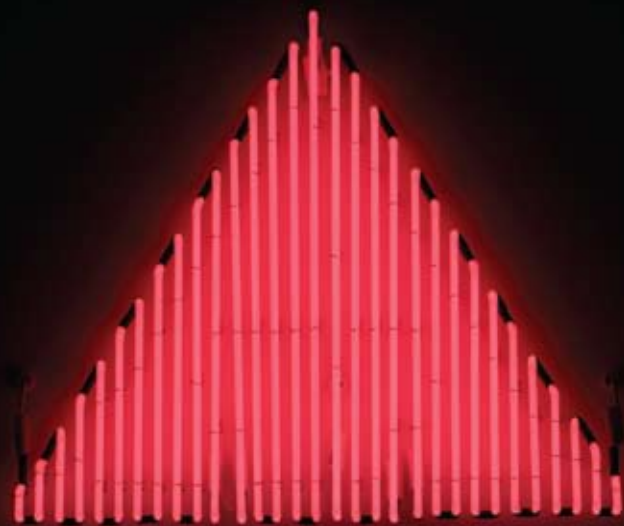
In New York City, the AIDS Coalition to Unleash Power—ACT UP—mobilized political pressure to fight the disease. It publicized AIDS openly, loudly insisted on increased research funding and faster regulatory review of drugs, and in 1990 even attempted to seize control of the National Institutes of Health.

An enduring legacy of that work is the rich and visually vivid graphics it spawned—some of it riffing on mainstream culture—in posters, bumper stickers, leaflets, and more. Now, that material is examined as art in *ACT UP New York: Activism, Art, and the AIDS Crisis, 1987-1993*, an exhibition organized by Helen Molesworth, Houghton curator of contemporary art, and doctoral student Claire Grace, Mongan curatorial intern.

The exhibition, accompanied by the ACT UP Oral History Project (featuring more than 100 video interviews), is on display at the Carpenter Center for the Visual Arts through December 23; selected works appear here. It is accompanied by a robust program of lectures and symposiums on everything from history and film to safe-sex practices; the complete schedule is at www.harvardartmuseum.org/actup.

This page: The iconic *Silence=Death* neon sign, 1987, by the Silence=Death Project, appropriated (and inverted) the pink triangle used by Nazis to identify known homosexuals; the message, in poster form, preceded the formation of ACT UP. This is a copy of the original from the collection of the New Museum, New York.

Opposite page, top to bottom: A sheet of stickers from the ACT UP Day of Desperation, January 23, 1991; Little Elvis, *The Aids Crisis Is Not Over* sticker, 1988; ACT UP, *Storm the NIH* sticker (detail), May 21, 1990.



SILENCE = DEATH

60% OF THE WOMEN THAT DIE FROM AIDS CAN'T GET AN AIDS DIAGNOSIS.

W H Y ?
BECAUSE THE GOVERNMENT'S DEFINITION OF AIDS EXCLUDES THE RELATED ILLNESSES MOST WOMEN DIE FROM. THAT MEANS THEY DIE FASTER AND WITHOUT ACCESS TO HEALTHCARE AND INSURANCE. THE GOVERNMENT MUST EXPAND THE DEFINITION OF AIDS TO INCLUDE WOMEN.

THE AIDS CRISIS IS ONLY BEGINNING...

**DAY OF DESPERATION
JANUARY 23**

ACT UP

INFORMATION: 212.564.AIDS

**1 AIDS DEATH
EVERY 8 MINUTES.**

**100,000
ARE DEAD ALREADY.**

PEOPLE ARE DYING.
WHAT ARE YOU DOING?

DAY OF DESPERATION

**DEMONSTRATE
JANUARY 23**

ACT UP

INFORMATION: 212.564.AIDS

BUSH CLAIMS WE'RE SPENDING ENOUGH ON AIDS. HIS DEFICIT MENTALITY ISN'T WORKING ON THE ECONOMY.

**IT WON'T WORK FOR
HUMAN LIVES.**

**THE GOVERNMENT
MUST FUND THE
FIGHT AGAINST
AIDS. IT'S A PAY
NOW OR PAY
LATER SITUATION.**

**THE AIDS CRISIS IS
ONLY BEGINNING...**

**DAY OF DESPERATION
DEMONSTRATE
JANUARY 23**

ACT UP

INFORMATION: 212.564.AIDS

**AIDS
ANGER
ACTION
ACT UP**

DAY OF DESPERATION

**DEMONSTRATE
JANUARY 23**

ACT UP

INFORMATION: 212.564.AIDS

GOVERNMENT RESEARCH FOR AIDS EXCLUDES MANY OF THE PEOPLE AFFECTED BY IT: WOMEN, IVU'S, PEOPLE OF COLOR, AND THE POOR. SO DOES ITS HEALTH CARE SYSTEM. WHAT GOOD IS RESEARCH WITH NO ACCESS TO IT? THE U.S. IS THE ONLY INDUSTRIALIZED NATION BESIDES SOUTH AFRICA WITH NO NATIONAL HEALTH CARE. THE AIDS CRISIS IS ONLY BEGINNING...

**DAY OF DESPERATION
DEMONSTRATE
JANUARY 23**

ACT UP

**1 MUERTE DE SIDA
CADA 8 MINUTOS**

**100,000
YA HAN MUERTO**

HAY GENTE MURIENDO
¿QUE HARÁ USTED?

**DÍA DE DESPERACIÓN
ENERO 23**

ACT UP

PARA MÁS INFORMACIÓN...

**THE AIDS CRISIS
IS NOT OVER**

ACT UP

WITH 42,000 DEAD

ART IS NOT ENOUGH

TAKE COLLECTIVE DIRECT ACTION TO END THE AIDS CRISIS

The Kitchen
all the good food - New York, 1979

<i>Warren Penley</i>	11/30-12/18	<i>Wolfgang Puck</i>	1/18-2/8
<i>Tina Turner</i>	12/16-2/8	<i>Robert Longo</i>	1/7
<i>Stephen Pironis</i>	12/18-1/8	<i>Blackrock Collective</i>	1/18-1/8
		<i>John Deane</i>	1/18-2/18

Gran Fury

THE GOVERNMENT HAS BLOOD ON ITS HANDS




ONE AIDS DEATH EVERY HALF HOUR




AIDSGATE

This Picture Should Not Be Forgotten!
 10% of profits and 100% of net proceeds from the sale of this poster will be donated to the ACT UP New York Fundraising Project. 100% of net proceeds from the sale of this poster will be donated to the ACT UP New York Fundraising Project. 100% of net proceeds from the sale of this poster will be donated to the ACT UP New York Fundraising Project.



READ MY LIPS



KISS IN

Friday, April 29th
 9:00 pm March Inauguration & West St.
 10:00 pm Rally at Union Square
 11:00 pm Rally at City Hall
 11:00 pm Rally at City Hall
 11:00 pm Rally at City Hall

FIGHT HOMOPHOBIA: FIGHT AIDS

SPONSOR AIDS ACTION '93. Nine days of nationwide AIDS-related actions & protests.

Enjoy

AZT

Enjoy AZT

The U.S. government has spent one billion dollars over the past 10 years to research new AIDS drugs. The result, 1 drug—AZT. It makes half the people who try it sick and for the other half it stops working after a year. Is AZT the last, best hope for people with AIDS, or is it a short-cut to the killing Burroughs Wellcome is making in the AIDS marketplace? Scores of drugs languish in government pipelines, while fortunes are made on this monopoly.

IS THIS HEALTH CARE OR WEALTH CARE?

Above: Gran Fury, *Read My Lips*, 1988, poster, offset lithography

Left (clockwise from top left): Gran Fury, *Art Is Not Enough*, 1988, offset lithography on paper; Gran Fury, *The Government Has Blood on Its Hands*, 1988, poster, offset lithography; Silence=Death Project, *AIDSGATE*, 1987, poster, offset lithography; Vincent Gagliostro, *Enjoy AZT*, 1993, screen print

Below: ACT UP, *Silence=Death*, button, c. 1988; Richard Deagle, *Undercounting AIDS Cases Kills*, poster, offset lithography mounted on foam core, undated

All items shown in this article are on loan from the collection of Avram Finkelstein except *Enjoy AZT*, Harvard Art Museum/Fogg Museum.



PREVIOUS SPREAD: LEFT, PHOTOGRAPH BY KATYA KALLSEN; RIGHT, PHOTOGRAPHS BY JESSICA FICKEN (TOP AND BOTTOM) AND EDWARD LLOYD (CENTER). THIS PAGE: ALL IMAGES PHOTOGRAPHED BY KATYA KALLSEN, EXCEPT FOR *ENJOY AZT*, PHOTOGRAPHED BY ALLAN MACINTYRE. ALL IMAGES © PRESIDENT AND FELLOWS OF HARVARD COLLEGE



JOHN HARVARD'S JOURNAL

The Great Mammal Hall, a two-story gallery 60 feet long by 40 wide, is the oldest and most dramatic in the Harvard Museum of Natural History (HMNH). The hall was emptied of its taxonomic treasures as part of a renovation commemorating the 150th anniversary of the founding of the Museum of Comparative Zoology: the animals were removed and repaired and the display cases restored to their nineteenth-century colors, replacing a palette dating to the 1960s. The gallery reopened October 16. Above, a gaur noses into the stream of escapees during the renovation.

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\$11 Billion Less

HARVARD'S ENDOWMENT was valued at \$26.0 billion as of June 30—29.5 percent less than the record \$36.9 billion at the end of the prior fiscal year. That result reflects a negative 27.3 percent investment return on endowment assets after expenses and fees; plus capital gifts received; minus the distribution of about \$1.7 billion from the endowment to support University operations during the year. The latter amount represents an increase over the funds distributed in fiscal year 2008; details presumably will be forthcoming with the publication of the annual financial report (after this issue went to press; an update will appear at www.harvardmagazine.com). Reduced endowment distributions in the current and next fiscal years, mandated by the Harvard Corporation in response to the investment losses, are driving cost-cutting throughout the University.

The large loss was not a surprise: as Harvard Management Company (HMC) president and CEO Jane L. Mendillo noted in her annual communication to the community, “Clearly, the last year was a difficult one for Harvard as it was for almost all institutional investors.” Last December, the University had forecast a 30 percent decline; there were concerns that private-equity and real-estate losses might drive even deeper declines. Thus, HMC’s negative 27.3 percent return was within the forecast range, and even modestly positive—by a billion dollars. (Nor

was Harvard’s experience unique. Yale reported a negative 24.6 percent investment return and, after distributions and gifts, a 28.8 percent decline in the value of its endowment, from \$22.9 billion in 2008 to \$16.3 billion as of last June 30. Princeton reported a negative 23.7 percent investment return. But in a surprising show of fiscal prowess, Princeton was able to operate without taking *any* endowment distribution during the year—funding operations instead through the proceeds of a debt offering last winter, and thus avoiding distressed sales of endowment assets during the most adverse securities markets. The endowment declined from \$16.3 billion to \$12.6 billion during the year.)

But the result was bruising enough. The “policy portfolio,” HMC’s asset-diversification model, returned negative 25.2 percent as measured by the investment benchmarks for each asset class—2.1 percent better than HMC’s actual performance. And the median large investment fund in the Trust Universe Comparison Service returned negative 18.2 percent: a very large loss, but a significant margin of outperformance relative to Harvard, in a year when conventional stock and bond portfolios proved much more rewarding than the complex assets that have given HMC decades of returns higher than other institutional investors’.

HMC’s results this year appear in a new format (see www.hmc.harvard.edu/investment_performance/2009_performance.php), and are not exactly compa-

table to detailed results reported in prior annual letters. There are fewer, more aggregated categories than in years past or than exist in the policy portfolio (which details assets by domestic and foreign equities, emerging markets, private equities, absolute return or hedge funds, commodities, real estate, and four fixed-income classes, plus cash). The results (see chart, page 52) show modestly lesser losses, compared to market benchmarks, in two broad classes: public equities (in the past, about one-third of endowment assets) and “real assets”—a broad category (in the past totaling about one-quarter of investments)—including commodities; timber and agricultural land; and real estate, where commercial assets are likely still deteriorating in value. Fixed-income assets (in the past, about 13 percent of the total portfolio) trailed market returns slightly.

In private equities, HMC’s results were sharply lower than market returns; the same was true for assets managed using absolute-return (hedge-fund) strategies.

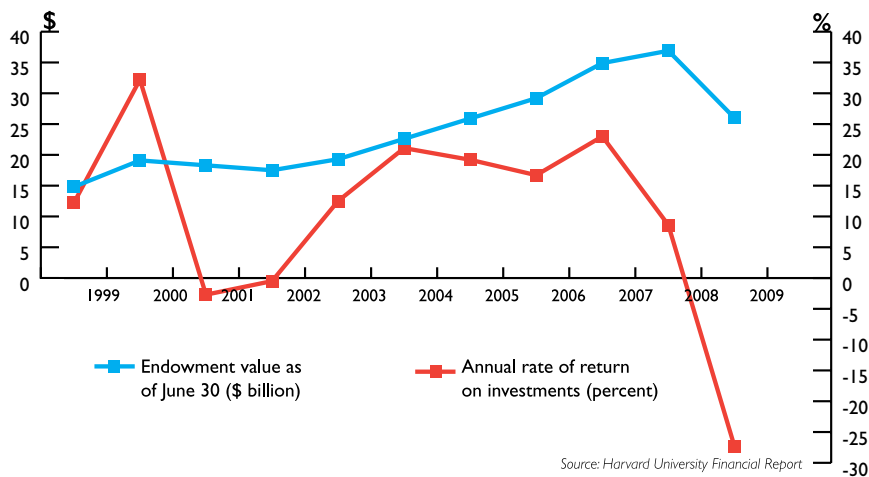
Nonetheless, Mendillo evinced continuing confidence in some of these classes. She noted that private-equity investments have “earned an average of 15.5 percent per year for the Harvard portfolio for the last 10 years even after a 32 percent correction in fiscal year 2009” and that the natural-resources portfolio (within real assets) “has returned 13.0 percent per year for the last 10 years.”

Negative factors relative to the market included both investment decisions and new concerns about liquidity. Among the former, Mendillo cited exposure within the internally managed domestic fixed-income portfolio “to some of the less-tradable structured credit securities that were most impacted as the market imploded.” That strategy has changed, and the senior investment manager responsible for such assets decided to leave HMC.

As for liquidity concerns, she described “recent over-sized commitments to illiquid asset classes,” a problem for an endowment now valued at \$26 billion rather than one worth 40-plus percent more and guided by expectations reflecting the rapid growth earlier in the decade. As reported (see “Finding a New Footing,” September-October, page 44), at the end of fiscal year 2008, HMC had future commitments to outside investment managers

An Up and Down Decade...Ends Down

The endowment last approximated its current value four years ago, when it totaled \$25.9 billion as of June 30, 2005.



totaling some \$11 billion—which would worsen the “over-sized” proportion of the endowment so invested when those cash calls were made. Moreover, those managers typically impose holding periods on investments they make, creating a second problem that Mendillo described as “a larger proportion of strategies with long holding periods” among even the liquid asset classes. Finally, she cited a “lack of ready liquidity in the portfolio to meet our obligations along with the needs of the University,” as private-equity, hedge-fund, and other asset managers slowed or stopped their distributions back to HMC, and as the University faced its own credit problems last fall—necessitating sales of assets at a time when HMC might have preferred not to do so.

In response, Mendillo noted that HMC had “decreased our uncalled capital commitments by roughly \$3 billion”—through sales of some investments; negotiations with fund managers to reduce the size of new investments; and some calls for funds made and fulfilled during the past fiscal year.

Moreover, HMC has removed leverage from its investment strategy. The policy portfolio for years called for a negative 5 percent cash position (using borrowed funds to boost returns). That allocation was reduced to negative 3 percent at the end of fiscal year 2008, and is now modeled as positive 2 percent: a 5-percentage-point swing in one year. (To accommodate the cash cushion, the policy portfolio reduced absolute-return investments by two percentage points and commodities assets by three points.)

In general, Mendillo noted, “We have made changes to...the portfolio to increase the flexibility and control we have in managing our funds while maintaining attractive return expectations.” In the investment world made new during the past year, it is clear from her report, “the risk tolerance of the University needs to be an integral factor in the decisions regarding asset allocation, flexibility, and accessibility of the investment strategies we choose,” implying a greater coordination of HMC and University financial plans and operations.

A greater cash cushion will be a comforting hedge if investment markets remain volatile or turn negative again. But if markets improve, the cash could drag down performance. In light of that factor—and

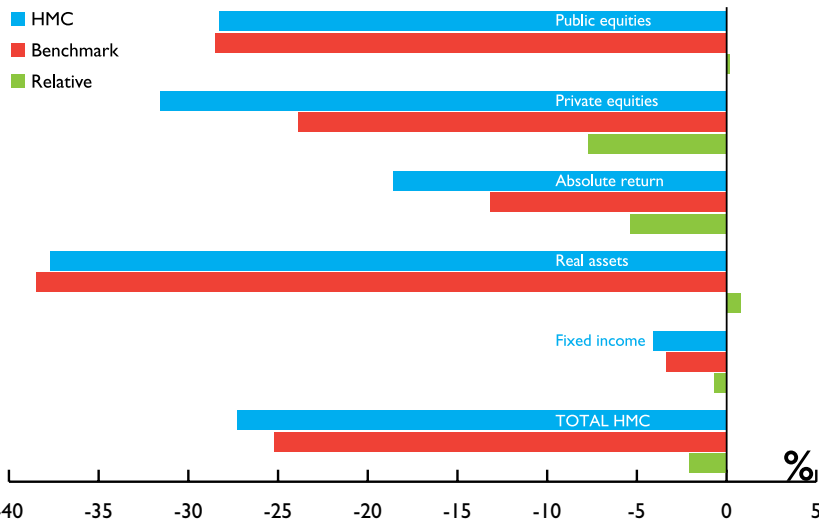
HARVARD PORTRAIT



John Mugane

Hired in 2003 to build the capacity of Harvard’s African languages program (last spring it offered 21 of them, more than any other university in the world), John Mugane, professor of the practice of African languages and cultures, soon noticed a category of students who picked up one tongue after another without much difficulty, traipsing glibly among language families, from Nilotic to Bantu to Khoisan. After keeping a close eye on these polyglot students for several years, Mugane is writing a set of annotated language-learning textbooks based on their habits. (Igbo, spoken in Nigeria, is the first test case.) The skills, which he will summarize in a separate book, *Learning How to Learn Languages*, include repetition, note-taking (particularly writing down new phrases one hears in conversation), listening for idiomatic turns of phrase, and focusing on utility rather than flawless grammar. A capacity for independent learning is particularly handy with African languages: because many have no formal written grammars or textbooks; because it can be hard to find fluent speakers in the Boston area to hire as teachers; and because unrelated languages so commonly exist in close proximity on the continent. But Mugane—who grew up speaking Gikuyu, Swahili, and English in Kenya, and declines to say how many languages he speaks now—believes all language instructors have a responsibility to guide students toward the skills that will make it easy to learn *any* language. And he believes that textbooks—even his—should serve more as references than as road maps for teaching. By nature, “textbooks are linear,” he says; language learning is not.

Fiscal Year 2009 Returns



her expectation of “prolonged” slower growth in “some markets”—Mendillo cautioned about the need to be “realistic about near-term returns and about our expectations for several years to come.”

There is no indication that HMC is backing away from its expectation of long-term returns of 8.25 percent for a pool of assets diversified in line with the policy portfolio. Even including the losses just realized, HMC’s 10-year, annualized return on investments is now 8.9 percent—significantly above both conventional stock/bond portfolio performance (1.4 percent) and median large endowment returns (3.2 percent) during the same period. (Yale’s

10-year rate of return is now 11.8 percent, Princeton’s 9.7 percent.)

But Mendillo noted, “For Harvard, as for almost every investor, regaining the market value lost as a result of the recent global economic crisis will take time.” (If distributions to support University operations in the next few years approach 5.5 percent to 6 percent of the endowment’s value, as they may, and investment returns are below the long-term goal, the endowment’s value could remain essentially flat, excluding any capital gifts. Given the goal of exceeding inflation over time, such results for an extended period would be worrisome.)

Having weathered a punishing first

year at HMC’s helm, Mendillo signaled two strategic shifts for the longer term. First, she characterized past changes in the policy portfolio as “incremental,” and suggested that a broader “rethinking” was under way, “to better suit current realities and lessons learned,” with “[f]ewer distinctions among the finely tuned asset classes to encourage greater collaboration among our teams in exploring investment themes.” Those are likely, however, to include still greater concentration “in areas where HMC has unique competitive strengths,” such as active fixed-income management, natural resources, real estate, and private equity.

Second, she stressed the lower costs and especially the advantages of better control and feel for the market realized through internal money-management expertise (HMC personnel manage about 30 percent of the portfolio now, down from 70 percent early in the decade). As a result, without setting a specific target for internal versus external management, she wrote, “[W]e are looking to increase the share of internally managed assets under the right conditions.”

With appropriate liquidity, new strategies, and several new people in place, Mendillo concluded, she and her colleagues have “positioned both HMC and the Harvard portfolio to be robust, steady, and, importantly, poised to benefit from growth in the world’s economies. We have reset the building blocks for a solid, innovative, and sustainable investment strategy.”

The “New Normal”

FOLLOWING WHAT SHE called an “unusually challenging year” dominated by financial reversals, President Drew Faust delivered an “opening-of-year” address in Sanders Theatre on September 24, in lieu of the e-mail messages sent in prior years. It seemed “a good moment to talk in person,” she told the audience.

Economic conditions aside, the formal speech perhaps also symbolized an evolution in her leadership. In a conversation earlier that week, Faust said that the first two years of her presidency were deliberately characterized by consensus-building, dispersed authority, and listening. Now, atop that foundation for eliciting ideas

and setting directions for the University—and in light of more straitened circumstances—she felt it necessary to display a “more assertive leadership,” defining and articulating those directions. Accordingly, her speech set out to describe those constraints, to recall universities’ distinctive mission, and to exhort members of the Harvard community to collaborate in all ways, so that “even as we find ways to adjust, we will also find ways to advance.” (The text and audio and video recordings

are accessible at <http://harvardmag.com/2009-state-of-harvard>.)

Before focusing on “our changed financial situation” and the “difficult challenges” that still face the University, Faust recalled the “resilience” and “creativity” of prior Harvard generations in sustaining and building the institution, and asked that the community “meet this moment with equal devotion.” She underscored the need for the University’s scholarship and teaching in a world beset by global

People within the University have the obligation “not just to serve but to doubt,” particularly when “our work here has never mattered more.”

economic problems, climate change, infectious diseases and healthcare disparities, inequality, and religious and cultural strife. In conducting research, devising policy solutions, and education, she said, universities are uniquely placed to “take the long view” of immediate problems, placing them in historical context and maintaining a perspective on the horizon beyond. People within the University, she said, have the obligation “not just to serve but to doubt,” particularly at a time when “our work here has never mattered more.”

Turning to current circumstances, Faust noted that the endowment’s value had declined sharply (see “\$11 Billion Less,” page 50). Given typical distributions of about 5 percent of the assets’ value annually, she noted that the decline would imply a loss of \$500 million in such income—devastating for a University that derives more than a third of its operating revenue from that source. Instead, Harvard aims to spend about 6 percent this year, and then a progressively lessening percentage in future years, to keep the decline in operating revenues from being too abrupt or jarring. Nonetheless, that means that after a period of rapid growth, the University now faces a structural revenue gap, Faust said—because it tied income too closely to volatile markets and learned “costly lessons about risk” as a result.

Looking ahead (and outlining some of the information to be disclosed in Harvard’s annual financial report in October; check www.harvardmagazine.com for updates), Faust said that net income from tuition (after financial aid) declined in fiscal year 2009; that current-use giving had risen, but that gift income overall, as reported, had declined by nearly 10 percent; and that sponsored-research funding had risen by a relatively robust 7 percent. The latter boost may not be permanent, she warned, given the two-year surge of funding associated with the federal government’s stimulus program.

How would Harvard adapt? Faust reiterated principal elements in the financial plan (see “Finding a New Footing,” September–October, page 44): distributions from the endowment will decline 8 percent in the current fiscal year, and “at least” that much more next year. She said that the schools’ responses to new budgetary realities varied with their circumstances, but did not

Yesterday’s News

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

1914 A \$50,000 budget deficit (due partly to construction expenses) for the 1913–14 fiscal year prompts a proposal to raise College tuition from \$150 to \$200, the first increase since 1870.

1924 The editors note that although a violent reaction against the lecture system is occurring nationwide, Harvard intends to retain the tried and true teaching method. The editors suggest that “the best method of instruction is neither lecture system nor the discussion method, but a combination of the two.”

1934 The Harvard Psychological Laboratory announces, after a pioneer investigation of the field, that radio has a somewhat dulling effect on the higher mental processes of its listeners.

1939 The Student Employment Office has added baby-tending to its regular list of jobs. Those undergraduates who wish to sign up must first pass a course in essential techniques, offered by the superintendent of Stillman Infirmary, and will then earn 20 cents an hour, plus carfare.

1964 Radcliffe students may now go from Lamont Library’s rear entrance to the classrooms on the sixth floor but not into the rest of the building.

1969 Harvard deans agree it would be wrong to speak for their schools on public issues, yet some demand the right to act as individuals and protest the war in Vietnam. Dean of the Medical School Robert H. Ebert is one of 600 medical men involved in a streetcorner campaign of talking to passers-by about the war and handing out cards of protest to be signed and sent to President Nixon.

1974 Associate professor of the history of science Barbara Gutmann Rosenkrantz ’44 becomes the first woman appointed master of a House—Currier. Her husband is named co-master.

1989 The University plans to begin a trademark licensing program, controlling the use of the Harvard name on “insignia goods,” such as clothing, mugs, glasses, watches, and pens. Royalties from the program will be directed to a fund for student aid.



Pictures in the Square

There was once a quirky pizza joint called Ruggles that made pizza with cheddar instead of mozzarella—an interesting if not compelling culinary proposition. Years ago—many years ago—Ruggles occupied a small storefront on Mass. Ave. in the heart of Harvard Square. “I have a memory of sitting in Ruggles and watching people go by on the sidewalk outside the window,” says Mo Lotman, author of the new book *Harvard Square: An Illustrated History Since 1950* (www.harvardsquarebook.com). “One day I wondered, what ever happened to that place? That little spot is no longer there. You can’t look out the window and see people anymore.”

Indeed you cannot. A branch of a chain drugstore, CVS, now does business in the space that was Rug-

gles. But Lotman’s moment of reminiscence and wondering started a process that led him to write, design, and undertake the prodigious research that went into *Harvard Square*, a photographic panoply of Square vistas and landmarks from the last half-century-plus. The coffee-table book is both cornucopia and palimpsest. The beloved businesses are all here: second-hand bookshops, cafés, cafeterias, delis and restaurants; folk-music clubs, stereo stores, haberdasheries, bars, bakeries, boîtes, bicycle shops and newsstands; movie houses, tobacconists, and, at one time, five gas stations.



Cruising the Square (from the top, and left to right): The Window Shop restaurant in the 1950s; chess master Murray Turnbull '71 takes on an opponent at 1983 rates; Brattle Theatre-goers await *Breathless* in 1967; Boylston (now John F. Kennedy) Street in 1963; and a summer crowd watches a street performer in 1987.



Visit harvardmag.com/extras for a Harvard Square history quiz.

The book is filled with long-gone venues like Design Research, Pangloss Bookshop, Krackerjack's, and Elsie's (now the site of a Bank of America ATM kiosk). The street musicians, chess masters, and protestors are all here, too. Older readers may mist up with nostalgia for an earthier, more bohemian, and more engaging Square. Younger ones will find layers of unsuspected history beneath today's cityscape, learning that the Boloco burrito-chain outlet was once Saks Fifth Avenue, and that Kinko's Copies for-

merly housed a dark, underground, sangria-soaked music club called The Idler. The book, filled with mini-essays, reads like a series of short magazine sidebars. In addition to Lotman's main text, the likes of William S. Weld '66, J.D. '70, Tom Rush '63, and the late John Updike '54, Litt.D. '92, contributed reminiscences.



John Updike '54, Litt.D. '92, contributed reminiscences.

Lotman moved to Boston in 1991 after college at the University of Michigan. The book “was built from my love for Harvard Square and my desire to learn about its history,” he explains. “I had always loved the feel and scale of it.” He has been around long enough to witness some sea changes. In warm weather, “the night street scene is completely different than it used to be,” he says. “The Mardi Gras feel, with the street performers everywhere, is no longer there—a hundred or 200 people used to gather around one performer.

“The counterculture in Harvard Square is a whisper of what it once was, but there is no reason the Square must always be the seat of radical activism,” he continues. “So many people are down on the Square nowadays—if they’ve lived here a long time, they say it’s a shadow of what it used to be. I understand why they say that, but I don’t share the bleak outlook. A lot of independent boutiques have sprung up in the last few years—locally owned places with young owners, sometimes even replacing chains. There’s a tendency to look at what you’ve lost, and not at what’s still here.”

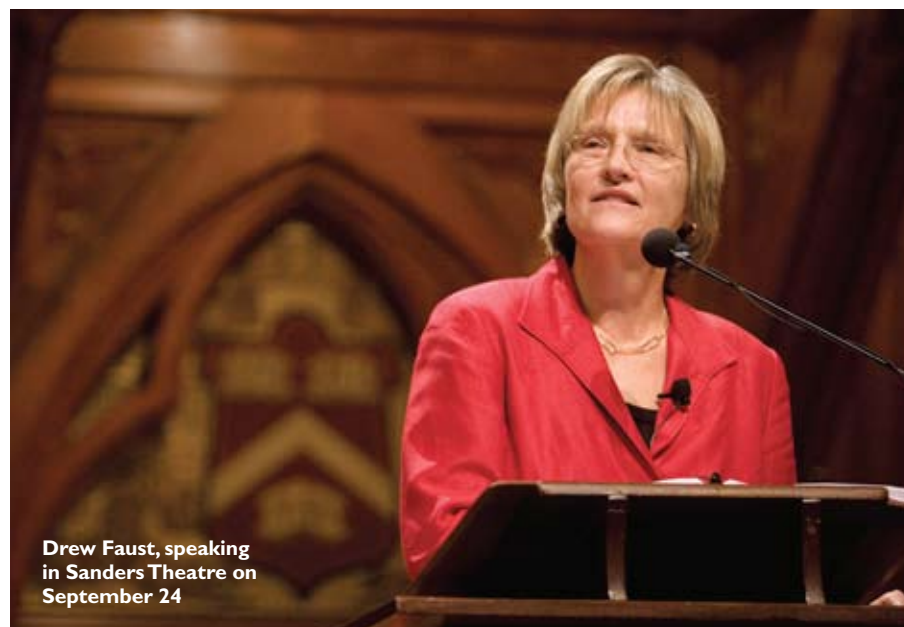
—C.L.

provide any detailed examples. Spending reductions did achieve “meaningful savings” last year, compared to the budget adopted before the financial crisis. Many reductions reflect multiple steps taken to restrain personnel costs: trims in hiring and in filling vacancies; some voluntary retirement incentives for staff, followed by layoffs late last spring; and the freeze on faculty and nonunion staff salaries.

The University has also “slowed our ambitious capital plans,” she noted, especially with regard to the long-term ambitions in Allston. Compared to last year’s original capital plan, spending has been cut in half for the next several years, she said. And efforts continue to secure efficiencies in procurement.

FOR THE FUTURE, Faust said, Harvard must identify and protect its core priorities—“what we’re here for,” namely “education and research of the very highest caliber.” It will not be possible to pursue every interesting idea, nor do everything done heretofore. The community, she said, would have to move promptly to a “new normal” state of affairs, because it was unlikely that rebounding financial markets would restore the endowment anytime soon. Accordingly, everyone at the University would have to “embrace the opportunity, and the necessity” of working more efficiently and cooperatively, doing better work by harnessing “the power of a more unified Harvard.” She invoked President Charles William Eliot, who in 1908 (his fortieth and last academic year in office) called for a “more collaborative, more integrated” University.

At the same time, Faust underscored Harvard’s commitment to attracting and supporting the best faculty members and students from around the world, a basic principle of both meritocracy and of access. She listed areas of intellectual connection across schools—ranging from the global economy and stem-cell science to work on human rights—and expressed hope that students and faculty members would increasingly feel themselves part not only of a single school, but of the University. She reiterated the commitment to liberal arts as a fundamental purpose of a Harvard education. And she encouraged members of the community to recognize their obligation to “live by the ethical standards we teach” and to “repay the



Drew Faust, speaking in Sanders Theatre on September 24

privilege of being in a rare place like this” through lives of service.

Faust then sketched examples of the kinds of collaborations she encourages, both administrative and academic. She cited the task force examining the “curious practices” of Harvard’s 70-plus libraries, whose separate operations may impede access to collections and produce duplication, unaffordable expense, and sub-optimal teaching and research. Separate information-technology systems around the University, she added, likewise impede compatibility and collaboration, and drive up costs.

On the academic side, she said the new undergraduate General Education curriculum, just launched with novel courses, “invites our faculty to join intellectual forces and our students to trespass” across intellectual boundaries—not only within the Faculty of Arts and Sciences (FAS) but across most of the professional schools. Similarly, she said, 200-plus faculty members had joined forces to plan initiatives in global health, resulting in new research clusters (on chronic diseases, children’s health, and new technologies), yielding new interfaculty courses, and “modeling a culture of collaboration.”

Whatever the value of the endowment, Faust emphasized, “there is a wealth of intellectual opportunity within this University.” Some of the opportunities reside within disciplines, but others exist across such boundaries, so “We need one another to do our best work.”

Though a “start of year” address may

appropriately skip details, very hard tasks still loom before the University; it will take effort and good will to keep everyone pulling together. Among Harvard units, FAS remains particularly stressed fiscally (see page 58). As major assumptions about campus development in Allston are comprehensively revised—the most sweeping visions included relocating entire schools and building vast new laboratories—there will be significant issues to explore, including the nature of collaborations with prospective partners (nonprofit or commercial) and conceiving a feasible new financial strategy. In the meantime, Harvard must weigh renovation of those schools’ existing facilities, even as it adjusts community-planning efforts with residents of Allston. Internally, should Harvard’s myriad information systems be melded, outsourced, or reconfigured in other ways? And so on.

In making such decisions, fundamental or seemingly mundane, Faust made it clear in her conclusion that her approach to Harvard’s challenges was anchored in her own deepest professional commitment—as an historian whose works include the acclaimed *Mothers of Invention* (on Southern women in the American Civil War). If the community proceeds in the cooperative spirit she summoned, Faust said, Harvard will emerge from its current situation “as an even stronger and more vital” institution. “If we do,” she said, “we may someday look back on our current financial necessities as *our* mother of invention.”

Training Leaders to Transform Education

HARVARD Graduate School of Education (HGSE) has created a new doctor of education leadership (Ed.L.D.) program, a three-year, practice-oriented degree aimed at preparing a small cohort of leaders who can effect major changes in K-12 education. Dean Kathleen McCartney said the program aims to teach its students “how to create change, how to be entrepreneurial, how to create a strategy and really stick with it.” Her very vocabulary underscored how the new course of study differs from the traditional research- and dissertation-focused Ed.D. But the Ed.L.D. graduates’ goal, McCartney emphasized, is consistent with HGSE’s purposes as adapted to challenging circumstances in primary and secondary education: “Everything these leaders do should have a laser-like focus on learning.”

“Sometimes people think education is an intractable problem,” she said, citing the scale of the issues, the flood of unanalyzed data about students’ performance, and the apparently inadequate American level of learning revealed on tests administered around the world—not to mention the daunting gaps in performance between and within U.S. districts.

The Ed.L.D. attacks that challenge in two ways. The unusual curriculum—based in part on current HGSE-led executive-education programs for superintendents, principals, and other K-12 leaders—suggests the rationale for the school’s first new degree in 74 years. First, it aims to equip graduates with expertise not only in teaching and learning, but also in organizational management and leadership, and command of policy and politics. By linking HGSE faculty members with Business School (HBS) and Kennedy School (HKS) colleagues, and scholars with practitioners, the Ed.L.D. program recognizes that superintendents, state education policymakers, nonprofit advocates of school reform, and even private investors are all

involved in enhancing education—and that each sector’s leaders need to master multiple skills and disciplines. (Curriculum development was supported by the Gates, Hewlett, and Noyce



Kathleen McCartney

JONES PHOTO

foundations; see www.gse.harvard.edu/academics/doctorate/edld.)

Second, after two years of work on campus, each student will enter a field placement, at venues ranging from large urban school districts to nonprofit organizations such as the New Teacher Project, the New Schools Venture Fund, and Teach For America (TFA). During that on-site, final year, the doctoral candidates will lead an education-reform project, prepare a “capstone” product, and gain hands-on experience building and leading a team—and evaluating its members’ performance as their own is assessed. McCartney noted that the new degree solves “a human-capital issue” by opening a path for those seeking education careers but not a research doctorate and unsure about navigating from an M.B.A. or J.D. into their preferred field.

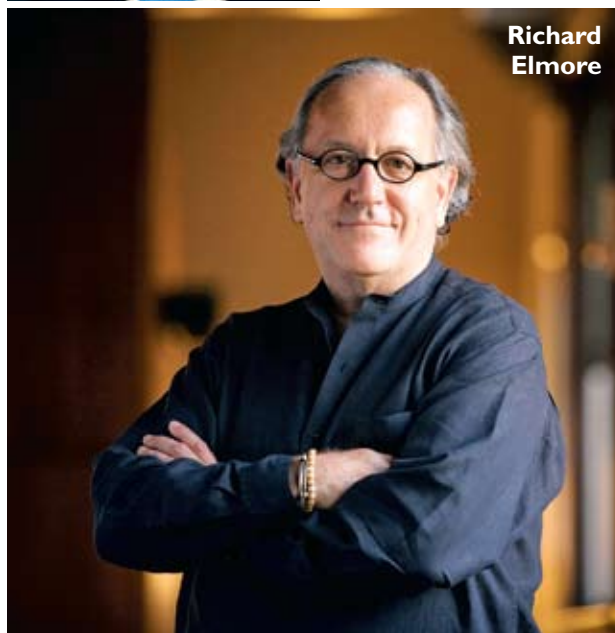
“As we’ve engaged in this work over the past 20 years,” said Wendy Kopp, TFA founder and CEO, “we’ve seen that it is absolutely possible for kids in low-



Harry Spence

COURTESY OF HARRY SPENCE

income communities to excel academically”—at the classroom level, school-wide, and even through entire school systems, demonstrating the “possibility of school-system-wide change.” At each of those levels, she said, “Ultimately, it turns out, it’s all about talent and leadership,” in classrooms, the principal’s office, and the superintendency. There is now widespread recogni-



Richard Elmore

TOM KATES

tion of the “role of leadership in actually moving the needle against educational inequity.” The Ed.L.D. program, she said, “promises to provide one more stream of talent who do have deep grounding” not only in education but in “relationship-building skills” that have to be applied in the very complex setting of education reform.

The Ed.L.D.’s faculty co-directors—Anrig professor of educational leadership Richard Elmore and professor of practice Lewis (Harry) Spence, J.D. ’74—embody its ambition to combine content with application.

Elmore described two strands of work that underpin the new curriculum. More than a decade of research, at Harvard and elsewhere, on accountability, school improvement, and school organization has, he said, become “increasingly specific

about the conditions that promote high-level learning and performance in educational institutions,” within classrooms and in systems as a whole. But the work of public schools is “highly compartmentalized, disorganized, and incoherent,” reflecting historical forces that have shaped education. In response, Elmore said, school systems and education leaders need to define coherent strategies for improvement, specify the elements of each strategy, and detail the actions required to implement them—and figure out how to explain all these changes to the public.

At the same time, previous HGSE collaborations have opened the way to apply those findings to effect change in large school systems. The Public Education Leadership Project, an HGSE-HBS venture, developed a case-based executive-education curriculum for superintendents

charter schools; people interested in funding innovation; and pioneers in data and other services—hence the breadth of the partners for students’ third-year placements.

Co-director Harry Spence brings that hands-on perspective directly into the design of the Ed.L.D. From 1991 to 1995, he was receiver for Chelsea, Massachusetts, where restructuring the school system was a principal priority. Thereafter, he was deputy chancellor for operations of the New York City board of education, and then commissioner of the Massachusetts department of social services.

School systems are “easily pulled in a thousand directions,” Spence said: like the leaders of other public institutions, education executives spend 80 percent of their time on politics and administration, and only 20 percent on improving prac-

been its own intractable problem. For the past decade, the Wallace Foundation has focused its education philanthropy (to the tune of \$300 million) “exclusively around the notion that to make school reform work for kids, we need to spend much more time and attention on leadership,” said foundation president M. Christine DeVita. Leadership training and effectiveness, she said, are “under-recognized and under-leveraged aspects of school life.”

The job of contemporary school principals has changed dramatically, DeVita said—but their preparation has not. Their most critical tasks are “leading organizational change, creating cultures of learning for the adults in the building, and leading instructional improvement for the children”—and “none of those sophisticated organizational changes and management issues are things they’ve been prepared for.” Principals, the key actors in effecting school-level improvements, are thrown into their jobs without mentors (or whatever mentoring they get is passive and episodic), and subjected to inadequate or irrelevant performance assessments. Where these factors are altered, Wallace’s programs show, schools can improve.

School reform, DeVita said, is above all “a systems problem” and so requires systems thinking, “which is exactly what good leaders do in all sectors, and exactly what we’re asking education leaders to do, too.” But among education schools, “There isn’t anybody out there doing it in a way that’s worthy of the challenge—and that’s what’s so exciting about this program.” The kind of preparation and thinking she envisions for education leaders is “what’s taken for granted at Harvard Business School and Harvard Kennedy School,” which is why the Wallace Foundation originally underwrote ExEL. With such an approach now in place at HGSE, too, DeVita said, the foundation has followed up by making a \$10-million grant for fellowships for the entering Ed.L.D. candidates.

Arthur Levine—past president of Teachers College at Columbia University, now president of the Woodrow Wilson National Fellowship Foundation—has been a harsh critic of prevailing practices. He characterized leadership programs as the weakest of education schools’ offerings, with low admissions standards;

Education executives spend 80 percent of their time on politics and administration, and only 20 percent on improving the services delivered.

and principals from large urban school systems. (Alumni include former Chicago superintendent Arne Duncan ’86, now U.S. Secretary of Education.) Week-long campus sessions and field consultations by faculty members introduced training in strategic alignment, executing a strategy, managing human capital, and designing systems for resource allocation and accountability measures.

Since 2006, the Wallace Foundation (see below) has supported a separate Executive Leadership Program for Educators (ExEL), to provide training on campus and in the field for teams of school-district leaders and the leaders of their state education departments (two states each year). The joint approach aimed to combine state-level policy with practice and application in operating districts and schools. ExEL’s faculty ranks include HGSE, HBS, and HKS members.

Now, the content and techniques of the executive-education programs are being extended into a regular degree course of study. Beyond superintendents and chief academic officers, Elmore envisions enrolling people who will create entrepreneurial training organizations (nonprofit and for profit); organizations that will support

tice and the services delivered. Reversing that ratio, in his view, is the key to “genuine transformation” of education, and the Ed.L.D. promises “an intense focus on improving practice.” That means helping leaders find ways to rise above the details of budgets, legislation, or placating city councils and parent-teacher organizations so they can focus on enhancing teachers’ learning and their classroom effectiveness and marshaling resources properly. That is the only way, he said, to boost lagging student achievement overall, and to address effectively issues of race and identity that lie at the heart of urban systems’ achievement gaps.

These tough challenges cannot be overcome by “education rhetoric,” Spence acknowledged. By forming deep partnerships with the organizations where Ed.L.D. candidates will spend their third year, he said, HGSE could itself benefit from a “tremendous virtuous circle between the academy and practice” that will inform faculty members’ own knowledge and their ability to teach future leaders.

HERETOFORE, making education schools’ curriculums pertinent to the real problems of improving teaching and learning has

curriculums that “lack coherence and connections to the work that’s actually done in the field”; clinical programs devoted to mere shadowing of practitioners, whether they are successful or not; “watered-down” dissertations with little connection to practice; and other failings. Those deficiencies are particularly disturbing, Levine said, “given the enormous changes that need to happen” in response to changed demographics, the growth in student populations, new skills required for students to compete economically, and the rapid evolution of technology. “We need administrators who aren’t simply managers of [existing] schools,” he said, “but who can create new schools.”

In that light, he said, the Ed.L.D. venture could be “a very useful model” for the entire country. He cited the multidisciplinary curriculum as “unique and critical to the kinds of leadership training required today.” He also pointed to the substantive third-year placement “in organizations known for their accomplishments” in school reform, and with “incomparable” attention to the quality and rigor of the experience. Throughout the program’s design, he discerned a fo-

cus on real problems, he said, an approach that “makes so much more sense” than generating more “watered-down dissertations.”

THE FIRST COHORT of 25 students is being recruited this fall, to enroll in 2010. They will do so tuition-free, and with stipends for living expenses, thanks to the gift for fellowships from the Wallace Foundation, among others. (McCartney cited a \$1-million fellowship fund given by former Harvard Overseer Paul Buittenwieser and his wife, Catherine.)

Elmore and Spence imagine that the applicants will have at least several years of experience working in the “education sector,” broadly defined, who have demonstrated leadership in effecting some significant change or reform, and who come from diverse backgrounds and interests. Spence recalled students pursuing narrower professional degrees for whom the Ed.L.D. “suddenly answers their questions” about how to “genuinely prepare for the task of transforming large educational organizations, as much as humanly possible.”

A final check on the program’s design

and aspirations is its executive director, lecturer on education Elizabeth City—herself a former teacher, principal, instructional coach, and doctoral student at HGSE. Now she is an evangelist with a mission: to build from 25 Ed.L.D.s per year, to extend to the partner organizations where they will intern and the entities they ultimately lead, and ultimately to affect other education schools. City drew on her own background and on the Ed.L.D. intellectual framework to outline everything “transformative system-level leaders need to know” to reform education today, from learning about the origin of teacher unions and the evolution of de facto segregation in urban school districts (“These things didn’t just pop up”) to effective teamwork to comprehensive performance assessments.

Until now, City said, it has been up to prospective leaders to accumulate these needed skills on their own. With the Ed.L.D., she said, “We’re trying to do the integrative work, rather than saying to the students, ‘Here, *you* put it together.’” They need all the help they can get, she said, given the urgent mission of “transforming American education.”

FAS’s Progress—and Prognosis

FACULTY OF ARTS AND SCIENCES (FAS) dean Michael D. Smith invited professors and staff members to an “FAS Financial Update and Other FY ’09 Accomplishments” briefing on September 15. His early-semester presentation in effect previewed his retrospective annual report and prospective letter on the year ahead before they are formally published this autumn (check www.harvardmagazine.com for updates). Against the backdrop of the sharp decline in the value of the endowment (see “\$11 Billion Less,” page 50), Smith conveyed several pieces of encouraging news, based on FAS’s success in reducing its rate of spending during recent months, while keeping attention focused on the work still needed to stabilize the faculty’s finances in the years ahead. (A video recording of the briefing can be found at <http://planning.fas.harvard.edu>.)

He highlighted FAS’s “core” operations: the College, the Graduate School of Arts



Michael D. Smith
briefing faculty and
staff members on
September 15

and Sciences, and the faculty itself (which account for about three-fourths of FAS revenues and expenses), excluding sepa-

rate “tubs” such as the Harvard College Library, the School of Engineering and Applied Sciences, athletics, the museums,

Nobel Hat Trick

Professor of genetics Jack W. Szostak, of Harvard Medical School (HMS) and Massachusetts General Hospital, has been named co-winner of the Nobel Prize in Physiology or Medicine, with Elizabeth H. Blackburn (University of California, San Francisco) and Carol W. Greider (Johns Hopkins School of Medicine). The three scientists were recognized for their fundamental discoveries concerning how chromosomes are protected by telomeres (the caps at the end of chromosomes) and the enzyme telomerase, enabling the genetic material to be copied during cell division without dangerous degradation. The work, previously recognized by the 2006 Lasker Award, has



important implications for understanding both cancer and cell aging. Szostak's current research focuses in part on the origins of life on earth and on the laboratory synthesis of cellular life. Szostak has been at HMS since 1979....

Jack W. Szostak

Separately, Thomas A. Steitz, Ph.D. '67, Sterling professor of molecular biophysics and biochemistry at Yale and a Howard Hughes Medical Institute investigator, shared the Nobel Prize in Chemistry, for work on the structure and function of ribosomes, with Venkatraman Ramakrishnan (MRC Laboratory of Molecular Biology, Cambridge, England) and Ada E. Yonath (Weizmann Institute of Science, Rehovot, Israel). And President Barack Obama, J.D. '91, won the Nobel Peace Prize.

New Year, New Traditions

The place may be 373 years old, but its people think young. On September 1, an innovative Freshman Convocation welcomed the "fourth College class of '13" with celebratory music, speeches, and ritual that hinted at Commencement, the next time all 1,672 freshmen will officially gather again. Reinvention of the tradition-

Brevia



THE COMMON SPACES steering committee—chartered by President Drew Faust in the spring of 2008 to explore opportunities to enhance social life and enable artistic performances on campus—arranged this fall to distribute casual seating and tables around the Old Yard and elsewhere, and to sponsor open-air cultural events. This photo, taken September 10, shows the lawn beside Memorial Hall. More ambitious aims (described at harvardmag.com/commonspace), including the possible physical reconfiguration of existing spaces near the Science Center, Holyoke Center, and the Malkin Athletic Center, will have to wait until the funding environment improves. In the meantime, it suddenly became easy to pull up a colorful chair, plop down, and chat on campus, at least while the experiment ran, from September 3 through the end of October.

al convocation ceremony began last April, first envisioned by director for freshman programming Katie Steele; more than a hundred alumni attended to help out and cheer. Read a full description at <http://harvardmag.com/convocation>.... Homecoming was scheduled to arrive at Harvard for the first time on October 23-24. With The Game in New Haven this year, the Harvard Alumni Association encouraged grads to return for the Princeton game and special events on campus, including a tailgate.

EVP Succession

Katherine N. Lapp became executive vice president in early October, succeeding Edward C. Forst '82, the first person to hold the job (from September 2008 until his departure, effective August 1, and subsequent return to Goldman Sachs). As the University's chief administrative officer, Lapp will oversee financial, administrative, human-resources, and capital-planning functions in the central administration, as well as elements of the information-technology operation. She served as executive vice president for business operations for the University of California system from 2007 until her Harvard appointment; before that, she was executive

director and chief executive officer of New York's Metropolitan Transportation Authority. In announcing the appointment in late August, President Faust cited Lapp's "extensive expertise in budget and finance, exceptionally strong credentials as a leader and reformer of systems and operations, and demonstrated success in the higher-education environment."



Katherine Lapp

Presidential Honorands

President Obama conferred the Medal of Freedom on 16 people at a White House ceremony on August 12, among them: former Supreme Court justice Sandra Day O'Connor, who was awarded the Radcliffe Institute Medal last June; former UN High Commissioner for Human Rights Mary Robinson, LL.M. '68, LL.D. '98; University of Chicago geneticist and cancer specialist Janet Davison Rowley, S.D. '08; anti-apartheid leader Archbishop Desmond Tutu, LL.D. '79; and U.S. Senator Edward M. Kennedy '54, LL.D. '08 (who was represented by his children, as he mourned the death of his sister Eunice Shriver and continued to

fight the brain cancer that ended his life on August 25).

Research Briefs

The National Institutes of Health (NIH) renewed funding for the Harvard University Center for AIDS Research, one of 20 such sites in the United States, for basic-science and clinical investigations at the University and affiliated hospitals. The \$18.1-million grant extends for five years. Separately, as part of its “expeditions in computing” program, the National Science Foundation awarded \$10 million to support development of small-scale mobile robotic devices during the next five years. The work involves personnel from the School of Engineering and Applied Sciences and the Wyss Institute for Biologically Inspired Engineering (see “Tinker, Tailor, Robot, Fly,” January-February 2008, page 8, and “Engineering Bioengineering,” January-February, page 37). And Harvard School of Public Health established a Center for Communicable Disease Dynamics to model drug resistance, seasonal infectious diseases, and other issues; the work, directed by professor of epidemiology Marc Lipsitch (see “The SARS Scare,” March-April 2007, page 48), is underwritten by NIH, which will provide \$15.6 million over five years.

Nota Bene

DISCOVERIES DEPOSITORY. Harvard’s online depository for faculty research,

WEB WOW FACTORS. Harvard’s homepage, www.harvard.edu, has been given a makeover, part of the redesign and enhancement of the News Office’s *Gazette* publication (now reduced to biweekly frequency, but with much-enriched Web resources). The Harvard Worldwide website (www.worldwide.harvard.edu) has been souped up, too, with a searchable database (by school, area, and activity) so users can find individual faculty members with specific expertise, and with a much-enlarged pool of feature stories on University activities abroad—including student work in the field (see also “Immersed in Africa,” page 43).

approved in early 2008 (see “Open Access,” May-June 2008, page 61), is open for business. DASH (the Digital Access to Scholarship at Harvard), an open-access repository, began with hundreds of works from more than 350 members of the research community (<http://dash.harvard.edu>). Participants include the Faculty of Arts and Sciences, Harvard Law School, Harvard Kennedy School, and Harvard Graduate School of Education. The DASH home page has search and browsing functions, with links to HMScholar, serving the Harvard medical, dental, and public-health communities, and other resources.

RANKINGS REVISED. Though Harvard and Princeton tied atop the *U.S. News and World Report* annual beauty contest, *Washington Monthly*’s newer college guide, released in early September, ranked Harvard eleventh among universities (behind six public institutions, Stanford, and the College of William and Mary). That evaluation emphasizes social mobility (recruiting and graduating lower-income

students, as measured by the proportion receiving Pell Grants), research, and service (students entering the Peace Corps, in ROTC, etc.).

J-TERM TERMS. The College posted an online application (with an October 15 deadline) for students who wish to be in residence during winter recess (December 22-January 3) and the new winter break (January 4-22) introduced by the University calendar adopted for this academic year. Because there will be no undergraduate academic programs during that time—and because House dining halls will be closed—those permitted to be on campus have already been limited to varsity athletes from 19 specified teams; international students; thesis writers “who absolutely must stay on campus to conduct their research,” with supporting permission from their adviser and concentration; people working in research labs; and certain others, for example in select public-service activities. The Extension School, ironically, will be piloting new intensive courses, running from January 5 to January 22.

POVERTY AND DISEASE PIONEERS. The Prix Gailen USA committee conferred its 2009 Pro Bono Humanum Award on Barry R. Bloom, past dean of Harvard School of Public Health, and on Jeffrey D. Sachs ’76, Ph.D. ’80, JF ’81, formerly of Harvard’s economics department and now director of the Earth Institute at Columbia. They were recognized, respectively, for work on infectious diseases and on applying economic tools to alleviate poverty in Africa.

LAST OF ITS KIND? Even as fiscal realities crimped campus construction, steel rose for the Law School’s Northwest building. The superstructure frame should be completed by the end of December.



and so on. He also concentrated on unrestricted funds—which can be used flexibly, but where persistent deficits have threatened to hamstring FAS’s operations and ability to invest in new programs.

As a result of cost cuts (savings on utilities and from installing fewer new faculty members in laboratories) and revenue gains (stronger-than-anticipated unrestricted gift income and overhead-cost recoveries from sponsored research), a once-forecast \$30-million deficit in the core operations’ unrestricted budget for fiscal year 2009 became a \$6-million surplus.

Atop these gains, nonrecurring items enabled the faculty to boost its reserves substantially, rather than drawing them

annually—now appeared, he said, to be a \$110-million hole. Six faculty-led groups examining FAS’s mission, operations, and future are charged with addressing much of that remaining gap, with additional savings to be realized administratively, through improvements in information technology, for instance.

THE CORPORATION HAS reduced the distribution of funds from the endowment by 8 percent in the current fiscal year (costing FAS, which received about \$655 million in 2009, about \$50 million this year, and dashing its earlier expectation that the distribution would in fact increase by as much as \$100 million), and will impose a

But the arithmetic is relentless: fiscal year 2009’s surplus yields to a modest deficit (or perhaps even a balanced budget) this year, assuming that \$110 million of changes are adhered to; but similar savings and augmented revenues cut the deficit in the year beginning nine months hence only in half. In the current fiscal year, a \$110-million deficit would appear to total about one-sixth of FAS’s discretionary spending (its total budget excluding undergraduate financial aid, sponsored research, and debt service)—and an unknown but likely higher proportion of the “core” operations. Smith and his new dean for administration and finance, Leslie A. Kirwan ’79, M.P.P. ’84, who starts on November 2 (after wrapping up her duties as secretary of administration and finance for the Commonwealth of Massachusetts), will be on a tight timetable. The working groups have plenty of work.

Smith nonetheless felt sufficiently encouraged on September 15 to reveal that he would authorize “alleviating measures” (amounts unspecified) to address some particularly acute concerns, including bridge funding for critical research projects; “pre-award” support for research, particularly by junior faculty members, in advance of sponsored-research grants; and development of new courses.

Looking ahead, he cited some other positive developments. Alumni have responded to appeals for gifts of unrestricted, current-use funds; Smith said he is emphasizing undergraduate aid, graduate fellowships, teaching and learning initiatives, and the undergraduate experience (including, in the long term, financing for physical renewal of the Houses). And Massachusetts has changed the state law governing “underwater” endowments (where investment losses have reduced the corpus below the initial gift amount). Such funds had been unavailable for any distribution to support operations, but once the University determines its rule for their “prudent use,” distributions may become available. Without specifying the sum, he

For all the “tremendous progress” that Smith was able to report, with understandable relief, the task of shaving the faculty’s fiscal 2011 deficit remains daunting.

down: a valuable cushion against coming leaner years—one that might now last into fiscal year 2012, Smith estimated. Most consequentially, FAS received two unrestricted gifts (one a bequest) totaling \$32 million. As he put it, the faculty helpfully managed to effect savings during its year of greatest income.

Because of the approximately \$35-million operating improvement in FAS’s unrestricted core budget last year, he told his audience he had revised the outlook for both this year and 2011.

Adding the effect of approximately \$75 million of cost reductions and restructuring actions identified during the past academic year and being carried out last summer and this fall (early retirements, layoffs, the reduction in hours and pay for contracted janitors, and so on), the projected deficit for the current fiscal year has been reduced dramatically. Though he did not disclose it then, Smith revealed that as of last April, FAS was facing a \$130-million deficit. That now looks like a much more manageable \$20-million gap—and he suggested that a balanced budget was in reach.

Applying the same savings forward into next fiscal year, ending June 30, 2011, the truly daunting operating deficit he had previously forecast—\$220 million

further reduction in fiscal 2011, as it gradually adjusts spending to the endowment’s reduced value. The full effect on FAS finances has been clear since last April (see “Finding a New Footing,” September-October, page 44).

University guidance suggests that the distribution will decline “at least” 8 percent further next year; FAS’s budget assumes a 12 percent reduction. (That budget also accommodates some salary increases, after this year’s freeze, but that is a University decision, not FAS’s, so there may be some cushion.) Smith indicated that the Corporation would not give final guidance until next spring, indicating continued financial caution and uncertainty: until last March, the decision had typically been made around Thanksgiving.

For all the “tremendous progress” that Smith was able to report, with understandable relief, the task of shaving the fiscal 2011 deficit remains daunting. And Smith reminded his audience that FAS is pursuing a multiyear process of getting its operations down to a new scale and pace: using its reserves and a gradual moderation of endowment spending (despite the swift depreciation in value of its invested assets) to buffer a deliberative process of reorganization, reduction, and rebalancing.



Leslie A. Kirwan

COMMONWEALTH OF MASSACHUSETTS

indicated the annual revenue at stake for FAS could reach into eight figures—significant relative to the remaining deficit projected for this year.

Smith understandably focused on the current year and the reshaping of FAS necessary to rein in the still-large operating deficit projected for next year. Accordingly, he offered no hints about succeeding fiscal years.

Among peer institutions, Stanford and Yale have recently indicated that they will make major reductions in endowment distributions this year and next, and then both institutions project only flat distributions thereafter, extending into fiscal years 2012 or 2013 at least. Those two universities, with investment strategies and performance similar to Harvard's, are, re-

spectively, less and more reliant on endowment funding than Harvard as a whole, but both are much *less* reliant on endowment funding than FAS is (approaching 60 percent of revenue in fiscal year 2009). In a September 29 update, Princeton president Shirley M. Tilghman—who plans cuts in that institution's endowment distribution similar in proportion to Harvard's—raised the possibility of continuing to trim the budget in fiscal year 2012.

Harvard has not detailed its financial expectations beyond next year. President Drew Faust has said that the University aims to reduce the rate of distributions from the now-reduced endowment to a normal level within five years. Depending on external conditions and success in reducing costs internally, she has said, that

could imply further reductions in the funds distributed in fiscal year 2012 and beyond.

Thus, alongside the uncertain prospects for revenue derived from the endowment, the dean and his financial staff and working groups must consider likely growth in future expenses: for financial aid and compensation, to cite just two large items. For the moment, the most threatening financial problems facing FAS have been whittled down. But as far as setting FAS on a sustainable path later in the decade, much still depends on continued momentum in fundraising, the future performance of the endowment, faculty success in winning research grants in a very competitive environment, and effective implementation of the cost reductions announced so far—and those yet to be identified.

Critical Mass, and World-Class

CHERRY A. MURRAY, the physicist who became its dean on July 1, already knows her aspirations for Harvard's young School of Engineering and Applied Sciences (SEAS): to reach "critical mass" in research areas that will make an impact on twenty-first-century problems, and to be recognized among peers as a world-class institution.

Though small, SEAS is already ranked first when it comes to citations per paper, and Murray judges the research areas in which it is now engaged (see graphic) "an excellent, coherent set of synergistic disciplines." Now the new dean—currently president of the American Physical Society and formerly a senior vice president for physical sciences and wireless research at Bell Laboratories and then an executive at Lawrence Livermore National Laboratory—has embarked on a strategic review that by next summer will produce a 10-year hiring plan, a development plan, and a space plan to expand SEAS's capacity and influence.

The three plans are closely connected. The school needs to hire 50 more faculty mem-

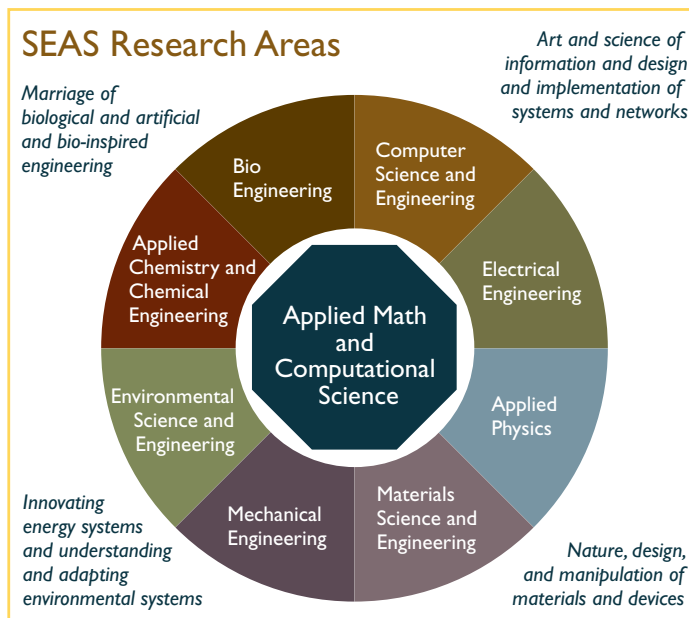
bers during the next decade—roughly five per year, says Murray—in order to achieve her first goal. Task forces in each research area will define their own "critical-mass" benchmark, but to Murray it means "breaking into the top 10" among engineering schools (one recent survey ranked Harvard at 19, up from 24 a year ago), having enough people to support "an excellent undergraduate concentration," and running a "robust research program that attracts people." The school's development and space plans will need to be consistent with that hiring schedule. In the short term, she says, "enhancements

of space will tide us over," but eventually the school will need to raise money for a building. Murray hopes it will be located in Cambridge to allow engineering to remain close to related Faculty of Arts and Sciences (FAS) departments, facilitating collaboration and the development of new undergraduate and graduate programs.

The planning process charges eight task forces with answering a range of questions: Should Harvard have an undergraduate or graduate concentration in this area in 10 years? What sort of knowledge should *all* students have acquired by the time they graduate? Given Harvard's

resources, what is SEAS's niche? What gaps need to be filled? What synergies exist with other areas?

Synergies are critical to the school's success even now. "If you add up all the faculty who self-identify with each research area, the total number, 130, is much larger than the actual full-time-equivalent number of our faculty, which is about 70," Murray points out. "For example, applied chemistry, bioengineering, and computer science are completely synergistic." To ensure the continuity of this approach, she plans "adjacency hiring" that will balance the disciplines (which



are arranged in logical order by how useful each is to the discipline nearest it in the diagram opposite).

By leveraging its faculty in this way, and without aspiring to be an MIT (where Murray earned her undergraduate and Ph.D. degrees), SEAS can nevertheless excel in certain niches within 10 years, she believes: “For example, with a world-class medical school and all of the hospitals, pharma, and biotech around here, we *need* to do bioengineering.” (A Ph.D. program in that field is in the works.) For now though, “All the areas are too small.”

As the school grows, Murray intends to guard its unique administrative structure, in which area associate deans report directly to her (there are no departments), preserving its open and collaborative research environment. As for her own style, she says, “I believe in management as supporting infrastructure, so that is what I

call it: ‘enabling support.’ Associate deans are actually enabling the faculty to do their work.”

SEAS, a financially and administratively independent part of FAS, now relies on its own endowment for almost 50 percent of its annual income. Murray would like to shrink that number to 35 percent or so; she says that will require more income from sponsored research and from interactions with industry—goals more readily achievable with a larger faculty.

Eventually Murray would like to teach and to collaborate on research in soft condensed matter, nanobiology, or nanotechnology, but for now, the school itself is her primary focus. “SEAS is growing and it really needs a lot of attention,” she says straightforwardly. “I’m enthusiastic about that.”



**Cherry A.
Murray**

THE UNDERGRADUATE

Post Pre-Med

by MELANIE LONG '10

EVERY YEAR AS hundreds of freshmen come to Harvard intent on the pre-med track, hundreds of upperclassmen leave it. I became one of the many who leave after I discovered that, although medicine is an honorable field, it was not the right choice for me. Taking courses that fill pre-med requirements, such as Life Sciences 1a and Math 1b, becomes a sort of rite of passage for approximately half of the freshman class who are considering a career in medicine: most complain about the difficulty of the courses and the hard problem sets. Meanwhile, I found that even though I was celebrating because my pre-med career had ended before I had to take the often dreaded organic-chemistry requirement, I also began lamenting losing the sense of community that comes with being pre-med.

During my senior year of high school, I decided on a career in medicine after

learning about the organization Doctors Without Borders. Their work inspired me, and the prospect of pursuing a career that would enable me to participate in similar work was exciting. I enjoyed math and science and was active in many related clubs in school, so I figured this was enough to determine that medicine was the perfect choice. The summer before coming to Harvard, I began mapping out the pre-med requirements and which courses would fulfill them, so my academic schedule would allow me to be pre-med while I concentrated in English.

I arrived on campus relieved that I didn't have to go to the many meetings offered during freshman orientation that catered to students undecided about their concentration. I knew where I was going and what I had to do to get there. I took the necessary courses, signed up for the Harvard Pre-medical Society (HPS) mailing list (by spring semester I was the orga-

nization's secretary), and picked up pamphlets from the Office of Career Services (OCS). I didn't have to worry about what my future would hold because—though it was not set in stone—I knew the direction it was going to take.

By the end of freshman year, my seemingly ironed-out path began to show some wrinkles. I didn't enjoy the science courses as much as I had anticipated. While making a difference in my community still appealed to me, medicine didn't as much. These doubts were confirmed after I attended the national Summer Medical and Dental Education Program funded by the Robert Wood Johnson Foundation, which enables college freshmen and sophomores to take classes that will prepare them for their pre-med courses and gives them the opportunity to shadow doctors in a hospital. I enjoyed the writing course much more than the science courses and during the hospital visits—unlike my classmates who looked eagerly at the procedures—I leaned against the wall, trying to prevent myself from fainting and ending up on the bed next to the patient we were supposed to observe. At the end of the program, I happily made my official decision to stop being pre-med.

When I arrived back on campus for sophomore fall, I discovered that a couple of friends had also decided to drop

pre-med during the summer and we celebrated the decision together. I now had space for electives, more time for extracurricular activities, and no need to prepare for the Medical College Admissions Test (MCAT).

But as the glow of being free of pre-med began to wear off, I began to notice that some losses came along with the gains. I felt that I should not run for re-election as secretary of HPS, to open up the position for someone who was still pre-med, even though I had enjoyed being a part of the executive board and valued the relationships I had formed as a member. As my first semester of all-humanities courses was under way, I realized that although those late nights in the Science Center finishing seemingly impossible problem sets were challenging at times, they were also fun because I was able to connect with my classmates and make new friends. Staying up all night finishing a paper alone seemed so lonely in comparison.

BEING PRE-MED is more than a set of course requirements: it's a lifestyle. As a pre-med you know you should take a leadership position in organizations such as the Harvard Cancer Society or the Community Health Initiative, you should volunteer at a hospital or nursing home, and you should work in a research lab. When you see someone else buying an MCAT prep book at the Coop, a bond is automatically established. Your schedule is always busy, you're often stressed, doubts about whether it is all worth it may come, but in the end you know what you need to do. After I stopped being pre-med, I no longer knew what I needed to do, and frankly, that scared me. I had to decide what to do outside of class, or I might miss opportunities that could prepare me for some new career I still had not chosen.

I eventually joined new extracurricu-

lar groups and adjusted to an all-humanities course load, but getting used to not knowing where my life after Harvard was going proved much harder. I began frantically researching different careers, trying to find the perfect job for me. The sense of assurance about my future that came with being pre-med was gone. I now know that my worrying was unnec-

essary: I had plenty of time to figure out what to do next. Not having a plan was actually a great opportunity for me to reflect on my interests and take the time that I didn't take before to discover what I am passionate about. Yet it took me a year to achieve this perspective.

My friends who continued the pre-med journey also came eventually to a crossroads where they questioned if medicine was the right choice for them. Some of them considered graduate school or teaching as possible alternatives, but after many late-night conversations (including a few that lasted until the sun came up) and some soul-searching, they decided that medicine was what they wanted to do. Every career takes preparation and requires a time commitment, but becoming a doctor is unique in that one must devote more than 10 years to it before one is board-certified. The idea that you have invested your youth in a career that you may not even like is intimidating. Even though you can shadow doctors and volunteer in hospitals, you never know what it is like to be a doctor until you become one. My friends' decisions to remain pre-med after facing the doubts became sounder because of having been tested.

More than two-thirds of the members of every graduating class choose to go to graduate/professional school or enter a financial/consulting career. I know that neither of those options is for me. I recently went to the OCS Career Forum hoping to get a strong start to my job search. For the first time, I actually dressed "business casual" and came prepared with copies of my résumé, whereas in past years I had devoted my time to accumulating as much swag as possible. The companies represented at the career forum reflected my classmates' strong interest in financial and consulting careers, but as I made my way among the tables I found many organizations that appealed to my inter-

ests, including the Foreign Service—an option that I had not considered before. That was when it really hit me that not being locked into a certain career path is fun. Now I can do anything I want. Senior year does come with ample anxiety about post-grad life that both students who are undecided and those with clear plans have to endure. But the stack of informational pamphlets from the Career Forum sitting on my desk is an open door to new experiences, many of which I had never taken the time to dream of before.

Berta Greenwald Ledecky Undergraduate Fellow
Melanie Long '10 hopes that joblessness is not her default option after graduation.



Sagittarian Students

Renaissance for the Archery Club



Samuel Saidel-Goley (foreground) and Archery Club colleagues draw their bows.

STU ROSNER

attended). The Lions, who field a women's varsity squad, dominated the women's side, and Saidel-Goley was the top-scoring man. (Archery is a purely individual sport; athletes' scores are not totaled for a team result, though individual winners do represent their colleges or teams.)

Like track and field, archery has both indoor and outdoor versions. Olympic archers shoot outdoors—144 arrows at four-foot-wide targets placed up to 90 meters (nearly the length of a football field) away. Indoor archery, the kind typically practiced in colleges, is scaled down: archers aim at a target a bit over a foot in diameter and 18 meters (59.05 feet) away; each competitor shoots three arrows (an “end”) in two minutes, then retrieves them (one hopes) from the target and tallies the score, repeating the entire process a total of 20 times. (Frequent retrieval of arrows is important because they can easily hit and damage each other; furthermore, an embedded arrow can deflect an arriving one, making its actual point of impact uncertain.) The yellow bull’s-eye on an indoor target is about the size of a half-dollar and worth 10 points; each concentric outer ring (two each of red, blue, black, and white, in order) is worth one point less. Thus with 60 arrows, a perfect score would be 600, and national champions rack up scores in the 570 to 580 range.

The equipment is surprisingly complex: even something seemingly as simple as an arrow has five components: the point, the shaft, the nock (which clips onto the bowstring), the nock pin (attaching the nock to the shaft), and fletching (the “feathers” at the end of the arrow that help stabilize flight). A dozen arrows with tungsten points can cost \$700 to \$800. “Expensive arrows are a good incentive not to miss the target,” Saidel-Goley says, grinning.

A decent bow can cost \$300, but a high-end recurve bow, made of several cast-aluminum and carbon-fiber pieces that lock together (with limbs curving back into an “S” shape), might run \$1,500 to \$3,000. Luckily, the Archery Club received a generous donation last year from Don Rabska of Easton Sports Development Foundation, in the form of a dozen competitive bows,

NO SHAKY HANDS, please: stability is crucial. Three stabilizer rods, in fact, are attached to the center of your bow to steady it, like a tightrope walker’s pole. Take a nice, comfortable stance, feet perpendicular to the target. Pick up the bow, then tie together the thumb and middle finger of the hand holding it with a bow sling, a short cord; that’ll keep the bow tight in your palm. Look through the sight with your dominant eye and close the other one. Grasp the bowstring lightly—just the middle three fingers of your dominant hand, please—then pull back smoothly until your hand touches your nose, lips, and chin in the same place it always does. You hear a clicker snap down when you’ve got the arrow far enough back. Release the string and almost instantly your arrow is in the target. But be sure to hold your posture steady for three seconds *after* release; otherwise the bow will reflect your body motion—and so will the arrow.

“It’s very similar to golf,” says Samuel Saidel-Goley, a junior in the A.L.B. program at the Extension School and tri-captain (with Alice Tzeng ’10 and Tim Soh, a virology student at the Medical School) of the Harvard Archery Club (www.hcs.harvard.edu/archery/index.html). “Controlling your own thoughts and emotions is the key to stabilizing your body. Like golf, on the follow-through you want to keep the same form after the arrow has left the bow.”

Saidel-Goley has been an archer for 15 years and went to the 2008 U.S. Olympic trials, where he finished in the middle of a pack of 100 aspirants. Archery was revived as a club sport at Harvard in 2005 by Nick Batter ’09, who captained the team for four years, and last year the College Archery Program and USA Archery, the national governing bodies, accepted the club. In March, Harvard’s coed team entered the first-ever Ivy League archery championship at Columbia (Cornell also

as well as targets, arrows, quivers, and arm guards. As archers gain skill and strength, they can hold steady with a bow of greater resistance—Saidel-Goley uses a 40-pounder—and so increase velocity. “The faster an arrow gets off the bow,” he explains, “the less time there is to mess it up.”

The newly revived club draws on a long history of archery at Harvard; undergraduates were shooting as members of the Cambridge Tennis and Archery Club in the 1890s, if not earlier. Radcliffe students bagged regional titles in the 1940s and 1950s. Interest peaked at mid century, when archery satisfied physical-education requirements and classes were fully enrolled. “Targets, set up in front of Moors Hall, are frequently not broad enough to receive all the arrows,” reported the *Crimson* in 1951, “making Moors’s steps an unpopular lounge during shooting hours.” But seasoned archers rarely miss the target, says Saidel-Goley, and in the trauma department, “only Ping-Pong has fewer injuries.”

~CRAIG LAMBERT

A Promising Start

ONCE AGAIN—for the third time in four years—Harvard started off as the pre-season favorite to capture the Ivy League football trophy. Coach Tim Murphy’s squad cleared the first hurdle in its Ivy opener: a showdown between Harvard and Brown, the league’s defending co-champions, in a Friday night bout at the Stadium in late September. The *Crimson* prevailed, 24-21, surviving a dramatic Brown rally in the final minute of play.

Brown had the best of it in the game’s first half, thanks in part to Harvard defensive misplays. The Bears punched in two second-period scores—aided both times by pass-interference calls—and led, 14-10, at halftime. But Harvard controlled the second half, taking the lead after a 92-yard drive midway through the third quarter. The game’s biggest plays came at the start of the final period, when senior line-backer Jon Takamura intercepted a pass at Brown’s 33-yard line. Quarterback Collier Winters did the rest, bringing his offense to the 15-yard line and rifling a high end-zone pass to six-foot-six-inch wide receiver Matt Luft ’10 for what would prove to be the decisive points.

29-29, Forever

of undefeated Harvard and Yale squads on November 23, 1968, that ended with both squads *still* undefeated after Harvard scored 16 points in the final 42 seconds to tie Yale, 29-29—is preserved in three media: film, book, and DVD. The film, by Kevin Rafferty ’70, intercuts footage from the game film, working through the contest quarter by quarter, with recent interviews Rafferty did with players on both teams. It makes for a captivating documentary, mixing high drama with social, cultural, and political history—a climactic sporting event set against the backdrop of Vietnam and the 1960s. When *Harvard Beats Yale 29-29* had its limited theatrical release a year ago, the *New York Times* called it “preposterously entertaining” and said that the movie “pulses with the artful, exciting beats of a thriller.” The *Village Voice*’s critic flatly declared it “the best football movie I’ve ever seen.”

The DVD (www.kino.com/harvardbeatsyale), released this fall, includes the 104-minute documentary plus 73 additional minutes of interviews with the players, who include Yale’s quarterback Brian Dowling (the model for the “B.D.” character in *Doonesbury*) and actor Tommy Lee Jones ’69. In addition, Rafferty has written a profusely illustrated book, with the same title, published this October by Overlook Press. The volume draws on the filmed interviews and includes many color photographs of the athletes and the game, and even a few early cartoons by *Doonesbury* creator Garry Trudeau. (Prior to this year’s contest, in New Haven, Trudeau and Rafferty, along with 1968 captains Dowling and Vic Gatto ’69, will sign copies.) Some cavilers occasionally question whether the Harvard-Yale game really merits being called The Game. The 1968 contest leaves no room for doubt.



Leading 24-14 with just over three minutes remaining, Harvard appeared to have the game locked up. But as the Stadium clock wound down, Brown quarterback Kyle Newhall-Caballero led an 80-yard drive that produced a touchdown with 34 seconds to play. When Brown recovered an onside kick, Newhall went back to work. With the seconds ebbing away,

Junior quarterback Collier Winters, who made his first varsity start in the Holy Cross opener, passed for two touchdowns and ran for a third in a 24-21 victory over Brown. For his play in the Brown game, Winters was named Ivy League offensive player of the week.

he brought his team to the Harvard 25, but three last-gasp end-zone passes were batted away by *Crimson* defenders.

Collier Winters, making his second start at quarterback, had a hand in each of Harvard's three touchdowns. He threw scoring passes to Luft and tight end Nicolai Schwarzkopf '11, and scored the go-ahead touchdown on a three-yard keeper. He hit on 18 of 27 pass attempts for 223 yards and was the game's leading rusher, gaining 66 yards on 13 carries.

A junior from Claremore, Oklahoma, Winters holds the position vacated by Chris Pizzotti '08 ('09), the 2008 Ivy League Player of the Year. Sidelined by injuries a year ago, Winters saw only spot duty in 2007, when he was sent in to run the ball in goal-line offenses. He earned the starting assignment in training camp and played creditably in this fall's opening game, a 27-20 loss to Patriot League behemoth Holy Cross at Worcester's Fitton Field. Lining up in shotgun formation, Winters displayed poise and agility under pressure, showed good speed when he carried the ball, and completed 22 of 37 passes for 195 yards and two touchdowns. His second scoring pass was a 46-yard heave to wide receiver Chris Lorditch '11, who made a spectacular diving catch in the end zone late in the game.

TIDBITS: The Ivy League's preseason media poll had Harvard beating out Penn, Brown, and Yale (in that order) for a third consecutive Ivy title. The 2007 Crimson squad went undefeated in league play, while last year's team (6-1 Ivy, 9-1 overall) shared the crown with Brown. No team has managed a "three-peat" since Dartmouth did it in 1990-92.

Payback: Harvard has bested Brown in nine of the teams' last 10 match-ups. A year ago, the Bears capitalized on missed extra points to eke out a 24-22 win at Brown Stadium. Losing only to Yale, Brown finished the season with an Ivy record of 6-1 (9-1 overall).

Yellow flags: Harvard incurred 11 penalties for 92 yards in the Brown game. Not since November 2007 had a Crimson team yielded so much penalty yardage. "We have a tremendous amount to work on," said coach Murphy after the game. "Traditionally, we're a team that doesn't beat itself....We were not a polished Swiss watch tonight, but we played with a lot of emotion and found a way to win."

Photosynthesis: Harvard remains unbeaten in nocturnal play. The Stadium's

first night game was a 24-17 defeat of Brown that drew 18,898 spectators in September 2007. Last fall, with 20,462 in the stands, Harvard came from behind to nip Holy Cross, 25-24. The attendance at this year's Brown game was 17,263.

Aerial circus: The passing attack looks like the offense's trump card. All of last fall's gifted receivers—Luft, Lorditch, Schwarzkopf, Mike Cook '10, Marco Iannuzzi '11, Levi Richards '11, and Adam Chrissis '12—are back this season.

Saturday's hero: Senior tailback Cheng Ho, who had touched the ball only once in the first two games, rushed for 132 yards and scored twice as Harvard beat winless Lehigh, 28-14, in the second road game of the season. An all-Ivy rusher as a sophomore, Ho was hurt for much of the 2008 season and saw limited action. Starting in place of Gino Gordon '11, who was nursing an injury, Ho galvanized the Crimson offense. "I knew this might be my only shot," he said afterward, "and I just had to take advantage of it."... The defensive unit forced five turnovers—four interceptions and a fumble recovery—and had four quarterback sacks in the Lehigh victory. ~"CLEAT"

ALUMNI

Vintage Vitality

Two doctors look to enrich health on the "back nine" of life.

IN 2001, James Katz, M.P.H. '83, received a startling finding from a physical exam: in the previous year, his stature had shrunk from six feet, two inches, to six-one. A medical workup showed a "lot of osteoporosis. I had the spine of a 70-year-old man, though I was only 51," he says. "There was no back pain, but two vertebrae were compressed and all my disks flattened. This was a surprise. I was in good condition—I'd worn out two indoor bicycles—and ate a healthy diet."

Tests revealed that Katz, a physician himself, was deficient in Vitamin D and testosterone. "They both help you make bone," he says, so he began replacement therapy. He also started to explore inte-

grative medicine. He took up weightlifting and began eating five small, low-carbohydrate meals per day. Within the next few years, Katz's body size and composition changed, from 245 pounds and 30 percent body fat to 220 pounds and 18 percent body fat. Meanwhile, his blood pressure has dropped from 145/90 to 120/80—even though he is nearly a decade older.

Katz's personal saga pointed him toward a new professional mission. Named "emergency physician of the year" in Massachusetts in 1996, he had switched from emergency-room work to occupational medicine in 2001. This year, with his medical partner, Bob Nadelberg, M.D. '73, an anesthesiologist for 30 years, Katz

launched Age Management Boston (www.agemanagementboston.com), an integrative medical practice that aims to keep its clients healthy and vital in the decades beyond 40. "There'll be effects of aging, sure," he says. "But do you want to be older and spending your time dealing with chronic disease—or be older and *not* spending your time dealing with chronic disease?"

The practice is affiliated with Cenege-nics, a Las Vegas-based medical institute that has trained physicians in a "comprehensive, evidence-based" system of "age management" since the mid 1990s. So far, Cenege-nics has evaluated 15,000 patients and trained 150 doctors who now practice in the United States. Though age management is not a board-certified medical specialty, it is an emerging field that is likely to grow as the baby-boomer population matures. Nadelberg and Katz don't accept Medicare or health insurance ("Insurance companies don't understand what we do," Katz says), though clients can put aside pretax dollars to pay for their services. Costs range from \$4,000 to \$8,000 per year (above and beyond normal health insur-



James Katz (left) and Bob Nadelberg with an indoor bicycle at their offices

(a central element in all diabetes treatment) and weight *lifting*, or other exercises to build muscle.

But “most people over 50 can’t build muscle without the right hormone substrate,” says Nadelberg. “They’ll go to the gym and work out, but see no results.” The physicians may then prescribe testosterone replacement, because that hormone “is essential to building muscle,” Nadelberg explains. “Testosterone has gotten a bad rap. Bodybuilders and pro athletes have been using it without medical supervision and increasing their levels to way outside the healthy range. We do careful lab monitoring—we’re looking to balance and optimize hormone levels within normal ranges.” For Nadelberg and Katz, therefore, testosterone supplementation for Type 2 diabetics often makes sense. “Replacing

Though their advice doesn’t always fit standard medical practice, Katz and Nadelberg don’t mind being mavericks. “Health-insurance goals are based on average outcomes,” says Katz, “and average outcomes aren’t fun.”

ance premiums), skewed toward the lower end of that range, they report. Their upscale clientele is 70 percent male; a few are under 40 or in their 80s, but the average new patient is a 50- to 55-year-old male.

With age, hormone levels fall. In women, there are the relatively discrete changes of menopause; “with men, it’s more subtle,” says Nadelberg. “A loss of energy, the need for afternoon naps, libido falls off, and cognitive processes get duller.” To address such symptoms, Katz and Nadelberg do things most doctors don’t, such as laboratory screenings of more than 100 tests, including insulin levels and hormone panels for estrogen and testosterone. They try to get clients off certain drugs, like antacids: “Without enough stomach acid, vitamin B-12 absorption goes way down,” Katz explains.

They also order DEXA scans (which use two x-ray beams with differing energy levels; they use a specially calibrated DEXA scan on a machine with different software and a longer bed) to measure density of bone, muscle, and fat. “Wom-

en have DEXA scans after menopause to monitor signs of osteoporosis,” says Nadelberg, “but men’s bone density falls off as well.” Standard guidelines recommend scanning men for osteoporosis beginning at age 70, but Katz says that “as soon as men get short of testosterone, they’ll start to get osteoporosis,” and he and Nadelberg order DEXA scans for nearly all their clients. (According to the National Institutes of Health, the radiation exposure of .001 rem or less from a DEXA scan is comparable to average exposure from natural background radiation sources.)

The doctors’ approach to Type 2 diabetes, which Nadelberg calls “a huge wave” approaching the healthcare system, is heterodox. High blood glucose levels flag diabetes, but “the first stop sugar makes in your body is in the muscles,” Katz explains. “Your bloodstream will contain about four grams of glucose, your liver 60 to 70 grams, and your muscles, 180 grams—or even more if you increase muscle tissue.” Consequently, the doctors’ counsel involves both weight *management*

testosterone to levels within the normal physiological range is reasonable and often helpful,” says associate clinical professor of surgery (urology) Abraham Morgentaler ’78, M.D. ’82, a noted researcher in this area and author of the book *Testosterone for Life*. Furthermore, Morgentaler notes that data suggest “no reason to be concerned that raising testosterone levels will increase the risk of prostate cancer.”

Even so, testosterone supplementation for Type 2 diabetics doesn’t fit standard medical practice. But Katz and Nadelberg don’t mind being mavericks. “Health-insurance goals are based on average outcomes,” says Katz, “and average outcomes aren’t fun”: he cites parameters from an American Geriatrics Council program based at Boston’s Beth Israel Deaconess Medical Center showing that, by age 75, people undergoing “normal aging” can expect to have three of these six conditions: frequent falling, urinary incontinence, confusion and memory loss, osteoporosis or arthritis, heart disease, and depression.

Katz and Nadelberg, instead, look to help clients like one busy executive who'd gained 20 pounds in the past five years while losing his energy, libido, and concentration. His previous doctor had told him, "You're just getting older." The key issue, though, is not the undeniable *fact*, but the *how* of aging. As Katz says, "If you don't succeed in doing the things that are important to you in your life, then we aren't succeeding as your doctors." ~CRAIG LAMBERT

Well Done

THE HARVARD ALUMNI Association Awards were established in 1990 to recognize outstanding service to Harvard University through alumni activities. This year's recipients were to be honored on October 12 during the HAA board of directors' annual fall meeting in Cambridge. Highlights of their many contributions are given below.

Jonathan L. S. Byrnes, D.B.A. '80, of Lexington, Massachusetts, has played a key role in strategic planning for the HAA, having managed the initial plan in 2001 that charted the organization's current path and conducted subsequent reviews. Over the years, he has served on the executive committee in various capacities, including as president (2007-2008). He has also served as vice president of the Harvard Club of Boston, and was a member of the board of directors of the Harvard Business School Alumni Association.



Jonathan L. S. Byrnes

Above and Beyond

Hazard Stevens, of the class of 1865, led the assault that captured a Confederate fort. Leonard Wood, M.D. '84, volunteered to carry dispatches through Apache territory, traveling 70 miles in one night and walking 30 more the next day. Sherrod Skinner '51 threw himself

on a North Korean grenade to save wounded marines under his command. They are among the 10 Harvard men awarded the Congressional Medal of Honor for "conspicuous gallantry and intrepidity" at the risk of their own lives "above and beyond the call of duty." Recent research suggests that no other college or university, apart from West Point and Annapolis (with 82 and 74 recipients), can claim more alumni so honored.

On November 11, Veterans Day, at an 11 a.m. service at Memorial Church, a plaque commemorating these men will be unveiled, dedicated, and presented to the University for installation in the sanctuary. The Reverend Peter J. Gomes, who teaches a course in Harvard history, will officiate, and President Drew Faust, a Civil War scholar, will participate. The plaque is a gift from the more than 500 members of the Harvard Veterans Alumni Organization (HVAO; www.harvardveterans.org), a group sponsored by the Harvard Alumni Association; the ceremony is sponsored by HVAO, Advocates for Harvard ROTC, and the Business, Kennedy, and Law Schools' armed forces clubs.

The plaque, says HVAO president Thomas P. Reardon '68, is part of a Harvard Veterans History Project documenting "the 12 generations of Harvard men and women—the 'Long Crimson Line'—who have served in the military of our country from Colonial times through every war and peace since." (Research by Paul E. Mawn '63, chairman of Advocates for Harvard ROTC, determined Harvard's Medal of Honor ranking.) The University's other Medal of Honor recipients are: Theodore Roosevelt, A.B. 1880, and Theodore Roosevelt Jr., A.B. 1909, for leadership at San Juan Hill in 1898 and on D-Day in 1944; Manning F. Force, A.B. 1845, LL.B. '48, and Henry W. Lawton, L '66, who served with Sherman's Georgia campaign in 1864; Walter N. Hill, class of 1904, who led marines at the battle of Veracruz in 1914; and George G. McMurtry, class of 1899, and Charles W. Whittlesey, LL.B. 1908, commanders of the "lost battalions" that held out in the Argonne against German forces for a week in 1918 before rescue (details at www.advocatesforrotc.org/harvard/honor.html).



THE JOHN STEVENS SHOP

Comings and Goings

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

On November 20, the **Harvard Club of Cape Cod** offers "American Ideology in Transition," a lecture by George Cabot Lodge, Tiampo professor of business administration.

On December 5, the **Harvard Club of Boston** and the **HAA** host **A Saturday of Symposia** with a keynote address on "The Promise of Stem Cell Science" by Douglas Melton, Cabot professor of the natural sciences, codirector of the Harvard Stem Cell Institute, and cochair of the department of stem cell and regenerative biology. Other lectures include: "Enchanted Hunters: The Power of Stories in Childhood," by Maria Tatar, Loeb professor of Germanic languages and literatures and of folklore and mythology and department chair of folklore and mythology; "Prospects for the World Economy," by Richard N. Cooper, Boas professor of international economics; "The Accelerating Universe: Einstein's Blunder Undone," by Robert P. Kirshner, Clowes professor of science; and "The Tenacity of Hope: Race, Politics, and the Meaning of Barack Obama," by Timothy Patrick McCarthy, lecturer on history and literature and on public policy and director of the human rights and social movements program at the Carr Center for Human Rights Policy.

For details and registration, please call the Boston club at 617-450-8496, or visit www.harvardclub.com/index.php.

Michael F. Holland '66, of New Canaan, Connecticut, has never refused a volunteer role at Harvard and is considered one of its greatest ambassadors.



Michael F. Holland

The former cochair of the Harvard College Fund Council, he also chairs the Class of 1966 reunion-gifts committee and has cochaired numerous reunion-gift committees. In addition, he has been a vice chair of the FAS Financial Aid Council, an advisory board member of the Harvard China Fund, and a member of the visiting committee on faculty recruitment and retention. Twice he has served as vice president of the Harvard Club of New York City; he is also a trustee of the club's foundation, and a member of the Harvard New York major gifts committee.

Barbara G. Meyer '62, of Morristown, New Jersey, has dedicated countless hours and energy in support of Harvard and Radcliffe. She is an active member of the HAA schools and scholarships committee, which she chaired from 1998 to 2001,

and has been an alumni interviewer since 1977. She is a former president of the Harvard Club of New Jersey, and is currently a member of its executive committee and chair of the schools committee. From 2005 to 2008, she was an HAA regional director for metropolitan New York-New Jersey. In addition, Meyer has been a member of the Radcliffe Board of Management and chaired the reunion and gift committees of her thirty-fifth reunion. She currently serves as a member of the Harvard College Fund committee for the class of 1962.

Harry "Chip" O'Hare Jr. '71, M.B.A. '75, of Belmont, Massachusetts, has been a loyal and active alumnus. A class secretary for 15 years, he was also an HAA-appointed director representing the College Class Secretaries and Treasurers Association, and championed



Barbara G. Meyer



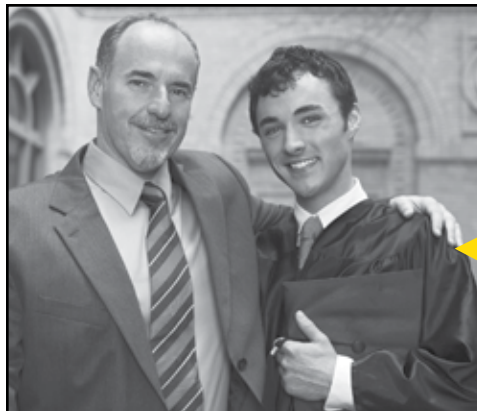
Harry "Chip" O'Hare Jr.

class treasurers as full members of the association during his presidency in 1999. A longtime member of the HAA's classes and reunions and Happy Observance of Commencement committees, he was also active in the Harvard Club of Boston, on its board of directors—and chaired its nominating committee for eight years. In addition, O'Hare has been a member of his class committee since graduation, was chair of his fifth and thirty-fifth reunions, and is a loyal member of the HBS class reunion committee.

Roland B. Smith Jr., Ed.D. '88, of Pearland, Texas, served on the Harvard Graduate School of Education Alumni Council in several capacities, including chair (1993-1994). He was an HAA appointed director from 1995 to 2001, and then became an HAA regional director. During his involvement in the HAA, he successfully chaired the graduate schools committee. In 2008, he received the HGSE Alumni of Color Achievement Award.



Roland B. Smith Jr.



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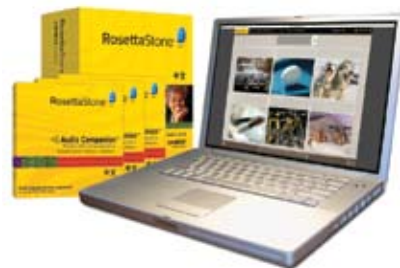
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Beverly B. Sullivan, of Arlington, Massachusetts, has dedicated nearly four decades of service to Harvard, and is the recipient of the Harvard Hero and Marion L. Anderson awards. She began in 1969 as a secretary in the University Development Office before becoming the administrative assistant to two vice presidents for alumni affairs and development, Chase Peterson and Fred Glimp, with whom she worked for 16 years. Later she served as executive assistant to Harvard presidents Neil Rudenstine and Lawrence Summers. In 2004, she joined the HAA as director of board services, where she worked closely with six HAA presidents and countless alumni volunteers. At the request of President Drew Faust, Sullivan spoke on behalf of all 13,000 University employees during Faust's installation ceremony in 2007.



Beverly B. Sullivan

Job Notices

SEVERAL COLLEGE PROGRAMS match students with paid and unpaid jobs and internships. To find out more about how alumni can provide these learning and working opportunities, contact the offices listed below.

The Office of Career Services connects students with employers for full-time, part-time, and summer jobs or internships throughout the year. For information, contact Nancy Saunders at 617-495-2595/496-2747 or e-mail nesaund@fas.harvard.edu.

The Harvard College Women's Center runs two mentoring programs for undergraduates. The Radcliffe Mentor Program matches students with alumnae for career development. The Science Mentors Program aims to enable more young women to stay in the pipeline for careers in STEM fields (science, technology, engineering, and mathematics) through pairing students with women pursuing a doctorate in one of these fields at Harvard. For further details, please visit <http://hcwc.fas.harvard.edu/mentor.html> or call 617-959-4864/496-2029 or e-mail director Susan Marine at marine@fas.harvard.edu.

To offer a paid position, contact the Student Employment Office: call 617-495-2585 or visit www.seo.harvard.edu.



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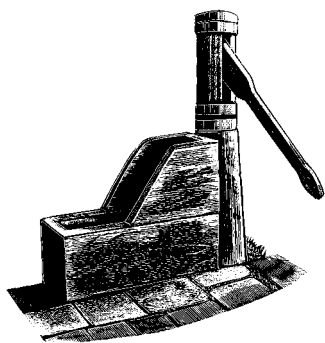
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Curious Colors



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

ORDINARILY, a Harvard College class necktie is crimson emblazoned with one's class numerals and often the shield of the University. On the lookout for—and spotting—deviant ties sported by some older alumni at Commencement in June, Warren M. "Renny" Little '55, of Cambridge, asked these graduates whether they knew why their neckties had narrow stripes of Dartmouth green, or Princeton orange and black, or Yale blue within the predominant crimson. The old boys he queried were clueless. Most class secretaries from the 1930s and 1940s interviewed by Little were also in the dark about class colors. Two banners hanging from Yard windows at Commencement marked the hospitality suites of the classes of '49 and Little's own '55. "I'm sure people wondered," he says, "why the banners were blue."

In a rowing race in 1882, according to the *Crimson*, the freshman crew wore crimson, and to distinguish themselves the senior crew wore green and white, the juniors blue and white, and the sophomores orange and white, which evolved to orange and black on future occasions. (Why choose colors of rival colleges, instead of, say, mauve, fuchsia, and puce? Preppies stick together?) Little believes that this means of identifying class crews may have

led to the adoption of class colors. A custom then arose in which the senior class passed their color with ceremony to the freshmen on Class Day of Commencement week.

In 1904, seniors began to buy and wear class buttons—blue ones that year. The purpose of buttons for a class, reported the *Crimson*, was "to further acquaintance among its members." Freshmen gained the right to button up in 1911. Sophomores and juniors toyed with the idea of wearing such insignia, but that suggestion stirred up controversy. The Student Council voted in 1913 that buttons would be solely a senior prerogative.

So keen was button enthusiasm that the Button Committee of the class of '12 considered 59 designs for a green senior button submitted by 18 competitors. "A senior class button is a little thing," noted the *Crimson*, "but it can do a lot for Class Unity."

But the fashion faded. "The class of 1918," says Little, "appears to be the last to institute a class button." Still, the seniors continued with pomp to pass on their color at Class Day through 1963, when they gave green to the rising sophomores of '66, the last class to be presented a color.

Little looked into the history of class colors, with help from Justin Lanning '12, of Pforzheimer House and Encinitas, California, at the request of the Freshman Dean's Office. Panty raids on Radcliffe or a Freshman Smoker being no longer quite the thing, as Little observes, officials were poking around for lapsed traditions that might be revived at the first-ever convocation for freshmen, scheduled for September 1 (see page 59). In the event, this new class of '13 was not assigned a color (it would have

been orange and black), but they could learn of this tradition in the convocation program. Who knows what action they may take in the future?

Though this year's freshmen got no color, "Classes still have the right to them, theologically speaking," claims the Reverend Doctor Timothy B. Cogan '56, of Edgartown, Massachusetts, whose color is orange and black (as was his father's), in a letter to Little. Class colors should not be forgotten, Cogan avers, "even if they exist primarily in a theoretical way. Isn't it just as easy to proclaim that they have 'always been and always will be'? The only real shame would be in claiming that they no longer exist. That would be heresy, I think."



THREADS. Harvard's decision to license the use of its name to Wearwolf Group, a maker of designer clothing, received widespread attention in August from the press, comedians, and fashionistas, although the University has exploited its name on clothing since the presidency of Derek Bok, with the proceeds going to student aid. The "Harvard Yard" clothing line, said to aspire to a preppy look reminiscent of the Sixties, will feature trousers starting at \$195, shirts at \$160 and up, and sportcoats for \$495. The word "Harvard" will appear only on the labels inside, and other references to the University, the designer promises, will be minute, such as crimson stitching on the buttonholes. Crimson's fine, but how about the odd buttonhole in green, orange and black, or blue—for a touch of class? ~PRIMUS V



It is unlikely that the opinions of the professoriate will ever be a true reflection of the opinions of the public; and, in any case, that would be in itself an unworthy goal. Fostering a greater diversity of views within the professoriate is a worthy goal.

THE PH.D. PROBLEM

(continued from page 31)

easier and cheaper to get in and out of the doctoral motel, the disciplines would have a chance to get oxygenated by people who are much less invested in their paradigms. And the gap between inside and outside academia, which is partly created by the self-sorting, increases the hostility of the non-academic world toward what goes on in university departments, especially in the humanities. The hostility makes some disciplines less attractive to college students, and the cycle continues.

The moral of the story that the numbers tell once seemed straightforward: if there are fewer jobs for people with Ph.D.s, then universities should stop giving so many Ph.D.s—by making it harder to get into a Ph.D. program (reducing the number of entrants) or harder to get through (reducing the number of graduates). But this has not worked. Possibly the story has a different moral, which is that there should be a lot *more* Ph.D.s, and they should be much easier to get. The non-academic world would be enriched if more people in it had exposure to academic modes of thought, and had thereby acquired a little understanding of the issues that scare terms like “deconstruction” and “post-modernism” are attempts to deal with. And the academic world would be livelier if it conceived of its purpose as something larger and more various than professional reproduction—and also if it had to deal with students who were not so neurotically invested in the academic intellectual status quo. If Ph.D. programs were determinate in length—if getting a Ph.D. were like getting a law degree—then graduate education might acquire additional focus and efficiency. It might also attract more

of the many students who, after completing college, yearn for deeper immersion in academic inquiry, but who cannot envision spending six years or more struggling through a graduate program and then finding themselves virtually disqualified for anything but a teaching career that they cannot count on having.

It is unlikely that the opinions of the professoriate will ever be a true reflection of the opinions of the public; and, in any case, that would be in itself an unworthy goal. Fostering a greater diversity of views within the professoriate is a worthy goal, however. The evidence suggests that American higher education is going in the opposite direction. Professors tend increasingly to think alike because the profession is increasingly self-selected. The university may not explicitly require conformity on more than scholarly matters, but the existing system implicitly demands and constructs it.



MY AIM HAS BEEN to throw some light from history on a few problems in contemporary higher education. If there is a conclusion to be drawn from this exercise, it might be that the academic system is a deeply internalized one. The key to reform of almost any kind in higher education lies not in the way that knowledge is produced. It lies in the way that the producers of knowledge are produced. Despite transformational changes in the scale, missions, and constituencies of American higher education, professional reproduction remains almost exactly as it was a hundred years ago. Doctoral education is the horse that the university is riding to the mall. People are taught—more accurately, people are socialized, since the process selects for other attributes in

addition to scholarly ability—to become expert in a field of specialized study; and then, at the end of a long, expensive, and highly single-minded process of credentialization, they are asked to perform tasks for which they have had no training whatsoever: to teach their fields to non-specialists, to connect what they teach to issues that students are likely to confront in the world outside the university, to be interdisciplinary, to write for a general audience, to justify their work to people outside their discipline and outside the academy. If we want professors to be better at these things, then we ought to train them differently.

Still, as is the case with every potential reform in academic life, there are perils. The world of knowledge production is a marketplace, but it is a very special marketplace, with its own practices, its own values, and its own rules. A lot has changed in higher education in the last 50 years. What has not changed is the delicate and somewhat paradoxical relation in which the university stands to the general culture. It is important for research and teaching to be relevant, for the university to engage with the public culture and to design its investigative paradigms with actual social and cultural life in view. That is, in fact, what most professors try to do—even when they feel inhibited from saying so by the taboo against instrumentalist and presentist talk. Professors teach what they teach because they believe that it makes a difference. To continue to do this, academic inquiry, at least in some fields, may need to become less exclusionary and more holistic. That may be the road down which the debates I have been describing are taking higher education.

But at the end of this road there is a danger, which is that the culture of the university will become just an echo of the public culture. That would be a catastrophe. It is the academic's job in a free society to serve the public culture by asking questions the public doesn't want to ask, investigating subjects it cannot or will not investigate, and accommodating voices it fails or refuses to accommodate. Academics need to look to the world to see what kind of teaching and research needs to be done, and how they might better train and organize themselves to do it. But they need to ignore the world's demand that they reproduce its self-image. ▀

Masterpiece Pieces

Investigators construct a virtual fifteenth-century altarpiece.

SCHOLARS at Villa I Tatti, the Harvard Center for Italian Renaissance Studies on the outskirts of Florence, Italy, gather for after-lunch coffee in the *salone* (below). There they are overseen by, from left, *The Blessed Ranieri*, *Saint Francis in Glory*, and *Saint John the Baptist*, on three panels painted in the fifteenth century by the Siennese Stefano di Giovanni, known as Sassetta.

Bernard Berenson, A.B. 1887, and his wife, Mary, found the panels in 1900 in a Florence antique shop—a tiny “out-of-the-way hole-and-corner sort of place,” said Mary—just as they were furnishing their newly acquired home, I Tatti.

Bernard Berenson, who became famous

as a connoisseur of the “Old Masters” and an arbiter of taste, died 50 years ago at 94. He gave I Tatti to Harvard, along with its gardens, olive groves, and vineyards, his library of 50,000 books (now much enlarged), his photographs (now numbering 300,000), and about 140 works of Italian Renaissance art. The villa opened as a study center in 1961. Today, 15 fellows come for a full year and 20 more for shorter periods. One recent fellow was Machtelt Israëls, an art historian from the University of Amsterdam. She cast a speculative eye on these Sassetta panels.

“They are the masterpiece of the collection,” says I Tatti’s director, Professor Joseph Connors. The Berensons prized their

panels but didn’t know that they were originally part of a far larger whole: an altarpiece standing 16 feet high and 20 feet wide that was decorated, front and back, between 1437 and 1444 with

60 paintings for a Franciscan church in the small Tuscan town of Borgo San Sepolcro. In a crypt below the altar lay the remains of the Blessed Ranieri, whose miracles Sassetta recounted with his brush among a profusion of other images.

The dismantling of this masterpiece for liturgical reasons occurred between 1578 and 1583. Today only 27 of its paintings are known to exist, in 12 museums.

But Israëls conceived the notion that the altarpiece could be reconstructed in a different medium because Sassetta’s patrons had given him a *scripta*, detailed instructions, a document discovered in 1991. Israëls assembled a team of 30 experts—in art and general history, painting technique and conservation, woodworking, architecture, and liturgy, including all scholars studying the artist—from eight countries. They have now produced *Sassetta: The Borgo San Sepolcro Altarpiece*, a richly illustrated book edited by Israëls, just published by I Tatti, and distributed by Harvard University Press. Thanks to this remarkable collaboration, what Dutch art historian Henk van Os has called the Rolls-Royce of early Italian Renaissance altarpieces is virtually together again—and gleams. ~C.R.



Visit harvard-mag.com/extras to view the altarpiece reconstruction.

