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*On the cover: Katiti Kirondé '79 at
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Photograph by Stu Rosner*



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Cambridge 02138

Cesarean sections, soda social science, cheating considerations

HAILING THE HUMANITIES

WHAT A GREAT, much-needed article by Helen Vendler ("Writers and Artists at Harvard," November-December 2012, page 27). The subhead, "How to welcome and nurture the poets and painters of the future," is arguably the least of it.

Her last paragraph sums it up for me. She says that those arriving at Harvard who are focused on the current national passion for math and science will benefit "not only from seeing an alternative style of life and thought but also from the sort of intellectual conversation native to writers, composers, painters."

ROBERT E. SIMON JR. '35
Reston, Va.

MY BROTHER, the distinguished medieval philologist Richard O'Gorman, once went looking for a summer job while in graduate school. The interviewer asked him what he was studying. "Old French," he answered. "Well, you'll never sell that," was the response. "No," Dick said, "I guess I'll just have to keep it."

JAMES F. O'GORMAN, PH.D. '66
Windham, Me.

AS ALWAYS, Vendler gets it right—when has she ever gotten anything wrong? She has done more than any other critic to make difficult poets like Stevens and Ashbery accessible to ordinary readers like myself. If there are any more Vendlers out there, I would

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Feathered Friends

page 10 | See more photographs of tropical cuckoos in their native Panama and observe their bizarre breeding behavior, as unrelated adults raise their offspring together in a single nest.



Beautiful Music

page 16 | Watch a video of classical musician Hannah Lash discussing her composition process as well as the art of making music.



Masterful Mosaics

page 13 | View more works of art created by modern mosaicist Samantha Holmes '06.



Karmaloop

page 28 | Learn more about the Internet company founded by Greg Selkoe, M.P.P. '05, which sells "verge culture"-style clothing aimed at the 18-to-35 crowd.



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like to think that an enlightened Harvard will admit them.

VICTOR A. ALTSHUL '56
New Haven

IN HER otherwise interesting article, Vendler implies an astonishingly conventional assertion, asking and answering her question: "In the future, will the United States be remembered with admiration?...For our wars and their consequences?...Certainly not."

Regarding our wars: The American Revolution has long been viewed and recalled with admiration for the high cause it supported and for the contrast with too many other revolutionary wars that have failed to produce more just societies. Our Civil War has been a great testament to the willingness of humans to risk their very lives for principles of equality and justice. Our contributions to World War II brought what appears to be a lasting peace to Europe, which was unable to control itself for millennia, and tamed the previously unfettered militaristic nature of Japanese society. With the Cold War, we demonstrated how implacable enemies can contend vigorously

but without completely massive destruction and enormous loss of life. The world is a much better place for "our wars."

I cannot speak knowledgeably to the other things that Vendler denigrates, but remain of the opinion that, for example, our financial systems have in the main contributed to advances in the human condition and knowledge, not to mention the philanthropy that has benefited Harvard as well.

Vendler has thus seriously undermined her argument that those with special talents that do not include academic and leadership strengths should be invited to Harvard nonetheless. The number of people with multiple exceptional talents is vanishingly small, but those are the ones that Harvard seeks, to our mutual benefit. Harvard will not benefit from those who cannot or will not think deeply and incisively.

TERRY GOLDMAN, PH.D. '73
Los Alamos, N.M.

VENDLER SUGGESTS the College should "mute" praise for achievement and leadership, thereby facilitating the bestowing of "equal" praise on softer qualities of the hu-

man psyche such as creativity and reflection in pursuit of excellence in the humanities, i.e., the arts. It seems to me that the University should never backtrack in awarding kudos to true achievers in whatever field. Rather, recognition of the truly gifted "single scope" students should be appropriately ramped up to reign as proud products of the College alongside the more conventional science and engineering standouts. The litany of superb achievement needs to routinely include a category of "Creativity in the Arts," naming breakout accomplishments in music, art, philosophy, et al.

BERNARD G. ELLIKER, M.P.A. '69
Laurel, Md.

VENDLER'S ESSAY inspired me to consider what might appear in his application folder, should Homer actually apply to Harvard. Imagining myself his high-school guidance counselor, I've written a letter of support for this special student:

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writers to ever attend our high school and his musical abilities are also considerable. Although Homer has not clocked as many hours in the classroom as some of our students, he nevertheless produced two impressive independent projects that described the Trojan War and its aftermath in dactylic hexameters. In addition, he has demonstrated a strong sense of adventure and community spirit, wandering from town to town to perform these pieces for local residents. We can say with confidence that his extracurriculars are very strong.

One point about his national rankings: although he sings his work, accompanied by a small harp, Homer should not be measured against musicians or performance artists. He's actually a "bard" and ranks in the 99th percentile when compared with others in this category.

Because of the unusual circumstances surrounding Homer's performance schedule, his grades and SAT scores do not reflect his true abilities. It was not easy for him to cram for pop quizzes or do test prep on the road. And unfortunately, he had no time for physics, calculus, or any AP classes. We realize this runs counter to your normal admissions policies; nevertheless, we hope you will recognize the special abilities of this student and see your way to admitting him to the freshman class of 2017.

MONA MOLARSKY
Parent of a Harvard sophomore
New York City

CESAREAN DELIVERIES

As A Harvard grad and certified nurse-midwife (M.S.N., Yale '99), I've been waiting for the day that this subject received appropriate coverage in these pages. Nell Lake did not disappoint, providing a concise, calm summary of the current situation in U.S. maternity care and the overuse of cesarean surgery for births ("Labor, Interrupted," November-December 2012, page 27). Lake falls short in her last paragraph, though, when she calls for "a middle ground between two approaches to birth and risk." The nurse-midwifery profession in the United States has, since the 1920s, occupied this "middle ground": providing evidence-based care that supports physiologic processes while utilizing appropriate interventions and monitoring for what is not normal, in collaboration with specialists and surgeons who can intervene when necessary. We do not need to search for this middle ground—we

need to reorient our ratio of midwives to obstetricians.

Perhaps now my other wish will come true: Harvard will join Yale, Columbia, and Penn in offering Ivy League advanced-practice nursing education. The U.S. healthcare system will depend on the full integration of advanced-practice nurses as both providers and keepers of the evidence-based flame for its future success and survival. See the Institute of Medicine's 2010 report, "The Future of Nursing."

KATHERINE PLUMMER '91
Moretown, Vt.

My daughter-in-law delivered a baby in August and was telling my surgeon-to-be daughter (class of 2004) about the length and pain of her labor. I delivered three children naturally, with just four or fewer hours of labor and without any pain. According to them, this is very rare. I am surprised that, after all these years, there have not been enough studies about why there are women like me and other women who suffer great pain during delivery. Such studies should shed light on the process of delivery so that cesareans are not necessary anymore, and more women can deliver without suffering.

EVELYN LEE
Ramsay, Minn.

I WAS STRUCK by the information relating to breech births. In 1975, my second child was in the breech position. When I went into labor, I was rushed to x-ray. If the baby's chin was up, it could catch on the pelvis on the way out. This would require a C-section. If the chin was tucked, we could proceed with vaginal delivery. Fortunately, the chin was tucked and four hours later she was born with no further issues. I wonder if the x-ray is an example of a less invasive procedure that has been left out of the recent training of doctors.

WINIFRED ALLEN RICHMAN '64
New York City

LAKE'S DISCUSSION about cesarean sections, like almost all other considerations of this topic, fails to consider that probably at least 90 percent of the all-too-common subsequent development of pelvic-floor disorders in women—urinary incontinence, cystocele, rectocele, uterine prolapse—are a late (often years-late) consequence of vaginal delivery. If one considers the morbidity, even mortality, cost, discomfort, etc.,

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Our Accomplished Contributors

We warmly thank three outstanding contributors to *Harvard Magazine* during 2012, and happily award each a \$1,000 honorarium for superb service to readers.

Gordon McKay professor of computer science Harry Lewis, former dean of Harvard

College, is a devoted and innovative teacher. "Reinventing the Classroom" (September-October, page 54), his first-person account of rethinking pedagogy as he created a new course, is a lively primer on learning and teaching at a time of rising University interest in the field. It is a pleasure to recognize his supple prose with the

Smith-Weld Prize (in memory of A. Calvert Smith '14, a former secretary to the Governing Boards and executive assistant to President James Bryant Conant, and of Philip S. Weld '36, a former president of the magazine), which honors thought-provoking writing about Harvard.

Pete Ryan's cover illustration for the July-August magazine (a fractured Capitol dome held together by bandages made from the Stars and Stripes) captured the essence of the issue,

devoted to problems in American governance, in an especially thought-provoking, disquieting way—the hallmark of superb illustration. His work appears again in this issue; see page 9.

Photographer Peter Pereira accompanied then-associate editor Elizabeth Gudrais to India last winter, and captured the searing images of dispossessed children and homeless families that appeared on the November-December cover and with her feature, "Reclaiming Childhood"—humane artistry of a very high order.

~The Editors

ELIZA GRINNELL



Harry Lewis



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LETTERS

of these problems and adds them into the equation, it may well be that even more births should be performed by C-section.

FRANCIS C. EVANS, M.D. '63
Palm Coast, Fla.

THE SUGARY SODA EFFECT

NOT A SCIENTIST, I find it puzzling that "Soda and Violence" (November–December 2012, page 9), while documenting a high correlation between sugary drinks and violent behavior in youth, goes on to observe mildly that "one further avenue for research is elucidating the underlying mechanism." It doesn't seem to me that the research is complete without elucidating the underlying mechanism; the penchant for imbibing such drinks may well be a feature of youthful impulsivity and need for gratification not perceived to be otherwise achievable, but the correlation doesn't seem to point to any evidence of environmental or epigenetic "effect" of the drinks. It seems unremarkable that youth prone to violence are also prone to other forms of impulsivity and self-gratification.

I don't understand why the finding is useful in identifying potential policy, since the health need to curtail sugary and caffeinated drinks is so well understood anyway.

KENNETH McELHENY '58
Brookline, Mass.

THE ARTICLE about David Hemenway's study on the link between soda consumption and violence in teens rightly notes that a correlation in the two behaviors does not necessarily imply causation. But the article doesn't mention one obvious hypothesis: that the causal pathway is reversed. Teens (and others) who engage in aggressive behavior may be psychologically prone to guzzle whatever is at hand, in an attempt to soothe their inner demons, and may therefore choose to drink more soda than others. As a social scientist, I was surprised that this hypothesis was missing, and am curious to know wheth-

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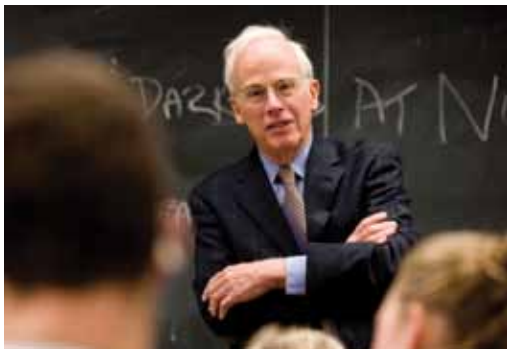
These are some of the innovative approaches to teaching and learning made possible through flexible, immediate-use funds to Harvard's Faculty of Arts and Sciences (FAS). Such dollars give exceptional students from around the globe an unmatched liberal arts education, both inside and outside the classroom.

Among the Dean's Fellows are Neil W. Flanzraich '65, JD '68 and his wife, Kira, of Coral Gables, Fla. “I have been very fortunate in life and have always felt a deep sense of gratitude and obligation for what Harvard has done for me,” says Flanzraich, who lived in Lowell House, concentrated in Slavic languages and literatures, and was a member of Phillips Brooks House, Harvard Hillel, and Phi Beta Kappa. An investor in privately owned biotechnology companies, he is an “expert-in-residence”



Students in a freshman seminar examine archival materials from the Tiananmen Square protests.

“Unrestricted gifts allow the Harvard leadership to address critical strategic needs immediately.” —ROBERT D. LINDSAY '77



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The Dean's Fellows are a select group who have contributed \$1 million in unrestricted, immediate-use funds. These empower FAS Dean Michael D. Smith to invest in emerging ideas and initiatives. Dean's Fellows represent the highest level within the Harvard Yard Society, whose names are inscribed on a recognition wall in University Hall.

this year with Harvard Law School and the Harvard Innovation Lab. Flanzraich gives to Harvard in an unrestricted way because, he explains, “I believe the University knows better than I do how my gifts can best be used.”

Robert D. Lindsay '77 and his wife, Teresa, of Locust Valley, N.Y., are also Dean's Fellows. At Harvard, Lindsay lived in Winthrop House, concentrated in English and American literature and language, and played freshman hockey. Lindsay's Harvard fundraising activities include co-chairing his 35th reunion gift committee.

“While targeted endowment gifts are highly important, their impact is felt over a long period of time. Unrestricted gifts allow the Harvard leadership to address critical strategic needs immediately,” says Lindsay, co-managing partner at Lindsay Goldberg, a global private equity company in New York City. “Excellence is expensive and should be treasured. Tally up the contributions made by Harvard students and educators to the world's betterment, and it would be hard not to see a gift as producing a wonderful and priceless return.”

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LETTERS

er the study itself tests for it. For example, an experiment could be designed where teens were allowed to choose between various beverages, and also allowed to choose the amount they wished to drink, to see if those more prone to violence were more likely to choose to drink more of sugary beverages.

KIMBERLY MARTEN '85
New York City

CHEATING

ONLY at Harvard could we parse these words and somehow find ambiguity: "students may not discuss the exam with others" ("Investigating Academic Misconduct," November-December 2012, page 40). Those were the instructions on the Government 1310 final exam, yet somehow those instructions are now being debated by highbrow administrators.

The gymnastics performed to explain—or attempt to explain away—straightforward cheating would be comical if not so sad. We need panels and interdisciplinary teams and a couple committees for good measure to investigate this? Despite my Harvard degree, I am able to follow simple rules when I read them. Shame on all for making the simple complicated, the Harvard way.

WILLIAM CHOSLOVSKY, J.D. '94
Chicago

ONE of the best courses I took at Harvard was Professor Sam Beer's [Soc Sci 2]. He suggested six political theorists and six periods of history. He even gave us the exam questions ahead of time! He told us the exam would ask us to write on only, say, six of 10 questions, meaning we only had to prepare answers to less than 10. So we formed groups to come up with our best answers. In the exam we parroted what we remembered of the answers our groups came up with. Were we cheating? He set the rules; we gamed them—of course, legally. The exercise was a great learning experience, much more than I would have had on my own.

JOHN R. MCGINLEY '58
Wilton, Conn.

ERRATUM

PRIMUS V and his editors thank his predecessor for pointing out an incorrect spelling—*igitur*, for *igitur*—in the second item of the November-December 2012 issue's College Pump ("Ipso Facto!" page 60). The error in transcribing the lyrics of "Illegitimum non carborundum" was ours.

Right Now

The expanding Harvard universe

GATED ECONOMIES

Immobile Labor

FOR 100 YEARS, the United States experienced a steady decline in income disparities between the richest and poorest states—with Mississippi and Alabama, for example, beginning to catch up to the more prosperous Connecticut and New York. But this equalizing trend ceased after 1980. Why? According to Daniel Shoag, assistant professor of public policy at the Kennedy School's Taubman Center for State and Local Government, housing prices explain a large part of the puzzle. In a recent working paper coauthored with doctoral candidate in economics Peter Ganong, Shoag found that land-use restrictions in high-income locales have created barriers to entry for less-skilled workers, exacerbating inequality and threatening labor mobility—a key component of a healthy economy.

Economists have long viewed the leveling of U.S. regional incomes as a prime example of “convergence”—the principle that, in a market system, poor economies will grow faster than rich economies as capital moves in search of greater productivity gains. Yet this “capital mobility” theory doesn’t explain why the nation’s wealth gap stopped closing 30 years ago, leaving poor states still a sizable distance behind.

Shoag and Ganong posited that something more than mobile capital had to be involved to account for the end of the convergence effect. By digging into census records, they found that a pattern of directed labor migration (people moving to more productive places in search of

higher earnings) could explain 40 percent to 75 percent of the century-long growth in economic equality among states. As more workers moved into higher-income areas, wages there began to fall, and human capital began to even out, while in the areas that were losing workers, wages began to rise, drawing more people into the workforce and increasing average incomes. “When this directed migration stopped,” Shoag explains, “income convergence also stopped.”

He and Ganong suspected that housing markets might explain why people stopped moving. What they found startled them. “Of course, rich places have always had higher housing prices than poor places,” Shoag notes, “but after 1980, the slope

doubles.” The steep rise in housing costs in places like New York City, Boston, and San Francisco has had a direct impact on migration patterns and, hence, on convergence. Even though highly skilled workers in fields like finance or high tech have continued to move to these cities, low-skilled workers no longer have an incentive to do so because the higher cost of living now outweighs the likely income gains. Instead of poorer people moving to New York, pushing down wages there, while bidding up wages in poor areas, and skills equilibrating across places, “What you now get is skill sorting,” Shoag explains. “High-skilled people continue to move in, while poor people start moving out.”

What caused housing markets to change? The researchers created an index of regulation that could predict the flexibility of housing supply in different states in response to demand. Using an online database, they measured the number of times the phrase “land use” appeared in

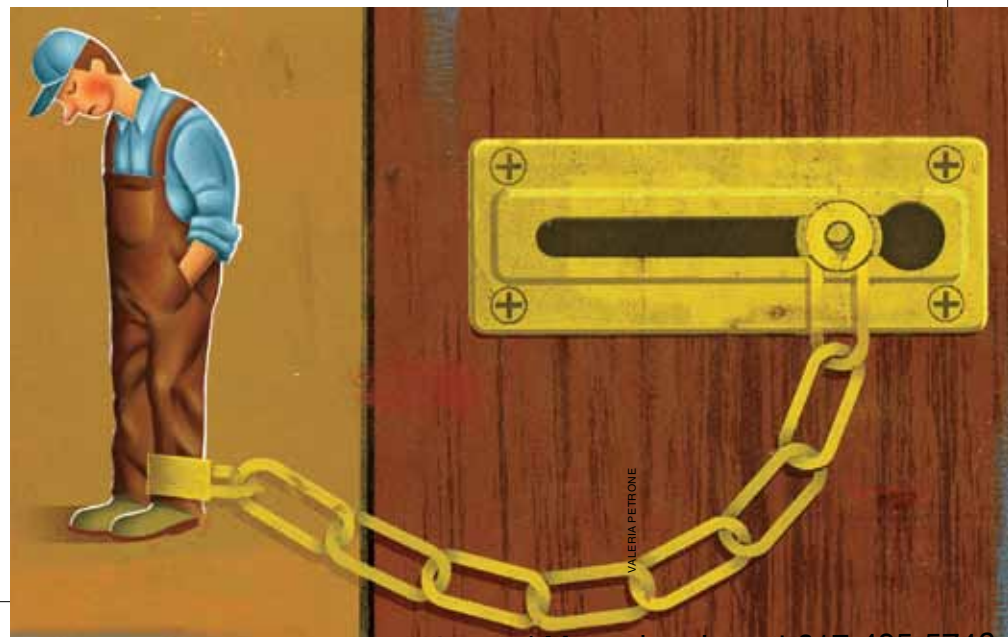


Illustration by Pete Ryan

appellate court cases by state and year, and found that land-use restrictions became more common nationwide in the 1970s, but that not all states became strict regulators. The frequency of “land use” references in a state’s legal history proved a good predictor of whether a state would develop a high-regulation housing economy with constrained supply. By measuring regulation levels, Shoag and Ganong were able to test their hypothesis: they found that regulations limit housing supply by reducing the number of permits for new construction, and raising prices. This lowers net migration, and thus slows human-capital convergence and income convergence.

The authors have yet to investigate why

increased regulation took hold in certain states, but they do know that land restrictions *preceded* the concentrations of wealth. “It is housing markets, not rich residents, that have caused segregation,” Shoag asserts. Their data also rule out geography (the limitations of available land to build on) as a decisive factor. “No doubt a lot of restrictions were put in for environmental reasons,” Shoag notes, “but what’s surprising is how much these local policies have shaped how things evolve.”

Recent efforts to explain the widening income gulf between elite urban areas and the rest of the country have tended to focus on the increased demand for highly skilled labor in places like Silicon Valley and Boston, where firms (and employees)

in related industries benefit from clustering together. Shoag and Ganong have identified a more pernicious factor at play in this process. By stemming the flow of lower-income people into the most productive cities, housing restrictions have not only expanded class divisions, but also jeopardized a key stabilizing force in the U.S. economy. “If people no longer have the ability to migrate in response to regional economic shocks,” Shoag notes, “there will be more pressure on other adjustment mechanisms, like government interventions that target specific places or industries.”

—ASHLEY PETTUS

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CROCS AND CUCKOOS

Survival of the Cooperative

PADDLING around the forested edges of a crocodile-infested lake in Panama, biologist Christina Riehl ’05 is gaining new insights into the bizarre cooperative breeding behaviors of certain tropical cuckoos.

These greater anis (*Crotophaga major*) gather in communal groups at breeding time—raising offspring together in a sin-

gle nest, every adult sharing in the work. What is remarkable is that these communities consist of birds that aren’t necessarily blood relatives.

For half a century, the study of animal cooperation has been dominated by the theory of “kin selection.” According to this model, animals cooperate only if they stand to gain something—if not for them-

selves, then for their kin. This assures that they always pass along some of their genetic material to the next generation. But when it comes to raising their young, the anis behave in ways that cannot be explained by kin selection alone.

Anis form useful associations with unrelated mating pairs, expending great effort to raise the young of others. This makes them rather like humans—and unlike most other animals on earth.

Riehl’s research thus raises new questions about the importance of kin selection in the evolution of cooperation. She seeks to understand how cooperation can evolve among unrelated individuals, particularly when competition among group members is intense.

Since 2006, working under the auspices of the Smithsonian Tropical Research Institute, Riehl has circled Gatun Lake, part of the Panama Canal, to examine as many as 45 ani nests per season. Because almost all these low-lying baskets of leaves and sticks hang over the water and cannot be reached from land, scientists have rarely studied them, but Riehl can reach most of the nests by standing up in her boat. The work is hazardous even without the snakes and crocodiles lurking in the thickets: anis breed during the rainy season, when downpours are torrential and thunderstorms sweep the lake.

Riehl labels every egg that is laid in the

The breeding habits of tropical cuckoos, whose unrelated adults cooperate to rear young, have raised questions about the limits of kin selection in evolution.



Photograph courtesy of Christina Riehl

RIGHT NOW

communal clutch, takes DNA samples, and also makes note of which birds in the commune are performing what tasks, looking for the colored bands she has affixed to their legs during her annual winter field trip. Communes consist of two, three, or more unrelated pairs of adults.

She has learned that, although the anis work together cooperatively, some work much harder than others. In every commune, one male ends up performing all the nighttime labor of sitting on the clutch of six to 12 eggs in the nest. While other group members sleep, the bird on the late shift performs extra work for no apparent additional gain in the fitness or survival of his own offspring—again, breaking the rules of kin selection.

The anis' communal lifestyle isn't totally altruistic. Although females cooperate in tending the nest, they simultaneously seek to improve their own offspring's chances for survival by tossing other females' eggs out of it. (Riehl collects ejected eggs from the vegetation surrounding the nest or the shallow water beneath it, including broken eggshells she has numbered.) Here, too, ani behavior is bizarre: of 10,000 species of birds in the world, only a half-dozen engage in this wasteful practice of communal egg-dumping—underlining Riehl's assertion that “this is one of the most interesting species out there for animal social behavior.”

She has found that, despite the egg-dumping behavior, cooperative nesting yields big payoffs for group members. Not only are large groups better able to defend their nests against predators, they also build their nests in safer locations. Large groups typically build in trees that grow in the lake—less vulnerable to terrestrial animals like snakes. Smaller groups aren't able to claim this high-quality real estate, so their nests are more frequently attacked. Pairs that try to nest alone can barely raise young at all.

Recently named a Junior Fellow of the Harvard Society of Fellows, Riehl “stands out as a young scientist with a keen sense of what is important to measure in the field,” says Cornell associate professor of natural resources Janis Lou Dickinson, director of Citizen Science at the Cornell Laboratory of Ornithology, who



Visit www.harvardmagazine.com/extras to view additional photos of greater anis.

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studies cooperative breeding in western bluebirds. Riehl's findings "provide an unusual example of the importance of direct fitness benefits of cooperation, and stand in contrast to a large majority of studies of cooperative breeding in birds. Counter-examples are important and broaden our understanding of how

ecological factors influence cooperation."

"Scientific debate right now about the importance of kin selection is absolutely vitriolic," Riehl says. Although she continues to believe, along with the majority of biologists, in the importance of kin selection, she notes that "anis represent a rare exception to the general rule that co-

operation evolves among family members."

~W. BARKSDALE MAYNARD

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www.oeb.harvard.edu/faculty/edwards/people/Christie.htm

GOOD-BYE, GLASS

A Dazzling Flat Lens

SCIENTISTS AT Harvard's School of Engineering and Applied Sciences have created a revolutionary flat lens made not of glass but of a layer of gold (seen here in a photograph taken through a conventional microscope). As thin as one-thousandth of a human hair, and just one millimeter in diameter, the lens focuses incoming light by relying on tiny antennae, rather than the phenomenon of refraction, as a glass lens does.

Designed in the laboratory of Federico Capasso, Wallace professor of applied physics and Hayes senior research fellow in electrical engineering, the innovation was recently described in *Nano Letters*. "The advantage of our lens," says lead author Francesco Aieta, a visiting graduate student from the Università Politecnica

delle Marche in Italy, "is that instead of being bulky and thick, [it] can be very thin."

Light traveling between two points can potentially take any possible route. When it is traveling in a uniform medium, the route will be a straight line, but if a material such as glass is introduced, the light is slowed and as a consequence may prefer to bend, according to Fermat's principle of *least time*: waves of light seeking the fastest overall route between two points may travel *farther* in a fast medium in order to find the *shortest* route through a slow one. For this reason, conventional lenses are shaped in a specific way so that all the rays of light, ideally, converge to the focal point. But spherical glass lenses don't do this perfectly; light passing through the lens

periphery has a slightly shorter focal length than light traveling through the center. Correcting for this using additional glass lenses works, but is complicated and makes such optical equipment even heavier.

In the flat lens, tiny gold antennae, etched using electron-beam lithography from a solid gold layer just 55 nanometers thick, delay light *not* as it propagates through a thick material, but right at the lens surface, introducing slightly different delays (phase lags) in each concentric ring. The antennae (see the inset scanning electron microscope photograph) are v-shaped: "Tweaking the length of the arms and the angle of the 'v,'" Aieta explains, "allows us to obtain all the amplitudes and phases that we need." Each concentric ring of the lens is patterned with differently configured antennae that introduce a delay of just the right amount so that some of the light can be focused on a single point. "By

changing the distribution of the concentric rings," he explains, "you can obtain a longer or shorter focal length."

Although this distortion-free flat lens may one day replace all manner of glass optical systems—from cam-

era lenses to optical data-storage systems—for now Capasso's team has optimized it for near-infrared light of a single wavelength, a laser of the kind frequently used in telecommunications. It does not currently focus visible light (although that is theoretically possible), but visible light enables the lens's concentric rings to be distinguished from one another: the differently shaped antennae in each ring scatter the light in a different way, creating the oranges and reds seen in the photograph.

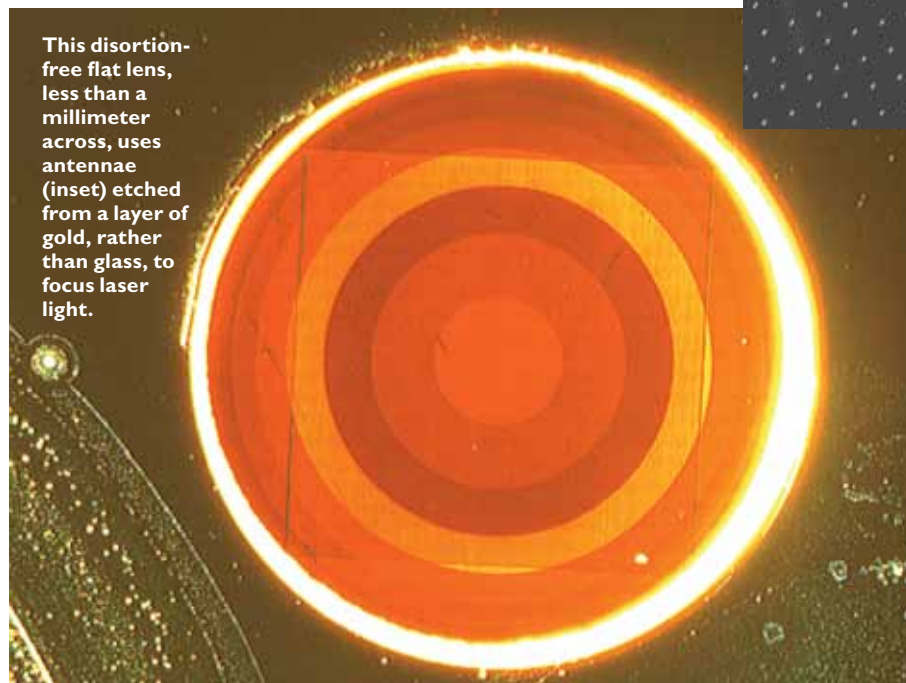
~JONATHAN SHAW

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CAPASSO GROUP WEBSITE:

www.seas.harvard.edu/capasso



This distortion-free flat lens, less than a millimeter across, uses antennae (inset) etched from a layer of gold, rather than glass, to focus laser light.

New England

REGIONAL SECTION



Extracurriculars

DANCE

<http://ofa.fas.harvard.edu/dance>
www.boxoffice.harvard.edu (for tickets)
 617-495-8683; Harvard Dance Center,
 60 Garden Street

• February 1 at 7 P.M.

A Boston Ballet preview performance of works by Wayne McGregor and Jiri Kylian, followed by a discussion.

THEATER

American Repertory Theater

www.americanrepertorytheater.org
 617-547-8300 (box office)
 617-495-2668 (general number)

Loeb Drama Center

64 Brattle Street

• February 2 through March 17

The Glass Menagerie. Tennessee Williams's classic Southern family drama is directed by John Tiffany and stars Cherry Jones, among others.

NATURE AND SCIENCE

The Arnold Arboretum

www.arboretum.harvard.edu; 617-384-5209
 Events are free, but registration is required.

• January 13, 8-9:30 A.M.

Winter Wonderland Bird Walk with docent Bob Mayer. While most of the natural world is resting, dozens of bird species are actively making a living.

• January 14, 7-8 P.M.

Plants, the First Three Billion Years: A Reflection on the Nature of Evolutionary History with arboretum director William "Ned" Friedman, Arnold professor of organismic and evolutionary biology.

• Opening January 19, with an artist's reception, 1-3 P.M.; there will also be a talk by the artist on February 21, 7-8:30 P.M.

Drawn To Woods by Paul Olson features illustrations and paintings by the artist, a teacher at Massachusetts College of Art and Design and Rhode Island School of Design, who has spent many hours walking less-traveled arboretum paths, observing the diversity of plants through the seasons.

• January 29, 6-8 P.M.

When America First Met China: An Exotic History of Tea, Drugs, and Money in the Age of Sail. Best-selling author Eric Jay Dolin traces America's fraught relations with China.

• February 23, 10 A.M.-NOON

Dwarf Conifer and Juniper Collections via Snowshoes. Join educators for a tromp through the winter landscape to seek out, identify, and share stories about this microclimate.

• February 25, 7-8:30 P.M.

Biodiversity 2013: Crisis and Opportunity features a lecture by and discussion with biology professor James Hanken, Agassiz professor of zoology, curator in herpetology, and director of the Museum of Comparative Zoology.

The Harvard-Smithsonian Center for Astrophysics

www.cfa.harvard.edu/events/mon.html
 617-495-7461; 60 Garden Street

Observatory Night Lectures at 7:30 P.M., followed by stargazing, if weather permits.

• January 17

"Explosive Universe," with Loeb associate professor of natural sciences Edo Berger

• February 21

"Gas Giant Mysteries," with CfA research assistant Rebekah Dawson

MUSIC

• February 15 at 7:30 P.M.

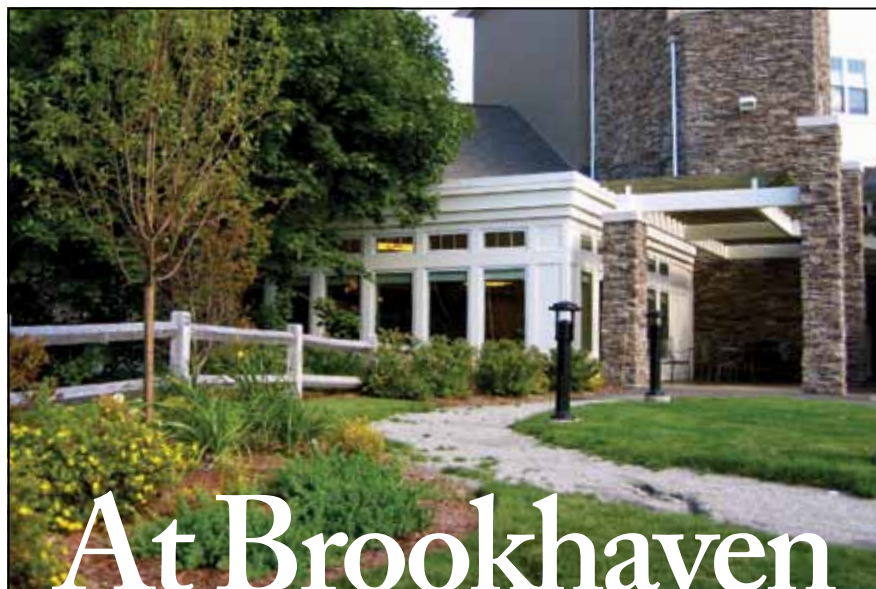
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www.hcs.harvard.edu/~jazz

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Left to right: From an exhibit on poet Amy Lowell at Houghton Library; from *Daguerreotype to Digital* at the Peabody Museum; a still from *Nothing But a Man*, to be screened at the Harvard Film Archive.

FROM LEFT TO RIGHT: HARTMAN COLLECTION; THE PEABODY MUSEUM OF ARCHAEOLOGY AND ETHNOLOGY; THE HARVARD FILM ARCHIVE



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NEW ENGLAND REGIONAL SECTION

The **Horblit Jazz Festival** features original arrangements by Harvard student ensembles. Free and open to the public.

Sanders Theatre

www.boxoffice.harvard.edu

617-496-2222

• January 20 at 3 P.M.

The **Boston Youth Symphony Orchestra** performs music from Verdi's *Rigoletto*, conducted by Federico Cortese, senior lecturer on music and director of the Harvard-Radcliffe Orchestra.

• February 18 at 8 P.M.

Harvard-Radcliffe Collegium Musicum 40th Anniversary Concert. The program includes Rachmaninoff's *Vespers*.

• March 2 at 8 P.M.

The **Harvard Glee Club**, **Radcliffe Choral Society**, and **Harvard-Radcliffe Collegium Musicum** perform Mozart's *Requiem*.

FILM

The Harvard Film Archive

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

617-495-4700

Visit the website for a complete listing of festivals and showtimes.

• January 11-14

Michael Roemer's "Nothing But a Man" reveals the nuanced relationship of a black couple in 1960s Alabama. There will be discussions of this artistic landmark and a restored print will be screened.

• January 18-28

Susumu Hani Retrospective. This Japanese New Wave director made both fiction and documentary features, often exploring the social and psychological plights of women and children.

• February 15-23

Leos Carax in Person. The French director talks about his work, including the recently highly acclaimed *Holy Motors*.

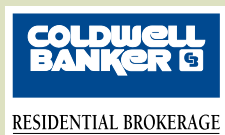
EXHIBITIONS & EVENTS

Carpenter Center for the Visual Arts

www.ves.fas.harvard.edu; 617-495-3251

• Opening February 12

As part of a year-long celebration of the Carpenter Center's fiftieth anniversary, an exhibit of work by contemporary artists Nairy Baghramian, Anna Barriball, Barbara Bloom, Katarina Burin, Alexandra Leykauf, and Amie Siegel examines the

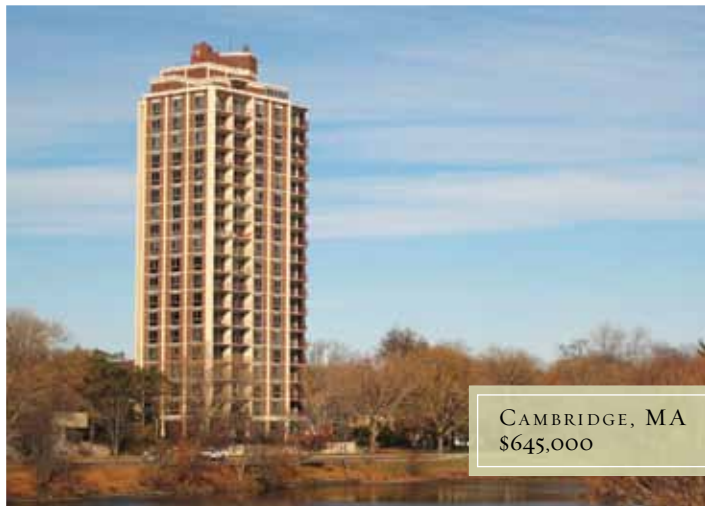


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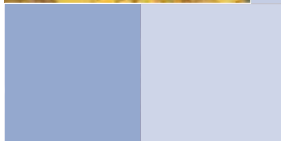
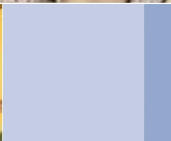
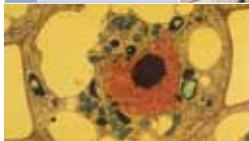
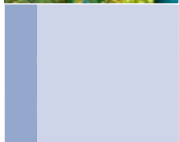


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NEW ENGLAND REGIONAL SECTION

history, impact, and use of Le Corbusier's brutalist icon.

Peabody Museum of Archaeology and Ethnology

www.peabody.harvard.edu; 617-496-1027

• Through January 31

From Daguerreotype to Digital: Anthropology and Photography showcases how technological innovations helped expand the study of world cultures.

Geological Lecture Hall, 24 Oxford Street

• Continuing: Visitors can see how artifacts are repaired and preserved in *Conservators at Work: Alaska's Historic Kayaks Renewed*.

Harvard Museum of Natural History

www.hmn.harvard.edu

617-495-3045

• January 26 at 2 P.M.

"History of the Arctic: Nature, Exploration, and Exploitation," a lecture by John McCannon, assistant professor at Southern New Hampshire University.

Continuing: Visitors can touch and marvel at the 1,600-pound amethyst geode among a dazzling array of minerals and gemstones from around the world.

The Sematic Museum

www.semiticmuseum.fas.harvard.edu

617-495-4631

• Continuing: *The Houses of Ancient Israel: Domestic, Royal, Divine* features a full-scale replica of an Iron Age (ca. 1200-586 B.C.E.) village abode.

• Continuing: *Nuzi and the Hurrians: Fragments from a Forgotten Past* features more than a hundred objects from the Museum's collection of 10,000 excavated artifacts, the largest Nuzi collection outside of the Iraq Museum in Baghdad.

LIBRARIES

Houghton Library

<http://hcl.harvard.edu/libraries/houghton>

617-495-2449

• Through January 11

From Austen to Zola: Amy Lowell as a Collector highlights some of the thousands of rare books and manuscripts favored by the poet. Her collection was bequeathed to Harvard in 1925.

Schlesinger Library

www.radcliffe.harvard.edu/schlesinger-library; 617-495-8647



PAUL OLSON/THE ARNOLD ARBORETUM

Picea orientalis 'Nutans', ink on water-color paper by Paul Olson, at the Arnold Arboretum

10 Garden Street, Radcliffe Yard

• February 6 at 6 P.M.

Movie Night at the Schlesinger Library offers a selection of shorts that examine the lives of girls and older women, including *Toward Emotional Maturity* (1954) and *Radcliffe Blues* (1969). Check website for other monthly movie events.

• Continuing: *Siting Julia: Julia Child Centenary Exhibition* traces Child's prodigious life and career through the library's extensive collection of her manuscripts, letters, and other items (see page 76).

LECTURES

Radcliffe Institute for Advanced Study at Harvard University

www.radcliffe.edu; 617-496-8600

• February 13 at 4 P.M.

"Locked Out: Investigating Societal Discrimination against People with Disabilities Due to Inaccessible Websites," by Jonathan Lazar, Shutzer fellow at the institute. Fay House, 10 Garden Street

• February 25 at 4 P.M.

"The End of the British Empire after the Second World War," by Caroline Elkins, professor of history and African American studies and a Burkhardt fellow at the institute. Fay House, 10 Garden Street

Events listings also appear in the *University Gazette*, accessible via this magazine's website, www.harvardmagazine.com.

Visiting Masterpieces

Cézanne's *The Large Bathers*

Opens February 2

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Paul Cézanne, *The Large Bathers* (detail), 1906. Oil on canvas. Philadelphia Museum of Art: Purchased with the W.P. Wistach Fund.

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New Social Entrepreneurs

Young activists live their beliefs—“every day” • by Nell Porter Brown



Jessica Tang

cation Program. “I wanted to work in creating education and social policy but I felt I needed experience in the field first,” she says. For eight years, she has found her passion through the profession and currently teaches social studies to Boston’s sixth graders. An award-winning teacher, Tang is also an elected member of the Boston Teachers Union executive board (then 29, she was the youngest member to be elected in a long time) and has influential roles with other organizations, including the governor’s Teacher Advisory Committee. As a union leader, Tang spearheaded the creation of the union’s first Community Advisory Board, “where we meet with parents, students, and community members and organizations to work together on public education issues in Boston,” she says.

Because she knows that “poverty and neighborhoods and economic opportunity” hugely affect her students—and their ability to succeed in school—she also co-founded the Teacher Activist Group-Boston (TAGB), which last year organized the second annual Social Justice Educators Conference. “To get more than 250 to 300 folks together to start building a movement for equitable schools was not easy,” she says of this accomplishment. TAGB was also part of a national effort to create a curriculum in support of ethnic studies, the “No History Is Illegal” campaign, after Arizona’s attorney general declared the Tucson Unified School District’s Mexican American Studies program illegal in 2011.

Tang is discouraged by education policies that emphasize quantitative evaluation and, in her view, punitive measures against students and teachers alike. “They are hurting the most vulnerable student populations and both major political parties are backing them,” she says. “We are totally on the wrong track. Evaluation is *not* support. Also, unions are vilified, yet the highest-

GRADUATING SENIORS are “definitely interested in making an impact on the world,” says Robin Mount, director of Harvard’s Office of Career Services. “They are poised to combine fresh ways of approaching a problem, including using digital and technological communications, to move social issues forward. They build networks and can marshal resources in a global way.” She points to new Rhodes Scholar Phillip Z. Yao, a physics and philosophy concentrator, who last summer founded a virtual library for more than a million students in India. “This younger generation is leapfrogging over problems using creative means: he’s a leader in education, but doing it in a nontraditional way.”

Social entrepreneurship and the non-profit sector both require people to constantly gather and hone disparate skills as they move vertically *and* laterally among posts and organizations: more like climbing a jungle-gym than riding the old-style escalator to the top, as Facebook’s chief operating officer, Sheryl Sandberg ’91, M.B.A. ’95, couched the new work

world for Harvard M.B.A.s at their 2012 Commencement. This general trend has prompted OCS to retire the word “career” in counseling students, Mount adds. “Instead, we recommend that they gather knowledge and skills like a tool kit that they will need to be effective.” The six alumni profiled below exemplify those who are creating their own niches and, as Mount puts it, “think of themselves more as their own start-up companies. They approach problems in a fresh way and manage their own next steps—for themselves.”

Jessica Tang '04, Ed.M. '06

Educator and activist, Young Achievers Science and Math Pilot School

JESSICA TANG felt pressure to become a consultant, doctor, or lawyer—“but that is just not where my interests lie,” she says. Turned on instead by Harvard courses that explored racism, inequality, and education, she focused on sociology and was one of a handful of students in 2005 to complete the still-offered Undergraduate Teacher Edu-

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NEW ENGLAND REGIONAL SECTION

achieving states, including Massachusetts, are all highly unionized. Busting unions and blaming teachers is not the right lever for change. Creating structures, supports, and institutions that serve student and family needs, particularly for those who have had the least access and opportunities, is where we need to refocus our energies and resources.”

The biggest obstacle to choosing her career wasn't lower pay but “getting my parents on board,” Tang reports. “They said, ‘We didn't send you to Harvard to become a public-school teacher.’” They have since come to respect and support her decision. “A lot of people go to Harvard to go into investment banking and jobs that give you extrinsic rewards. That's just not me,” Tang says. “My definition of success is more about the intrinsic rewards: knowing that the work you do is not as much about you as it is about making your community better. And it's about justice. If you have privilege and power and skills and oppor-

tunities to improve the lives of others, it's the right thing to do.”

Baillie Aaron '07

Founder and chair, Venturing Out
Founder and executive director,
Spark Inside

ONE IN A HUNDRED adults is incarcerated in America. “That's an economic, social, and moral problem,” says Baillie Aaron. “And when people are released from prison, few employers will hire them—regardless of their crime. The consequences of this reality really fired me up to want to make a change.” Such zeal, and a deep desire to help people “reach their potential,” led her to found Massachusetts-based Venturing Out Inc., which runs a 10-week course on entrepreneurship for inmates. Since 2010, 227 men and women have completed the course: many are now running businesses such as church-window washing, online talent recruitment, and chemical-free landscaping. “It's not a



COURTESY OF BAILLIE AARON AND VENTURING OUT

**Baillie
Aaron**



therapy or counseling program, nor does it focus on improving weaknesses,” Aaron adds. “We assume people are resourceful and capable, and teach them how to apply their existing skills to become economically self-sufficient.”



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The idea behind Venturing Out came [after graduation] when Aaron, then a research assistant at the Kennedy School's Program in Criminal Justice, was tutoring a young man at Boston's Suffolk County House of Correction. She noticed not only his ability to work hard but also his keen business sense—a trait shared by many prisoners, albeit often gained through illegal activities. "I saw an untapped market" for transferring those skills, she recalls, and entrepreneurial aims that were "highly achievable."

Aaron was undaunted by her own lack of formal business training. (The Calgary native, a psychology and economics concentrator, had run three organizations in high school through Junior Achievement.) She and a group of Harvard cohorts taught themselves entrepreneurship through books borrowed from the Business School's Baker Library, then developed a curriculum with the guidance of M.B.A. students. Venturing Out is now supported by grants from private foundations, such

as the Lenny Zakim Fund, Foundation for Metrowest, and the Clowes Fund, but to meet the demand to increase services, Aaron says, the organization is looking for an additional \$250,000. "Fundraising for a program empowering disadvantaged adults, especially those in prison, is a 'tough cause' to market," she adds. "Regardless, we will continue to keep overhead low and run the organization cost-effectively." Venturing Out also relies on a core group of 12 instructors who are practicing entrepreneurs and about 50 other volunteers on call, along with two paid employees (including executive director Laura Winig, who is also a Kennedy School case writer). Aaron is a hands-on board chair, but has relocated to the United Kingdom, where she earned a master's in criminological research from the University of Cambridge. She is now executive director of another organization she founded, Spark Inside, that provides free life-coaching to teenagers leaving custodial institutions in Greater London.

"It's important for undergraduates to know that if they are passionate about something, they can make it happen even if they do not have immediate expertise," she says. "We need more Harvard alumni in the social-justice sector—and more who are adapting and applying for-profit efficiencies." Money is the biggest obstacle to pursuing nonprofit careers, she says. "I can't afford the same lifestyle as my friends in other careers, like investment banking. I can't buy a house yet, for example. But I've never been someone who spends a lot and I don't have a family to support." She is fueled instead by the fact that "I'm making a difference. I'm challenged by my work. And the colleagues, clients, and mentors I've met on this journey continually inspire me."

Jackie Stenson '08

Co-founder, Essmart Global

AFTER COLLEGE, Jackie Stenson spent two years traveling overland from Ethiopia to



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NEW ENGLAND REGIONAL SECTION



Jackie Stenson



COURTESY OF ESSMART

South Africa. The trip to eight countries (funded by a fellowship) was thrilling—and ultimately led to last year's launch of Essmart Global, an award-winning start-up with a social mission. The company sells "life-improving" technological devices, such as solar-powered lanterns, through local shops to residents in rural southern India. In her travels, Stenson realized that even though such devices existed, there was a fundamental problem of distribution, and asked herself, "How can I get these things into the hands of people who can benefit from them?" Focusing on the fact that roughly 90 percent of retail goods in India are sold through an estimated 14 million mom-and-pop shops—"They are the lifeline to something like 192 million households"—she and her business partner, MIT alumna Diane Jue, concluded that "India represents a huge and growing market opportunity, with a large local retail-shop network." In addition, many of the technologies Essmart distributes were already available there—but not at the village level. Today, Essmart is working with about 30 stores that sell six products made by India-based companies and Essmart employees deliver the goods to the stores themselves, via motorbikes.

Jue recently moved to Bangalore and oversees operations in Pollachi (India). Stenson has stayed put in Cambridge (she is a resident tutor at Cabot House), running

NEW ENGLAND REGIONAL SECTION

the business along with her part-time job as a preceptor in technology entrepreneurship and innovation at the Harvard School of Engineering and Applied Sciences, where she was an engineering concentrator. She has always loved solving puzzles. "Instead of hiring a babysitter, my mother would leave my brother and me with a 1,000-piece jigsaw puzzle," she says. "We'd sit and do it for, like, three hours." While at Harvard, she cross-registered for MIT courses, including one on technology in developing countries. "We want to bring the problem of distribution into the spotlight because it is also important for designers to actually think about this in helping to bridge the global supply chain," she notes.

To date, Essmart has relied on grants and prize money to pay for operations and three full-time employees: last year, the company won \$50,000 in the Dell Social Innovation Challenge, besting nearly 1,800 other teams, and was a winner of the MIT IDEAS Global Challenge and a finalist in the Harvard President's Challenge. But the company relies most on a core group of 10 volunteers, Stenson and Jue among them. Next step is a search for angel investors. "This is social enterprise," Stenson points out. "The motivation is not a monetary one. But that being said, we have designed the business model so that it can be sustainable and everyone down the supply chain can make money from it."

Aaron Tanaka '04

Co-founder and executive director,
Boston Workers' Alliance

"THE BEST WAY to have a safe community is to have people employed and to create productive, tax-paying citizens," says Aaron Tanaka. To that end, his organization has three components that work in concert to help expand economic opportunities for low-income city residents: a temporary job agency (Boston Staffing Alliance); local economic development projects; and community organizing and advocacy. The agency promotes long-term job placement, in part by eliminating fees typically charged by traditional temp agencies and by assigning two staff members to support employees and mediate any problems that arise. More than 120 employees have secured temporary

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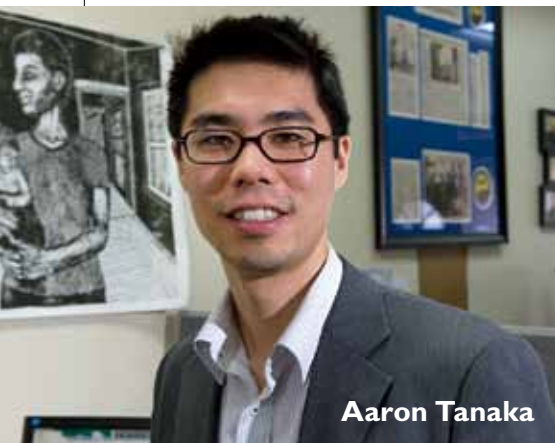
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Aaron Tanaka

or permanent placements in sectors such as food service, landscaping, and professional conferences. The alliance runs two businesses: a vegetable-oil recycling company that picks up waste oil from restaurants and sells it to bio-fuel producers; and another, currently in development, that teaches urbanites to grow their own food. As for advocacy: Tanaka and his organization have earned national attention as proponents of reforming the state Criminal Offender Record Information (known as CORI). In 2010, Massachusetts became one of only two states in the country to eliminate the criminal-record question from job applications and to reduce the number of years that arrests and/or convictions stay on one's record. "Just having been arrested, even with no conviction," Tanaka says, "creates huge barriers to people being able to get work."

Tanaka, who grew up in San Francisco's East Bay neighborhood, says he had "survivor's guilt" when he got to Harvard. "I saw so many of my classmates from middle and high school who dropped out, were incarcerated, or became involved in gang activity," he says. "It was an extreme contrast to be surrounded by so much wealth and opportunity at Harvard that I became committed to figuring out how to give back to the people that I felt like I had left behind." He joined fellow public servants at the Phillips Brooks House Association (PBHA) and spent a year tutoring a juvenile offender, among other activities, then interned for one summer as an environmental lobbyist in Washington, D.C., where he realized he wanted to do social advocacy in Boston.

In his junior year, Tanaka took a semester off to work full-time on prison reform

for the American Friends Service Committee, a Quaker advocacy group. Upon graduating, Tanaka won a Stride Rite Foundation Public Service Fellowship, awarded to increase employment rates in Boston's poorest sections, that provided the seed money to start the Boston Workers Alliance (BWA). Today his organization has seven employees and has received formal accolades from the Boston City Council and both chambers of the state legislature. Along the way, Tanaka earned a master's degree in community economic development from Southern New Hampshire University. BWA has expanded its advocacy to advance equal access for minorities in the building trades, eliminate harsh prison sentences for nonviolent offenders, and to further the creation of an inclusive, environmentally oriented "green economy." "The sociological research shows that people who have not committed a crime in seven years have as much of a chance of never doing it again as those who never did," Tanaka says. "I think people deserve a second chance."

Emily Parrott '09

Program coordinator, Center for Teen Empowerment

EMILY PARROTT works with teenagers in Somerville, Massachusetts, tackling their most pressing social problems: domestic and gang violence, bullying, unwanted pregnancies, and substance abuse. It was a cluster of overdoses and suicides among teens in the early 2000s that led alarmed city officials to bring the non-profit Teen Empowerment into the working-class city that abuts Cambridge. Each year, 12 of the 80 applicants are chosen as youth organizers. "They want to make their community better," Parrott says, "through increasing youth voices in governmental decision-making, while also working on more positive peer relations." Her program develops teens' awareness of themselves, of their community, and of a practical campaign to promote their vision

for change. The activities can include therapeutic exercises that build trust, street tours of places they've never been to in Somerville, meetings with police to foster better communication and interactions on the street, and reaching out to at-risk teens in the wider community through performing-arts events (for which they can create their own music and theater). Activities culminate in the annual Somerville Youth Peace Conference, which drew more than 500 people last April to work on improving media perceptions of teenage experiences.

"The teen years are such a crazy, emotional, moldable time," says Parrott. "When I was a teenager, supportive adults and mentors were really important to my success in overcoming circumstances." She grew up in small southern towns. By the time she was 16, both her parents had died. In high school, she joined the Girl Scouts, took up painting and drawing, was on the forensic team, and excelled at snowboarding (which she traveled to do)—"all of which also helped me survive," she adds.

At Harvard, she became a director of PBHA in her sophomore year, while also working to expand an after-school program in Boston's Chinatown. There, she developed volunteers' understanding of the cultural and community contexts in which they were working and saw firsthand the benefits of "out of school" education, especially for children in poorer households. "It creates a support network away from family and school, which is necessary for young people," she explains.



Emily Parrott



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"Out-of-school education is where the safety net can be if they have none at home, and where personal and social change can happen."

After graduation, Parrott spent a year as the PBHA nonprofit management fellow, funded by the Harvard Club of Boston, and then moved into her post at Teen Empowerment. There, she typically conducts one exercise she finds particularly meaningful, in which teens are paired off and the "follower" is blindfolded and led around by the "leader." "We ask them what it's like to have to trust people. We also analyze what it means to walk through a community without thinking about what's really there, or to blindly follow others," she says. "Being a mentor and an adviser to teens means walking them through situations while not giving them the answers, but questioning them and encouraging them to find what they need and take steps to get where they want to be."

David Jenkins '03

Program director, Roxbury
Environmental Empowerment Project

DAVID JENKINS grew up in rural Millinocket, Maine, where the paper industry has historically ruled the local economy. "People always felt they were under attack by environmentalists, who were seen as wanting to put them out of work," he says. "I carry that consciousness. I approach environmental work in the context of how our country works, how people thrive, and view the environment as intertwined with social and economic justice."

As a community organizer in one of Boston's poorer neighborhoods, Jenkins works with residents, especially teenagers, on public transportation, land-use, and anti-pollution campaigns. To reduce the community's high asthma rates and other health problems, he worked with local teens to research the issue, educate residents, lead a public hearing, and draft an ordinance that will reduce diesel engine emissions by installing pollution traps and enforcing anti-idling laws, slated to come before and pass the Boston City Council in December. "The exhaust from burning diesel has upward of 20 toxic chemicals and very high levels of particulate matter that

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sticks in your lungs and transfers to your bloodstream,” Jenkins says. “Many of these vehicles park in Roxbury, where residents have high rates of respiratory illness. There is a lack of institutional commitment to these people’s health.”

At Harvard, Jenkins concentrated in literature, with a focus on progressive social theory. “A lot of what I was studying was developing tools to analyze how oppression functioned in society, and what it means to be a subject and to act.” Yearning for a more visceral experience, he spent a year immersed in South Africa’s vibrant post-apartheid movements: “I was learning and growing from working with people on the ground working for social justice, poor people fighting for land, housing, basic education, and utilities.” Returning



to Boston, an inspired Jenkins moved right into community organizing, where he sees “an inextricable link between environmental issues and racism.

Pollution disproportionately hurts certain communities of color and those with low incomes.”

For him, working on these problems of fers “the richest life.” “I really believe there are deeply rooted historical systems of injustice in our country and that the way



David Jenkins

to solve them is to build the power of the people who are most affected by those systems to fight for their own solutions,” he says. “In terms of my pay or whatever else has been sacrificed—that can’t touch the joy of feeling that I am doing what I believe in. I’m living my values. Every day.”

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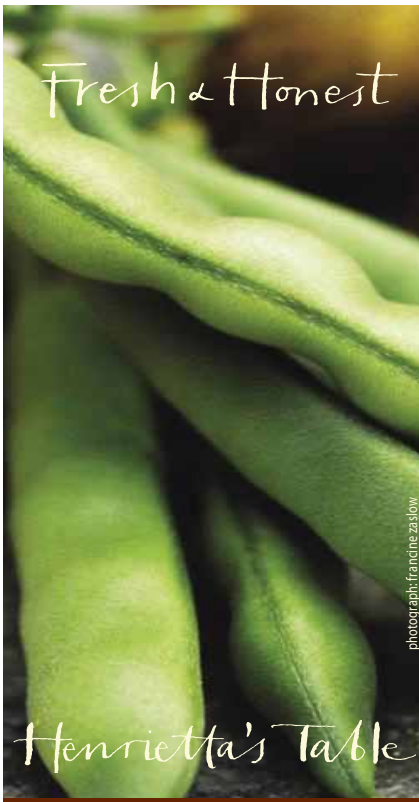


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True Bistro's spare, calm room sits in busy Teele Square. From the menu: phyllo triangles filled with caramelized onions, chard, and tofu, in a sorrel cream sauce, and a vegan “death by chocolate” cake

place holds about 30 people and feels very calm, especially with jazz oozing softly from well-placed speakers.

An eclectic menu is evidence of chef Stuart Reiter's extensive travels: a San Francisco native, he has explored some of the best non-animal-based dishes the world's cultures provide. At True Bistro he taps into the cuisines of Italy, India, and Southeast Asia, among others. (He also likes grits, a food of the Native Americans, and serves them alongside some entrées—and as a side dish, for \$5.)

On a recent night we started with the tenderest pillows of house-made ravioli we've had in a long time (\$8). They were packed with spinach and cashew cheese (nut paste that has been fermented with a culture he grows from wheat, called *rejuvelac*) and served in a subtle garlic broth, which we soaked up with caraway-seed rolls. The excellent salads included a hearty wilted spinach option with pecans, dried cranberries, slivers of red onion, and delicious smoked tofu (a stand-in for bacon)—all lightly dressed in balsamic vinegar (\$8). We also loved the lighter combination of Boston lettuce with slices of rose-colored beets, cashew-cheese chunks, and toasted walnuts in a champagne vinaigrette.

Entrées range widely: from the blackened seitan (sounds devilish, but is only cooked gluten, which

has a chewy, meaty texture and lots of protein), to the red curry Chinese-style tofu and vegetables, to the Vietnamese crepe. The last (\$17) was a deliciously delicate, sometimes crusty envelope filled with *hon-shimeiji* mush-

rooms, fried tofu, and mung sprouts, with a spicy, rich hoisin-style dipping sauce. Bolder was the whole eggplant roasted South Indian-style (\$18). Laid out like a fish fillet, it was stuffed with a long-simmered mixture of onions, garlic, sesame seeds, and coconut spiced with cumin, coriander, chili, and tamarind. It sat atop coconut basmati rice with a side of tangy apricot-cherry-currant chutney and a bracing red cabbage slaw with jalapeño pepper, lemon juice, and cilantro. Perfectly satisfying on a cold winter night.

For dessert, we had the silky pumpkin cheesecake (\$8). Reiter makes his without tofu, common in many other faux versions; instead, borrowing from the raw food movement, he thickens soaked cashews and agave syrup with coconut oil, cinnamon, and cardamom. This produces an unusual consistency: a cross between a *semifreddo* and a block of cream cheese. The mango crumble, flavored with ginger and macadamia nut (\$7), while tasty, was not cooked through: it lacked the merging of bubbling-hot fruit and pliable, crunchy, sweet topping that makes this dish timeless “comfort food.”

Reiter also serves a weekend brunch with items ranging from \$8 to \$10: crepes, waffles, tofu scrambles with homemade biscuits, and seitan burgers served with exquisite house-made French fries and an earthy ketchup. With its diverse menus, attention to nuanced cuisine (dearth of beans), and re-

efined ambiance, True Bistro is a truly meaningful addition to the region's vegetarian scene. ~N.P.B.

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Clockwise from far left: the mosaic *Absence* (2012) on a wall in Moscow; artist Samantha Holmes; a detail showing the mosaic's marble, glass, and gold elements

Mosaic for Now

A contemporary take on an ancient medium

UNSPOKEN, 10.22.10 - 07.07.11 forgoes the traditional mosaic materials of stone and glass. Instead, "It's a very personal piece speaking of my [verbal] isolation" following a move from New York City to Italy, explains artist Sa-

mantha Holmes '06 on her website (www.samantha-holmes.com). Hundreds of notes she wrote on paper, each folded and tied with wire, rest upon nine shelves in a small wooden cabinet. Holmes knew little Italian then, having just begun graduate study

in Ravenna, and the notes capture "thoughts you don't say aloud—not having the language is only one reason—there's courtesy, necessity, fear, desire. They are thoughts that were composed but never received; they remain suspended in space between artist and

viewer. It's a strange and uncomfortable experience to have it in the museum, as they are all the thoughts I couldn't express, and that means they are the most private thoughts I had at that time."

Unspoken, 10.22.10 - 07.07.11 now belongs to the permanent collection of the Museo d'Arte della Città di Ravenna. The provocative work, whose only resemblance to a traditional mosaic is the assembly of a larger

Photographs courtesy of Samantha Holmes

Reprinted from Harvard Magazine. For more information, contact Harvard Magazine, Inc. at 617-495-5746

O P E N B O O K

Brotherly Love

explores his life in relation to siblings Harry, Ned, and Mark (the dedicatees), with interwoven historical pairings (Edwin and John Wilkes Booth, Vincent and Theo van Gogh, etc.). Here is a vivid taste of the personal passages, from the book's beginning:

If the handful of black-and-white snapshots that remain from my childhood is any indication, it's a wonder I didn't end up with a permanent crick in my neck from literally and figuratively looking up to my older brother. Harry was born 20 months before me, and I worshiped him with an intensity that must have been both flattering and bewildering to the worshiper. I didn't want to be like Harry; I wanted to be Harry. I cocked my coonskin cap exactly the way he did when we played Daniel Boone; I made the same *pshew-pshew* sounds he did when I pulled the trigger on my silver plastic six-shooter; I punched the pocket of my baseball glove every time he punched his. When he woke me in the middle of the night one Christmas Eve and invited me downstairs to open presents while our parents slept, I followed. When he said he could help me get rid of my loose tooth, I let him tie it to the playroom doorknob and slam the door. He was my older brother and I would have agreed to anything he proposed; I would have followed him anywhere. And so, one spring evening not long before I turned six, as we lay in our matching twin beds, when Harry suggested that we run away from home, I said yes.

The following morning before dawn, I woke to find him standing next to my bed in his pajamas, clutching to his chest the gray metal strongbox in which he kept his baseball cards. I tiptoed behind him down the back stairs, through the kitchen, and into the garage. Harry opened the

front door to the old blue Ford, climbed in, and shimmied over to the driver's seat. I scrambled up next to him. We sat awhile in silence before he unlocked the strongbox and offered me some of the saltines with which he had filled it the night before. (To make room, he had left behind all but his most precious Red Sox cards.) We



Brothers four: Ned, Harry, author George, and Mark in 1989

chewed our crackers and stared through the windshield at the closed garage door. I don't remember what we said, or indeed whether we said anything at all. I don't remember wondering where, if anywhere, we were going, or how far we could get in our pajamas, or what we would eat when the saltines ran out. I certainly didn't ask my brother. Because I believed Harry could do anything, I wouldn't have been surprised if the car had somehow started, the garage door had opened, and we'd sailed off down Village Avenue, our quiet, tree-lined street in suburban Boston, and into the sky.

image from smaller pieces, also won the 2011 international GAEM (Giovani Artisti e Mosaico) Prize for experimental mosaic. "It's important for me to illustrate that mosaic doesn't have to be just stone and glass and cement," Holmes says.

She can, however, work in traditional media, and made her most recent piece, *Absence*, from small fragments—tesserae—of marble and glass, with gold elements. Holmes installed it last October on a brick wall at the ARTPLAY Design Center, an old, now converted, factory building in Moscow. *Absence* is the converse of a classic mosaic portrait of a saint of the Church: the piece limns the outline of the saint's body and haloed head—but there is no saint. The brick wall

behind is all that appears in the space where we anticipate a sacred figure. "The saint is only a delineated absence," Holmes says. "The piece asks the viewer to fill it in—according to whatever belief structure they want to use. It evokes the desire we have to fill in that space."

To fully appreciate *Absence*, the viewer must see it in the context of the history of mosaic, as the artist did. Mosaic is one of the most ancient art forms, and the permanence of its traditional materials led Renaissance author Giorgio Vasari to call it "painting for eternity." This is why "mosaics have been used by religions and empires—Christianity, Islam, the Roman Empire, Byzantium—to represent all sorts of belief systems," Holmes explains. "[The medium] was also picked up by capitalists in New York City, by Fascists in Italy, and by Communists in Russia. Wherever there's a strong ideology that believes itself permanent, or wants to believe itself permanent, you will see mosaics.

"But we have a society in which those empires have fallen," she continues, "and we live amid doubt, insecurity, and impermanence. The society around us has turned away from the kind of religion that



Visit www.harvardmag.com/extras to view more examples of Holmes's mosaics.

COURTESY OF THE AUTHOR

provided answers to questions of life and death, or gave us the way to live. Instead I ask, in my work, how we can make sense of the world *without* those ideologies.”

As mosaics are rare in contemporary art, “viewers tend to approach them with the traditional context of mosaic in mind,” Holmes explains. The question of permanence, then, informs *Absence*, where the space vacated by the saint reveals only a deteriorating brick wall. “There’s a feeling of emptiness and longing,” she notes, “which is related to there being something missing in society to help us answer these questions. What happens to a mosaic when the central figures—the saints and gods—are not there anymore? These are questions for which the medium of mosaic is particularly well suited. Its sense of permanence contrasts directly with the surroundings. The ideal world promised by the church, where there is justice, immortality, and everything happens for a reason, contrasts with the world we actually live in, which is complicated, painful, ultimately given to decline, and holds nothing that is immortal.” For Holmes, traditional mosaic, built from fragments,



Right: *Unspoken 10.22.10 - 07.07.11* uses unconventional materials. Above: A detail shows tied notes.



reflects the “coexistence of acts of creation and destruction”: to make a new work, the artist, using a hammer and chisel, fragments stone into pieces.

Holmes discovered mosaic as a visual and environmental studies concentrator, and won a Michael Christian traveling fellowship to study mosaics in Greece and Italy one summer. She spent a few years at frog design inc. (an international prod-

uct and digital design firm in New York) before moving to Ravenna to enroll at the Accademia di Belle Arti to learn traditional mosaic techniques. Her Italian is much stronger now, especially for words related to her art, like *martellina*, a type of hammer specific to mosaic. In fact, she says, “I don’t know the English words for some of the tools we use!”

—CRAIG LAMBERT

Paradoxical Fables

Ben Loory’s minimalist stories ambush the reader.

by DAVID UPDIKE

IN HIS recent collection, *Stories for Nighttime and Some for the Day* (Penguin), the short stories of Ben Loory ’93 often begin with a direct, declarative sentence:

“A man is walking through the woods, when suddenly he sees Big-foot.”

“A woman and her friend are in a knife store.”

“A boy meets a girl on a beach, and instantly falls in love.”

The stage is set, and the story ensues—usually short, with an unpredictable plot. Sometimes things take a turn for the worse, sometimes otherwise. Some sto-

ries evoke childhood terrors, others, the gritty preoccupations of adulthood. Humor, or the unexpected turn of phrase, appears slyly on the page. The language is beguilingly simple; the stories—“fables and tales”—are not. They often end with a metaphorical exclamation point—a surprising, yet appropriate, paradox. “The end of a story should feel like a birth,” Loory says, “painful and hopeful; frightening but inescapably right.”

Loory writes in a spare, pared-down style. “The choice I made from the beginning,” he says, “was to take out any extraneous details, anything that would take

away from the emotional thrust of the story. I was trying to focus on character, and on a single emotional conflict.” The things “taken away” are the names of characters, adjectives, and quotation marks. “Loory’s sparse, unadorned prose,” wrote Michael Patrick Brady in *The Boston Globe*, “may seem at odds with the fantastical subject matter...but his restraint allows his big ideas to flourish without distraction.” His work has appeared in dozens of publications, ranging from *The Antioch Review* to *ESPN The Magazine* to *The New Yorker*.

After Harvard, where he concentrated in visual and environmental studies, Loory earned an M.F.A. from the American Film Institute, then worked as a Hollywood screenwriter for six years. “Screenwriting taught me to focus on story,” he says, “to externalize and dramatize and always keep things moving forward.” For several years, he also played mandolin,

Ben Loory



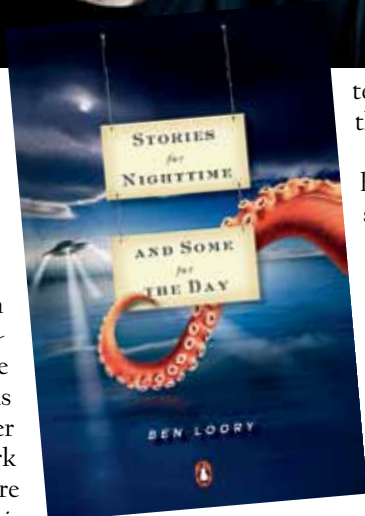
baritone sax, and accordion in an “American roots music” group, Soda and His Million Piece Band.

But sometimes Loory felt blocked as a screenwriter. He took a class in horror writing, began to write his short, enigmatic tales, and found the new form liberating; he has stuck with short fiction ever since. “It was nice to work on something that was more surprising,” he says, and this

element—a plot’s sudden, unexpected change of direction on a turn of phrase or action—is at the heart of his fiction. “I just try to write stories the way I like to hear them,” he explains: “short, evocative, mysterious, sometimes scary, and compelling.”

“The Hunter’s Head” begins, “A hunter returns to his village one night with a severed human head in one hand.” A village boy spies on the hunter as he makes daily treks into the jungle, returning each time with a decapitated human head. The heads, mounted on stakes, speak to the boy and urge him to act. He does, and the hunter’s own head soon joins the others, atop a stake. The story ends, “The boy slips into the jungle and is gone,” leaving readers to wonder if the boy is fleeing to avoid punishment, or has acquired a taste for head-hunting himself.

In other tales, a duck falls in love with



a rock; an octopus lives in a house and drinks tea; a moose befriends and then parachutes with a man. “*Fables* is a word I started to use to give editors a heads-up that these stories are stylistically different,” Loory says. Unlike Aesop’s, his don’t have morals. “They aren’t really fables, but there is something fable-like about them,” he says. “To me, the point of a story is the feeling it produces. I’m more in-

terested in writing music than propaganda.”

Some stories seem to have a spiritual dimension. In “The Tunnel,” “Two boys are walking home from school when one of them sees a drainpipe set back in the woods.” As we fear, one of the boys crawls into the pipe, where “the tunnel closes in—bit by bit, slowly...filthy walls press his arms against his

sides.” He continues, and gets stuck, and “It is then—and only then—that the boy sees the door. The little door in the wall right behind him.”

Yet most of the tales tend toward the light, and have more cheerful resolutions. In “The Book,” a woman buys some books, and one is full of blank pages. This enrages her and leads to various misfortunes until, decades later, as an old widow, she finds the book on the shelf and finds therein a photograph of herself and husband, “on the very first day that they met.”

They’re standing together on that beach; in the distance is a sunset.

Oh, says the woman, look at that.

And a smile spreads across her face.

And then the book seems to open itself, and there’s her life on the page.

This same element of surprise will likely startle in Loory’s future work: he is now at work on an illustrated children’s book, and another collection of linked short stories that all take place in the same town. He gives many readings, and enjoys doing them: “My stories are designed to be read out loud,” he says. “It’s a big part of my writing process. It always helps me to hear what’s working, and what isn’t.”

A confessed night owl, Loory says that these 40 tales were written in both the nighttime and the day. “I have one rule in writing, which is that I write whatever comes out,” he says. “And when I sit down to write, short stories are what come out.”

Avant-garde, Post-Romantic

Hannah Lash’s personal, yet crystalline, music

by THOMAS VINCIGUERRA

THERE IS NOTHING casual about the music of composer Hannah Lash, Ph.D. ’10. “I’m drawn to highly, highly pigmented emotions,” she says. “Things have to be the most fully realized they can possibly be.”

That was certainly the case in 2010, when a thief broke into her car and stole her laptop, wallet, and iPod while she

was at a new-music festival in Buffalo. As any victim would, Lash felt intensely assaulted. But slowly, her perception began to shift. “With any theft, your natural impulse is to want some form of retaliation,” she recalls. “That, to me, felt really ugly. I didn’t want that feeling at all.”

So she wrote *Violations: The Loading Dock Project*, a 35-minute piece for five instru-

ments and three singers that will premiere at Yale on March 28. Lash will mount subsequent performances in a bona fide loading dock—a “rough and public” space approximating a stage that will perhaps convey the grimy transfer of her property. The libretto speaks of loss, but also of the vexing relationship of thief and victim. “It’s recognizing the intense fallibility behind what we think of as evil,” she says.

Such dark thoughts don’t immediately gibe with Lash’s fresh, breezy demeanor. Her music, though, clearly displays her intensity. The vibraphone-and-piano composition *C* is six minutes of frenetic fretting; her 2011 piece *Music for Loss*, written after her father died last year, starts with a celesta, xylophone, and glockenspiel conveying a gentle, almost crystalline-sounding trip backward through time. Eventually, accompanied by increasing disquietude and poignant probing, it culminates in a crescendo of realization.

And then there is *Blood Rose*, Lash’s unique operatic take on “Beauty and the Beast.” There is no Disneyesque happy ending here; instead, the singers and string quartet impart what she calls a “sort of emotional cannibalism between the two characters—and you can’t really distinguish them.”

In *The New York Times*, Steve Smith wrote that Lash combines “avant-garde tech-

niques with a post-Romantic expressiveness.” Martin Bresnick, her postgraduate mentor in the Artist Diploma program at the Yale School of Music—where she has just joined the faculty—has his own take. “There is a high seriousness to Hannah,” he says. “It’s almost Puritan—it’s a single and direct expression of one’s soul. It’s a very American type, and she burns with it. She really does control a very powerful inner engine of imagination.”

That engine revved up long before she entered the Eastman School of Music at 16; Lash was homeschooled in rural Michigan by her librarian parents, who aimed to offer their daughter a less compartmentalized approach to learning, allowing her “the run of a library,” as she says. It also allowed her to develop her innate calling early on: Lash first picked up a violin at age four. Because she could not yet read music, she devised her own unique notation of Xs and triangles and squiggles. “I spent 90 percent of my time doing some form of music, whether it was writing, playing, or listening,” she says.

She was drawn to Harvard for graduate work because of its rich roster of guest lecturers and emphasis on theory, which contrasted nicely with the more practice-based aspects of Eastman. In Cambridge, she served as a teaching fellow under the “beautifully organized” Suzannah Clark,



Hannah Lash

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Cowles associate professor of music. “It was a wonderful challenge to teach the undergraduates, because at Eastman everyone was at such a high musical level,” she says. “At Harvard, the kids were so intelligent but didn’t always have proficiency with instruments. And, of course, one of the major perks was the wonderful library. I spent a lot of time in the Nadia Boulanger archives.”

Today, Lash’s preferred instruments are the piano and especially the harp. “It’s so unusual for a composer to be a harpist,” she acknowledges. “I can’t say it influences

my music, but I do enjoy the saturation of sound. And although the harp isn’t a very loud instrument, I do feel it has a resonance—you feel like you’re awash with sound.”

Serendipitously, while playing harp for *The Fantasticks* in New York, she met actor Steve Routman; they married in 2010. Not being especially religious, Lash eschewed both a traditional ceremony and traditional music. Instead, she gave her guests instruments and what she calls “a graphic score” so they could play an original percussive piece for chimes, bells, a small

gong, and two Tibetan singing bowls. Like all of her work, it was keenly felt.

“I wanted it to feel like, ‘We’re celebrating this and it is very private but also we’re here together,’” she says, smiling. “So I imagined how it is when you sit in the evening in the summer and you start to hear one frog call and then you hear a whole bunch of frogs start to call, too. Each one is sort of in his own isolated spot, yet it’s this common experience.”



Visit www.harvardmag.com/extras for a video visit with composer Lash, who talks about making music.

Brutish Beginnings

The “mixed multitudes” of early Colonial America—and the Native Americans

by DANIEL K. RICHTER

COLONIAL HISTORY, I’ve often told my students, isn’t pretty. The well-scrubbed Williamsburg, Virginia, that tourists see today would have been unrecognizable to

Thomas Jefferson, much less to the enslaved laborers who made up most of its population in the eighteenth century. And almost anywhere in British North America during that century was a paradise compared to what

had existed a hundred years earlier. Today’s images of the seventeenth century—up the road from Williamsburg at Historic Jamestowne

or down the road from Harvard at Plimouth Plantation—aren’t so well scrubbed. But neither site can begin to recreate the stench, the terror, the misery that haunted every place and everybody in that bloody

Bernard Bailyn, Ph.D. ’53, LL.D. ’99, *The Barbarous Years: The Peopling of British North America: The Conflict of Civilizations, 1600-1675* (Knopf, \$35)

era. Living-history museums dare not drive away those they hope to educate by revealing too much of the bitter truth. And so Web surfers are cheerily invited to “Dine at Plimouth Plantation.” In the accompanying photograph, a jolly Jacobean couple stands behind a modern man hoisting a huge roast turkey leg, while a multiracial tableful of guests lift their glasses and entice visitors to join them. What, one wonders, might the starving band of seventeenth-century religious zealots—who had watched half their compatriots perish during their first horrible winter on Cape Cod—have made of this cheerful picture?

The eminent Harvard historian Bernard Bailyn, Ph.D. ’53, LL.D. ’99, has a pretty good

Both sides now: mutually beneficial trade between Native Americans and English people. From Theodor de Bry’s *America* series, 1634.



Off the Shelf

Recent books with Harvard connections

Petrochemical America, by Richard Misrach and Kate Orff, M.L.A. '97 (Aperture, \$80). Misrach's 1998 photographs of the lower Mississippi River, from Baton Rouge to New Orleans—published in their entirety for the first time—evoke the old, rural South as transformed by industry. Orff, assistant professor at Columbia's Graduate School of Architecture, Planning, and Preservation, interprets the deeply impacted landscape, and proposes an alternative vocabulary—as she did recently for the famously polluted Gowanus Canal in New York.

The Fragile Wisdom: An Evolutionary View on Women's Biology and Health, by Grazyna Jasienska, Ph.D. '96, RI '06 (Harvard, \$35). Exercise, eat right—and still fall prey to breast cancer and osteoporosis: why is that women's fate? The author, a professor at Krakow's Jagiellonian University, focuses on the evolutionary pressure to produce reproductively fit bodies, rather than sustain lifelong health.

When Doctors Don't Listen, by Leana Wen and Joshua Kosowsky '88, M.D. '96 (St. Martin's, \$25.99). Respectively a clinical fellow in medicine and an assistant professor of medicine, both at Brigham and Women's Hospital, the authors fear the decline of diagnosis and offer practical lessons in doctor-patient relationships to avoid mistakes and unnecessary tests.

With Robert Lowell and His Circle, by Kathleen Spivack, BF '71 (Northeastern University, \$19.95 paper). A mosaic memoir of the poet—a two-year undergraduate at Harvard, and then a teacher from 1963 to 1977—full of Crimson connections (explored in these pages in Adam Kirsch's "The Brahmin Rebel," May-June 2004, page 39).

Colbert's America: Satire and Democracy, by Sophia A. McClennen '87

(Palgrave Macmillan, \$25 paper). A scholarly appraisal was bound to happen, no? The author, a philosophy concentrator, now professor of comparative literature, Spanish, and women's studies at Penn State, reminds us that for some viewers,

this is the news.

Success on the Tenure Track: Five Keys to Faculty Job Satisfaction, by Cathy Ann Trower (Johns Hopkins, \$45). The research director of the Graduate School of Education's collaborative on academic careers in higher education details the factors that keep junior faculty members in harness: clarity about tenure policies, work-life balance, collegiality, research support, and good leadership. With public institutions (surveyed here) reeling from economic shocks and demographic change, the fate of their faculties and education enterprise is especially fraught today.

An Enlarged Heart: Personal History, by Cynthia Zarin '81 (Knopf, \$24.95). The poet, children's-book author, teacher, and *New Yorker* staff writer creates a novelistic, episodic memoir.

Blindspot: The Hidden Biases of Good People, by Mahzarin R. Banaji, Cabot professor of social ethics, and Anthony G. Greenwald, Ph.D. '63, RI '05 (Delacorte, \$27). Banaji and her colleague from the University of Washington explain, accessibly, important research on the mental categories—implicit biases, unconscious judgments—that everyone uses as a fundamental part of navigating life every day.

Usable Social Science, by Neil J. Smelser '52, Ph.D. '58, JF '58, and John S. Reed (University of California, \$65). A serious-minded overview resulting from an unusual collaboration of the academic

(Smelser is a preeminent sociologist) and business realms (Reed is former chairman and CEO of Citigroup, and now chairs the MIT Corporation). Helpfully, they write well: "Bankers and sociologists seldom work together," they begin, noting further, "some probably like it that way."

Round About the Earth: Circumnavigation from Magellan to Orbit, by Joyce E. Chaplin, Phillips professor of early American history (Simon & Schuster, \$35). The environmental and intellectual historian—a Ben Franklin specialist—engages in a *much* broadened, briskly written overview of human globe-trotting.



Old and new along the Mississippi: Holy Rosary Cemetery and Dow Chemical Corporation, Taft, Louisiana, 1998. From *Petrochemical America*

Star of Wonder, by Mary Lee Hanford Wile '69 and Sage Stossel '93 (Forward Movement, \$18). Just in time for the season, a picture-book retelling of the Nativity, by an aunt (archdeacon for formation and continuing education of the Episcopal Diocese of Maine) and niece (*The Atlantic* contributing editor and illustrator) team, published for the trade by the outreach ministry of the Episcopal Church.

Later Poems, Selected and New: 1971-2012, by Adrienne Rich '51, Litt.D. '90 (W.W. Norton, \$39.95). A generous collection, chosen by the poet herself before her death earlier this year.

idea. “Death was everywhere,” he says in his aptly named new book, *The Barbarous Years: The Peopling of British North America: The Conflict of Civilizations, 1600–1675*. “America, for these hopeful utopians, had become a graveyard.” No one is better qualified to survey the carnage at Plymouth than Bailyn, now Adams University Professor emeritus, who began teaching at Harvard in 1953, published the first of his more than 20 books in 1955, and has earned the Pulitzer Prize for history twice. The heaping dishes he would serve to latter-day Plymouth diners are not pretty to look at—indeed they often purposefully turn the stomach—but they provide some necessary doses of past reality that only someone of his vast learning and experience could prepare.

The Barbarous Years resumes a series that Bailyn began in 1986, with the publication of a brief overview called *The Peopling of British North America: An Introduction*, and a massive tome entitled *Voyagers to the West: A Passage in the Peopling of America on the Eve of the Revolution*. The opening pages of the shorter volume conjure “a satellite circling the globe from the early medieval period to the advent of industrialism.” Its camera, Bailyn says, would reveal that “the transforming phenomenon was...the massive transfer to the Western Hemisphere of people from Africa, from the European mainland, and especially from the Anglo-Celtic fringes of the British Isles.” *Voyagers to the West* is a high-resolution snapshot, developed from intense analysis of every recorded departure from the British Isles for North America between late 1773 and early 1776. Packed with numbers, tables, graphs, and maps, it traces broad patterns. But *Voyagers* is also full of personal stories revealing the motives, experiences, and emotions of those who made new homes in North America.

As Bailyn admits, for the seventeenth century “the data do not exist” for this kind of comprehensive analysis. *The Barbarous Years* must therefore be far more impressionistic than its predecessor, although it does the best it can with the fragmentary passenger lists, port records, and other materials available. Colorful characters—familiar and often unfamiliar—leap from its deeply researched pages. Groups of chapters organized by region—Virginia and Maryland, New Netherland and New Sweden, Plymouth and Mas-

sachusetts Bay—survey what is known about the varied backgrounds, controversies, and personalities in the founding years of European colonization in each place.

The three regions, each treated mostly in isolation from the others, differed in geography, environment, and economy, but “of one characteristic of the immigrant population there can be no doubt. They were a mixed multitude.” Chesapeake colonists spanned a vast range of social statuses, and they came from all over the British Isles.

Chaos and violence were the orders of the day, not just among the colonists themselves but especially in their relations with indigenous people.

New England Puritans mostly sprang from middling social strata but brought with them multiple local traditions of farming and government. And once they escaped their common enemies in England, they discovered huge theological disagreements among themselves. Meanwhile, New Netherland and short-lived New Sweden—the substrate on which, after two military conquests, the later English colonies of New York, New Jersey, Pennsylvania, and Delaware would be built—“left behind, on the shores of North America, one of the strangest assemblages of people that region would ever know,” a “farrago” of Finns, Jews, Walloons, and motley others.

Presiding over this assemblage were Dutch rulers like Willem Kieft and Petrus Stuyvesant, “the chronicle of whose administrations read at times like Tacitus’s annals of imperial Rome.” Dominant figures in New England and the Chesapeake were no less remarkable, and their populaces no more governable. Chaos and violence were the orders of the day, not just among the colonists themselves but especially in their relations with indigenous people. Beginning with its title, *The*

Barbarous Years highlights the brutality that Europeans and Indians inflicted on each other.

Still, for all the book’s learned strengths, its discussions of Native Americans are disappointing, even for a study focused on European migrants rather than Indian affairs. Many of the problems involve unfortunate choices of language, beginning with the decades-old decision to call the series *The Peopling of British North America*. In an opening chapter entitled “The Americans,” Bailyn makes clear that he does not think the continent was empty before Britons peopled it. Yet that chapter phrases things in ways that minimize Indian presence on the land. Indigenous communities were “few in number by modern demographic standards.” “No one was completely sedentary,” because “most villages were only seasonally occupied.” Moreover, “most people remained in their ‘home’ villages only through the spring and summer months, and even then wandered out from time to time in small bands to coastal and riverside fishing areas.” Some of this is accurate, for some places and times, but why put *home* in inverted commas, and why use words like *wandered* when writing about people whose towns were often substantial places surrounded by acres of corn, beans, and squash and marked by the graves of their ancestors?

My sensitivity to these issues is heightened by a recent scholarly essay by historian James Merrell about how our word choices continue to trap all of us in old colonial habits of mind. But there is more to it than that. Bailyn describes Native Americans living in a “magico-animist world,” where “deep strains of anxiety tinged their lives” even before they met Europeans. Because “Americans experienced life as a delicate balance, which had to be carefully maintained,” the principal—perhaps even only—imaginable explanation for their behavior would then appear to be a desperate attempt to maintain that balance. There is little room for readers to imagine that something more complicated might have been going on, that Native people and Europeans might have engaged in hard-headed calculations of what one side had to offer the other, or that the two sides might have occasionally transcended fixed ideas to learn how to deal with each other. Or, for that matter, that there might even have *been* more than two sides who stared

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uncomprehendingly at each other across a clear racial divide.

Thus the Native American trade of furs and hides in exchange for imported tools, weapons, and cloth can only be conceived as “the start of a degenerative spiral” for delicate cultural systems. Yet, as a stack of historical and archaeological studies has shown, trade with Europeans also empowered many Native peoples to craft new art forms, to transform internal and external power relationships, and to exploit new military and other technologies in ways firmly rooted in their own traditions. Clearly, as Bailyn concludes, “by 1664 the Indians’ world in coastal North America had been utterly transformed” by commerce with the colonists, but it is too simple to conclude universally that “their lifeways [were] disrupted and permanently distorted.” There were indeed devastat-

ing distortions and bloody warfare, but there were also many Native people who—at least in the medium term—benefited greatly from their engagement with the Atlantic economy. They eagerly sought out trade and alliances with the newcomers, and those efforts often provided the economic glue—as well as the explosive military force—that tied together the colonial regions that, when Natives are left out of the picture, seem united by little except the mixedness of their multitudes.

A case in point are the people known as the Susquehannocks, whose homeland in what later became central Pennsylvania linked the Chesapeake Bay region with the Delaware watershed, and thus connected Virginia and Maryland to New Sweden and New Netherland. Though the Susquehannocks appear relatively frequently in *The Barbarous Years*, the book conveys little

sense of how, in the middle decades of the seventeenth century, these people were playing Swedes, Dutch, Marylanders, and Virginians against each other on behalf of more important strategies involving Native wars and trade routes in that “less palpable, less easily identified...interior” of the continent. As the late Francis Jennings put it 30 years ago, “the Susquehannocks were the Great Power in their part of the world,” and, as historian Cynthia Van Zandt has recently argued, they “regarded themselves as the protectors of the New Sweden colonists and as the superior party in the alliance.” If Bailyn’s imaginary satellite were to shift its camera’s focus from the Atlantic Ocean and the ships that sailed its winds to the Susquehannocks’ country and the Europeans who lived there at their bidding, the forces that shaped the flow of migrants to North America might look quite different.

If the importance of the Susquehannocks gets short shrift, the power of Indian people in what Europeans called New England receives almost no notice at all. The Pequot War of 1637-1638 does earn brief attention for its brutal violence, yet that violence comes across mostly as English rage spilling over from the Antinomian Crisis, which was at the same time pitting Anne Hutchinson against the leaders of what became New England Puritan orthodoxy. In the latter’s minds, “the savagery of the Indians, undoubtedly in league with Satanic power, and the challenge of the antinomians...were conjoined in their malevolence.” Perhaps so, yet the historians who have been reanalyzing this war for more than 30 years also know that the Pequot War was a many-sided conflict rooted in far more than mindless Puritan rage. Pequots, Mohegans, and Narragansetts, colonists from Massachusetts and Plymouth, and diverse other intruders all were contending for lands and trade routes along what the English called the “Connecticut” and the Dutch the “Fresh” River. Two new English colonies—Connecticut and New Haven—emerged from the violence, New Netherland’s scope retracted, Massachusetts Bay flexed its strength, and the Mohegans, under their chief Uncas, filled the power vacuum left by the utter defeat of their Pequot enemies. Perhaps no other single event in the first half of the seventeenth century did more to shape subsequent English posses-

Chapter & Verse

Correspondence on not-so-famous lost words

Peter Williams seeks help in locating a bit of light verse rhyming “elderly gentlemen” with “unornamental men,” possibly from the *Saturday Review* around 1960.

Ginny Schneider would like a citation for a statement “attributed since at least 1982” to Alexander Haig: “They can march [protest?] all they want, as long as they pay their taxes.”

Dan Snodderly hopes someone can identify a survey that “asked if people had participated in the following activities associated with the Sixties: attending a demonstration; having sexual intercourse before marriage; smoking marijuana; taking hard drugs (LSD, mescaline, etc.). Fewer than half the respondents had done two. Less than 5 percent had done all four.”

Stanley Liu requested a source for a remark widely attributed to Albert Camus: “Some people talk in their sleep. Lecturers talk while *other* people sleep.” C&V asked Eric Mazur, Balkanski professor of physics and of applied physics, who has used the quip himself (see “Twilight of the Lecture,” March-April 2012, page 23),

for guidance. He reports: “It turns out that the quote is attributed all over the English-speaking Web to Albert Camus, and it turns out all the English-speaking sites are wrong. The quote is due to Alfred Capus, a well-known French journalist: *Certains hommes parlent pendant leur sommeil. Il n’y a guère que les conférenciers pour parler pendant le sommeil des autres.* I guess that the first person to refer to it in English thought that ‘Alfred Capus’ was a typo and changed it to ‘Albert Camus.’”

“You like because of” (November-December 2012). Dan Rosenberg sent in the last paragraph of William Faulkner’s essay “Mississippi,” published in *Holiday* magazine in 1954: “Loving all of it even while he had to hate some of it because he knows now that you don’t love because: you love despite; not for the virtues, but despite the faults” (from *William Faulkner: Essays, Speeches, and Public Letters* [2004], edited by James B. Meriwether).

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

sion and population patterns. Yet most of it escapes the otherwise perceptive camera of *The Barbarous Years*.

So does one of the most photogenic scenes in early New England history, the "First Thanksgiving," which, perhaps because it seems so familiar, Bailyn does not even mention. Surviving documents reveal little about that 1621 feast except that the Plymouth colonists' honored guest was the Wampanoag chief Massasoit. But there is ample evidence to demonstrate that Massasoit was not just enjoying a meal but exploiting his alliance with Plymouth to create a new system of economic and political relations among Algonquian-speaking peoples. For a generation, until things fell apart in the era of his successor known as King Philip, Massasoit's system ensured his people's regional dominance and secured their independence from their powerful rivals to the west, the Narragansetts and Mohegans. Meantime, and by no coincidence, in the 1630s and 1640s, the Narragansetts welcomed Roger Williams and other outcasts from elsewhere in New England, who built the colony of Rhode Island within that nation's homeland and rival trading orbit, just as the Mohegans were doing something similar based on their post-Pequot War ties to Connecticut and Massachusetts Bay.

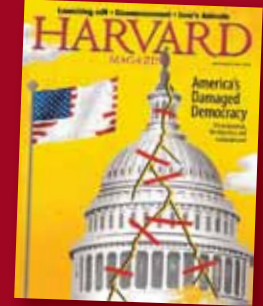
In no small measure, then, Connecticut, Rhode Island, and Plymouth, like New Sweden, took shape because of decisions taken by the Native peoples into whose lands European voyagers wandered. In taking those decisions, Indians were not merely preserving some mystic balance in their lives, but actively shaping the patterns of colonial settlement in their midst. And so the event that we know as the First Thanksgiving becomes not just a rare moment of civility but a reminder that it may be worthwhile, after all, to "Dine at Plimouth Plantation" in order to digest fully the nutritious colonial fare that Bailyn so masterfully sets before us. ▢

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Fracking's Future

Natural gas, the economy, and America's energy prospects

by MICHAEL McELROY
and XI LU



SUPPLIES OF NATURAL GAS now economically recoverable from shale in the United States could accommodate the country's domestic demand for natural gas at current levels of consumption for more than a hundred years: an economic and strategic boon, and, at least in the near term, an important stepping-stone toward lower-carbon, greener energy.

But even though natural gas is relatively "clean"—particularly relative to coal burned to generate electricity—the "fracking" process used to produce the new supplies poses significant environmental risks. We must ensure that procedures and policies are in place to minimize potential damage to local and regional air quality and to protect essential water resources. We need to make sure that extraction of the gas (consisting mainly of methane, with small amounts of other gases) from shale and its transport to market does not result in a significant increase in "fugitive" (inadvertent) emissions of methane (CH_4)—which is 10 times more powerful as a climate-altering agent, molecule per molecule, than carbon dioxide (CO_2 , the most abundant greenhouse gas). Further, we will need to recognize from the outset that cheap natural gas may delay the transition to truly carbon-free, sustainable so-

lar- and wind-energy supplies that remain crucial in light of our worsening climate-change crisis.

The Gas Gift

PRODUCTION and consumption of natural gas in the United States were in approximate balance up to 1986. Production then lagged consumption during the following 20 years; the deficit was made up largely by imports from Canada, delivered by pipelines. The situation changed dramatically in 2006 as companies using new drilling technologies moved aggressively to tap the vast supplies of previously inaccessible gas trapped in underground shale deposits. Natural gas extracted from such sources accounted for 10 percent of U.S. production in 2007, and rose to 30 percent of production by 2010—an enormous, swift change in our huge market. There are few signs that the trend is likely to reverse in the near future.

Partly as a result of that surge in supply, domestic natural-gas prices are now lower than at any time in the recent past. The spot price for natural gas traded on the New York Mercantile Exchange hit a record low of \$1.82 per million British thermal units (MMBTU) last April 20—down 86 percent from a high of \$12.69 in June 2008. Even at recent, somewhat higher prices, natural gas

is now significantly cheaper than either diesel fuel or gasoline on an energy-equivalent basis: a little more than *one-tenth* the wholesale, spot prices of about \$3 per gallon for those liquid fuels.

Lower-priced natural gas has had important consequences for the U.S. economy. Approximately one-quarter of primary energy (mainly coal, gas, oil, nuclear, and hydro) consumed in the United States in 2011 was supplied by natural gas. Electricity generation accounted for 31 percent of total natural-gas demand, followed by consumption in the industrial (28 percent), residential (19 percent), and commercial (13 percent) sectors. Natural gas is used as an industrial energy source in manufacturing products ranging from steel and glass to paper and clothing. It is the raw material for fertilizer, paints, plastics, antifreeze, dyes, photographic film, medicines, and explosives. More than half of all commercial establishments and residences are heated using gas, which is widely deployed as well for cooking and as fuel for water heaters, clothes driers, and other household appliances. Consumers have benefited directly from lower gas-utility bills, and industrial customers have benefited by switching fuels—as have chemical and other processors that use gas as a feedstock. Abundant, cheap natural gas has been of general benefit to electric-utility customers as power suppliers have substituted it for coal to fire their generators.

The shift from coal to gas in the electricity sector has also yielded an environmental bonus—a *significant* reduction in emissions of CO₂, because CO₂ emissions *per unit of electricity generated* using coal are more than double those produced using gas. Approximately half of U.S. electricity was produced using coal in 2005, but by last March, coal's contribution had dropped to an unprecedented low of 34 percent. Meanwhile, the U.S.

Energy Information Administration (EIA) reported that domestic emissions of CO₂ during the first quarter of 2012 fell to the lowest level recorded since 1992. An ancillary benefit of the coal-to-gas switch has been a significant reduction in emissions of sulfur dioxide, the cause of acid rain, because many of the older coal-burning plants selectively idled by the price-induced fuel switch were not equipped to remove this pollutant from their stack gases.

Supply and Demand

A KEY QUESTION is whether the current low price for gas can persist.

Shales in different regions are

Opposite: A hydraulic fracturing rig drilling for natural gas in eastern Colorado. Right: A wastewater holding pond for a fracking well in rural Pennsylvania—a state where several thousand wells have been drilled to extract natural gas from shale.

characterized by variable combinations of hydrocarbons. Some are gas- (methane-) rich, described as “dry.” “Wet” formations yield significant concentrations of condensable heavier hydrocarbons—such as ethane, pentane, and propane—referred to collectively as natural gas liquids (NGLs). Still others—notably the Bakken field in North Dakota—are gas-poor but oil-rich and are being developed primarily to extract that valuable resource. (In fact, only Texas outranks North Dakota now among U.S. oil-producing states.)

The hydrocarbon mix matters, because the break-even price for profitable extraction of natural gas from a dry shale well is estimated at about \$5/MMBTU—about one and a half times the spot-market price in October. The bulk of the natural gas produced from shale today is derived from wet sources: marketing of the liquid products (which command higher prices) justifies the investments.

That means that the economic momentum of the shale-gas industry can be sustained for the long term only by decreasing production (ultimately causing prices to adjust—a process that may be under way as drilling diminishes at current prices) or by increasing sales of its product.

Increased use of natural gas for transportation could provide an additional domestic market, taking advantage of the significant price disparity versus gasoline or diesel fuels (as noted above). Doing so would require not only an investment in facilities to produce and deliver compressed natural gas (CNG), which is in limited use now, but also the introduction of vehicles capable of running on this energy source. Buses, taxis, and public vehicles (police cars, for example), suitably equipped, that could be charged at central stations would appear to provide an attractive early marketing opportunity. The benefits of such conversions would include reduced demand for imported oil, improved urban air quality, and a further decrease in CO₂ emissions.

An even larger opportunity may lie in exports. Natural-gas prices in Europe and Asia were five to seven times those in the United States during the first half of 2012; Japan is an especially eager consumer, given the wholesale closure of its nuclear-electric generating capacity in the wake of the Fukushima earthquake,

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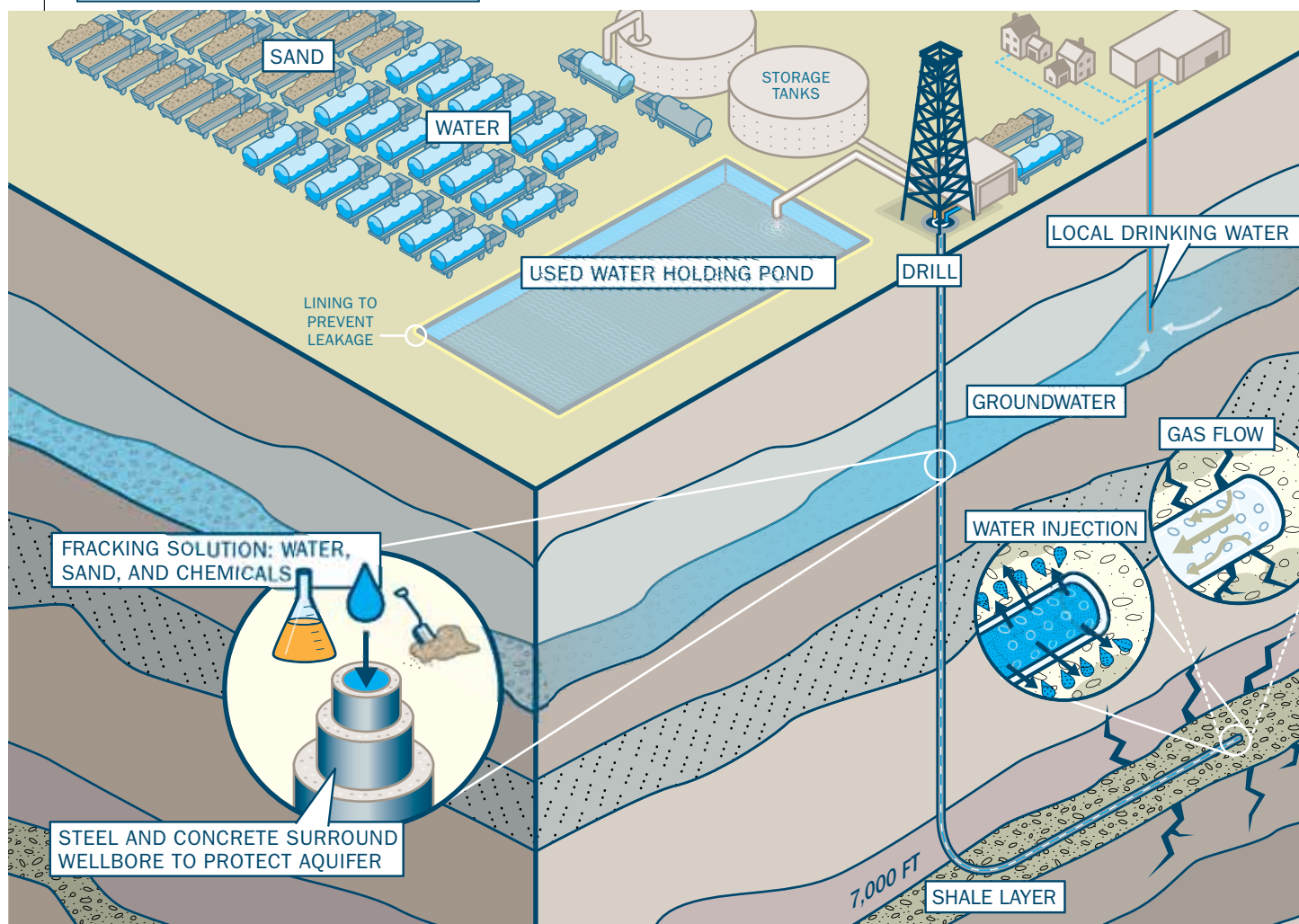


LES STONE/CORBIS IMAGES

tsunami, and power-plant crisis in March 2011. But exports require multibillion-dollar investments in facilities for liquefaction of gas and in the ports through which liquefied natural gas (LNG) can be shipped. Exxon Mobil Corporation, the largest producer of natural gas in the United States, has taken steps to form a \$10-billion partnership for LNG exports. If this and other investments proceed, and the prices realized for LNG are high enough to justify further shale-gas drilling, the U.S. economy could benefit from significant energy exports—and the importing countries might also realize environmental benefits. China, where coal is the principal fuel source, could profit in particular: a cleaner source of energy would mean less local pollution from coal (including emissions of particulates, sulfur, mercury, etc.). And the global environment would benefit overall from a reduction in—or lessened growth of—CO₂ emissions. (China became the leading source of such emissions in 2006.)

To date, then, we can say conclusively that a shift to natural gas from coal has changed the U.S. energy system in ways that yield economic and environmental gains. But there are serious environmental challenges associated with freeing that gas from the shale and distributing it to consumers.

DRILLING FOR NATURAL GAS



A Fracking Primer

THE FIRST STEP in extracting gas from shale involves drilling vertically to reach the shale layer, typically a kilometer or more below the surface. Drilling then continues horizontally, extending a kilometer or more from the vertical shaft, and the vertical and horizontal components of the well are lined with steel casing, cemented in place. The horizontal extension of the casing is then perforated, using explosives; thereafter, water, carrying sand and

Careless releases of methane could more than offset the advantages otherwise realized by reducing emissions of carbon dioxide through substituting natural gas for other fuels.

proprietary chemicals, is injected into the well at high pressure. The water encounters the shale through the perforations, generating a series of small fractures in the rock (hence the nickname, “fracking”); the sand in the water keeps the cracks open, while the chemicals enhance release of gas from the shale. The injected water flows back up to the surface when the pressure in the well is released following completion of the fracking procedure. Then the well starts to produce natural gas.

As many as 25 fracture stages (per horizontal leg) may be involved

in preparing a single site for production, each requiring injection of more than 400,000 gallons of water—a possible total of more than 10 million gallons before the well is fully operational. A portion of the injected water flows back to the surface, heavily contaminated with the fracking chemicals and others it has absorbed from the shale. Depending on the local geology, this “return water” may also include radioactive elements.

Drillers developing a well must take exceptional care to minimize contact between the wellbore and the surrounding aquifer—often the source of nearby residents’ fresh water. Serious problems have arisen in the past from failures to isolate the drilling liquids, including cases where well water used for drinking became so contaminated that human and animal health was threatened. It is essential that monitoring be in place to ensure the continuing integrity of the seal isolating the well from the aquifer even *after* the well has been fully exploited and abandoned.

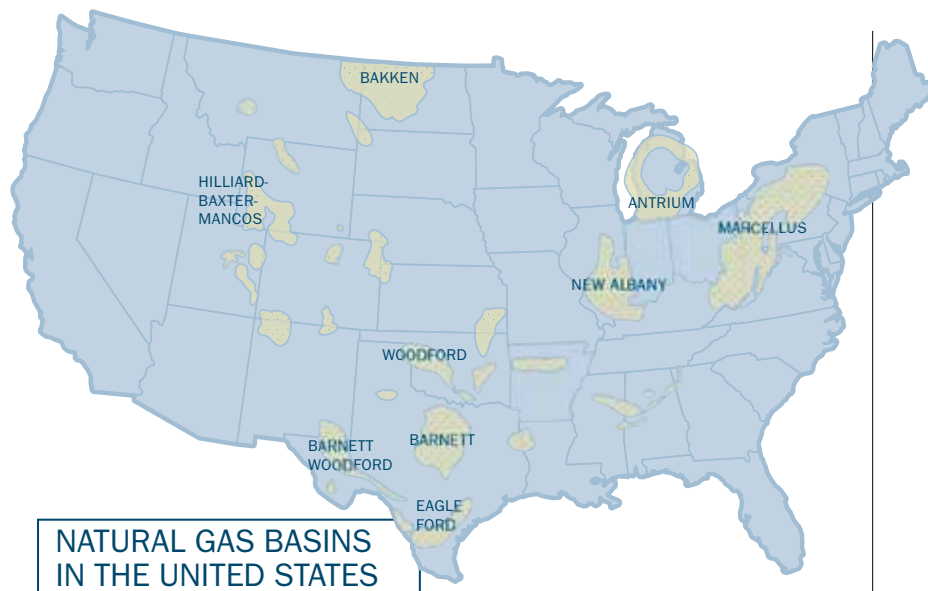
A fraction of the contaminated water that returns to the surface is recycled and reinjected into the well to facilitate the next phase of the fracking process. But a larger proportion is stored temporarily in lined ponds on site for eventual transfer (most commonly by truck) to conventional water-treatment facilities. Care must be exercised to protect groundwater from spillage and to guard against potential leakage from the ponds. Moreover, the facilities to which the contaminated water is eventually transferred may be ill-prepared to deal with the challenges posed by its unusual chemical composition; for instance, conventional treatment facilities are not equipped to deal with radioactive materials—which under the circumstances could be transferred to the water bodies receiving the treated effluent.

Finally, careless drilling and production from fracked wells can result in fugitive emissions of methane from the shale below. Such inadvertent releases of methane could more than offset the advantages otherwise realized by reducing emissions of CO₂ through substituting natural gas for other fuels.

The International Energy Agency (IEA) recently proposed steps to ensure responsible extraction of gas from shale. If these procedures are implemented, the IEA concluded that the increase in production costs should be relatively modest—7 percent or less—and that the integrity of the environment could be protected. The IEA conclusions appear overly optimistic in the U.S. context: the costs for design and implementation of sensible regulations for the domestic shale-gas industry are likely to be significantly greater—but still tolerable. The problems are neither technical nor economic, but essentially political.

Beyond Shale Gas: Carbon-Free Energy

A RECENT STUDY by the National Renewable Energy Laboratory (NREL) suggests that with suitably targeted investments, emissions of CO₂ from the U.S. power sector could be reduced by as much as 80 percent by 2050. The dominant source of electricity as envisaged in this analysis would come from a combination of wind and solar, with gas-fired plants called on to provide backup whenever the intrinsically variable source of power from wind



and solar might not be sufficient to meet peak demand (on a hot summer evening, for example). Coal would be replaced initially by gas, continuing the trend observed over the past several years. Successful implementation of this strategy will depend critically, however, on future trends in relative prices for electricity generated using coal, gas, wind, and solar.

The break-even price for production of electricity using a modern coal-fired plant is about 5.9 cents per kilowatt hour. This means that coal cannot compete economically with gas under conditions where gas prices are lower than about \$5/MMBTU, our estimate of the break-even price for production of gas from a dry well (at \$5/MMBTU, the price for production of electricity from gas would be about the same as that from coal). Gas replaces coal as the fuel of choice in this case.

The cost for production of electricity using wind is about 8.0 cents per kilowatt hour. Wind therefore can compete with \$5/MMBTU gas *only* if it can continue to benefit from the existing production tax credit (PTC), currently 2.2 cents per kilowatt hour. If gas prices were to rise above \$8.3/MMBTU, wind would be competitive even in the absence of the PTC. The problem in this case is that generation of power from coal would be cheaper than that from either gas or wind.

Thus free-market forces alone may not be sufficient to grease the path to a low-carbon future. Should gas prices rise above \$5/MMBTU, a carbon tax may be required to ensure a continuing competitive edge for gas relative to coal. Similarly, the PTC subsidy or similar initiatives—such as quotas for minimum contents of renewable energy in specific power markets (often on a state-by-state basis)—may be needed to ensure the continuing viability of wind and solar should gas prices persist below about \$8.3/MMBTU. If we are to navigate safely and successfully to the future envisaged by the NREL, gas prices must be low enough to disenfranchise coal but not *so* low as to make it impossible for renewable sources to compete. ▢

Butler professor of environmental studies Michael McElroy's article "Time to Electrify" appeared in the July-August 2011 issue of this magazine. Xi Lu, Ph.D. '11, a postdoctoral fellow in environmental and energy sciences, is a lecturer on environmental science and public policy.



Vogue Meets Veritas

Designers, models, and merchants tint the fashion industry Crimson.

by CRAIG LAMBERT

THOUGH THE early April night is freezing cold at 10 P.M., a line of 600 people, mostly students, waits more than 40 minutes to enter Annenberg Hall. They are another sellout audience for the annual *Identities* fashion show at Harvard. Four thousand more will watch online. Founded by undergraduates of Asian descent in 2006, *Identities* has evolved into a multi-racial, multiethnic event. Each year, it presents an award to an accomplished fashion designer (also, typically, of Asian descent), like Vera Wang or Anna Sui; the 2012 honoree is Jen Kao.

Inside, alluring models sweep down a runway between the spectators—the first segment plays variations on the classic little black dress. Live video piped to a Jumbotron provides enhanced views for the enthusiastic audience. The male models have their own vocal clique of guys who cheer them on with frequent shouts of “Woo! Woo!” And many spectators—in high heels, décolletage, short hemlines, and glittering fabrics—are as well turned out as the runway models.

“Harvard is the only university with *three* fashion shows,” says Jane Chun ’12, who last year, with Angela Su ’12, headed the Vestis Council, an undergraduate organization that works year-round, in Chun’s words, “to promote fashion at Harvard as an aesthetic, creative, and professional interest.” (The annual *Eleganza* show, founded in 1994 by the umbrella organization BlackC.A.S.T., draws as many as 2,000 to its sexy, dramatically choreographed spring events, and the Retail and Luxury Goods Club at Harvard Business School [HBS] has mounted an annual fashion show since 2008 that, like the others, raises money for charities.) “In the last five years, there’s been a surge of interest in fashion,” Chun declares. “Our dream is to develop a liaison between the fashion industry and Harvard.”

That dream, in fact, is already a reality. In recent decades, dozens of Harvard alumni have taken influential roles in all facets of the fashion industry: as designers, models, executives, and entrepreneurs.

Here are some of their stories that, taken together, refract an image of the fashion business through a Crimson lens.

THE AESTHETIC SENSIBILITY of Gabrielle “Coco” Chanel (1883–1971) still infuses her company, which began in a Paris boutique she opened in 1910. A 2011 HBS teaching case, “Coco Chanel: Creating Fashion for the Modern Woman,” by Mukti Khaire, associate professor of business administration and Kerry Herman, associate director of the Business School’s Global Research Group, quotes Chanel’s declaration, “Fashion is not simply a matter of clothes.

John Galantic, president of Chanel’s American operations, at the Chanel boutique on Madison Avenue in New York City

Fashion is in the air, borne upon the wind.” She may have taken this dictum literally: her legendary No. 5 perfume appeared in 1921.

“Coco created the codes of Chanel, the enduring framework of the brand,” says John Galantic, M.B.A. ’90, the New York-based president of Chanel US since 2006. “There is a visual vocabulary: the tweed jacket, the black-and-white colors, the camellia, the No. 5 fragrance, the quilting and chains in our handbags, the little black jacket. Karl [Lagerfeld, Chanel’s fashion designer since 1983] plays with that vocabulary and reinvents it, sometimes irreverently, or even challenges it, but those codes remain vibrant and provide a sense of continuity. They remain very much a part of the House of Chanel and are reflected not just in clothing but in our fragrance, makeup, watches, and so on.” Coco Chanel, he notes, “was a female entrepreneur at a time when there were none. Most brands are named after men. She grew up in an orphanage and created what is arguably the most desired fashion label. It gives us a connection with women, both as customers and employees.”

Chanel is privately held—“a significant advantage, and a reason for our success,” says Galantic, who spent years in Europe managing portfolios of brands for private and public companies like Coty Beauty (“I admired Chanel then, as a competitor”), SmithKline Beecham, and Procter & Gamble. “Public companies can be very driven by quarterly numbers,” he explains. “It’s much harder to think about the long-term health of the brand over a 10-year period when you’re public. Our ability to say ‘No,’ or ‘Not now,’ is an integral part of the Chanel brand remaining as pure, exclusive, and rarefied as it is.”

Other Harvardians have also helped build or sustain deluxe fashion brands. Domenico De Sole, LL.M. ’72, an Italian-born tax attorney, took charge of Gucci, a cratering luxury-goods house, in 1994. He led a spectacularly rapid turnaround, appointing young designer Tom Ford as creative director, shaking up management, and repositioning the brand. The late Marvin Traub ’46, M.B.A. ’49, was a legend in fashion retailing; as CEO of Bloomingdale’s from 1978 until 1992, he transformed that department-store chain into a fashion powerhouse.

In the intensely competitive, data-based, mass-market world where Galantic worked before Chanel, powerful retailers like Walmart can determine a brand's future. Now, he's in a different landscape. "In luxury fashion, the major brands can control much of their own distribution, through their own stores and boutiques," he says. "I'd rather control my brand's presentation than trust that to a third party—it's a more cohesive and stable business model. I prefer to be focused on things that add value to my brand than on pleasing—short term—a mega-retailer."

Vertical integration enables Chanel to remain "very much focused on quality, from beginning to end," he explains. Owning the early points in the supply chain helps. A few years ago, for example, Chanel bought nine "*ateliers d'arts*"—specialist suppliers to couture houses, such as the Lesage embroiderers—to ensure the availability of their work, as some were financially vulnerable. Galantic's training took him to the harvest in Grasse, France, where Chanel grows roses and jasmine that go into the No. 5 fragrance. He says that his parents, Ivan Galantic, Ph.D. '69, and Elizabeth Joyce Galantic, Ph.D. '82, who taught art history and English literature, respectively, instilled in him an aesthetic sensibility. "In a world where there's a lot of cutting corners and mass production, I find an intrinsic value in being obsessively focused on the highest quality and design standards and continually raising the bar—whether it's the clarity and cut of diamonds, or the exotic skin of a Chanel handbag," he says. "There are not many companies left that have that kind of focus. Ultimately, we're more about creating fine products and less about the way they're marketed."

The bulk of Chanel's business in its three divisions (fashion and accessories, watches and fine jewelry, and fragrance and beauty) goes through its own boutiques. It also sells fragrance and beauty products in stores like Saks Fifth Avenue, where Steve Sadove, M.B.A. '75, has been CEO since 2006. "Fashion is a combination of art and science," Sadove says. "You want to anticipate consumer tastes, and you're also helping to *drive* consumer tastes."

"Knowing your customer" in a mass-market context means distilling a profile from aggregate data, but in a high-end boutique, the



COURTESY OF ALEXANDER OLC

Alexander Olch, who designs ties and accessories (and makes films), calls his style "a mix of uptown and downtown."

staff know the customer by name, and know her family members and tastes. Today, e-mail, texting, or Facebook postings can speed that personal contact. Hence, "a Chanel boutique director might attend a runway show in Paris and say, 'Mrs. So-and-so would love that, and so would her friends,'" says Galantic. "It gets down to that level of granularity. A fine luxury experience is a personal one."

WHEN HER FATHER, a former Ugandan ambassador to the UN, died in 2006 at age 93, his passing conveyed a *carpe diem* lesson to designer and entrepreneur Katiti Kirondé '79: "Now is the time to do what you've always wanted to do. I had always wanted to do white shirts for women—to do what Vera Wang did for wedding dresses: bring *style* and fashion to them." Her mission to feminize the crisp button-down shirt—using design elements and principles like tucks, fit, and line—has

produced a collection of more than two dozen styles for her Katiti label (www.katiti.com), rendered in all-natural fabrics: cotton, linen, or silk. "They are things you could wear with black pants, jeans, cigarette pants, or a simple skirt," she says. The shirts come from Kirondé's firm, Tortue, Inc. (the French word for tortoise, chosen for its "slow and steady" connotations), a partnership between the designer and her husband, architect William Winder.

In 1968 Kirondé appeared on the cover of *Glamour* magazine, becoming the first black woman on a major American fashion-

Designer Katiti Kirondé with her white shirts at the Fashion Lab of Fisher College in Boston



Photograph by Stu Rosner

magazine cover. She began college in her mid twenties, while a young mother; as a parent of three youngsters, she designed children's clothing for her own firm, Boston Bred. She segued into design and product-development jobs with the House of Bianchi, Laura Ashley, and David Brooks in Boston, plus freelancing for Talbots.

Beginning in 1996, her children grown, Kirondé spent 13 years with the Framingham, Massachusetts-based TJX Corporation, parent company of the clothing retailer T.J. Maxx. There, she designed women's sweaters and, as a design manager, traveled throughout Asia (Hong Kong, Korea, Indonesia, and China) and Europe (Spain, Italy, France, and England), looking for trends and spotting items like new yarns. "I felt like I was always traveling," she says. "But the things I learned at TJX and the contacts I made were invaluable."

Some of those contacts helped her begin manufacturing Katiti shirts in China. She hired Mike Dolan, a "sourcing person," to identify sources of fabric, factories, and other production necessities, as she was weary of travel and wanted to focus on design. Shirts reached stores in the fall of 2010, concentrated in Boston boutiques, where they retailed in the \$225-\$300 range. "Right out of the box, we got good press," Kirondé says: favorable notices appeared in *The Boston Globe*, *Boston Magazine*, *The Huffington Post*, and among fashion bloggers. *Boston Magazine* cited the shirts' "rarely seen attention to detail: delicate ruching, exquisite collars, perfect pleating—all in subtly feminine cuts. The result is both timelessly elegant and unapologetically stylish."

Yet scaling a fashion business is a challenge. The factory in China said, "We want bigger numbers," Kirondé explains. "They're not interested in making hundreds of shirts—they want to do thousands. But without big retail stores, it's hard to make those large numbers. We haven't done spring collections because, for a small label, there's not enough volume to do spring."

Tortue plans its next collection for the fall of 2013, using a New York City-based factory, but the product will become much more expensive, retailing in the \$400 range.

Meanwhile, Kirondé is helping mentor the next generation of fashionistas; she teaches a fashion course at Fisher College in Boston, has given presentations at Harvard on the topic, and has worked with the undergraduates who put on runway shows like *Eleganza*. She counsels them to cultivate persistence. "Young design people call me and are very discouraged," she says. "They feel, 'I've got this incredible product and everyone is going to love it.' Then that doesn't happen. People don't even return your phone calls. You

The Study of Fashion

FASHION HAS BECOME the subject of Harvard scholarship. Professor of law Jeanie Suk, for example, has analyzed intellectual-property issues involved in fashion design (see "Real Fashion Police," July-August 2010, page 9) and in 2011 testified before the U.S. House of Representatives, which was considering adding protection for fashion designs to the copyright law. (The House ultimately did not act to change the law, although a Senate committee approved a new version of the bill in 2012.) This issue has become increasingly important as the market for fashion has grown from an exclusive elite to a broad, international body of consumers. "In America there has been a process of fashion becoming more widely disseminated," Suk says. "In the early twentieth century, the garment and fashion industries were focused in the local metropolitan culture of New York City—really, a certain stretch of Manhattan. With the growing ease of travel and communication and the wider dissemination of newspapers and magazines, fashion trends spread much more broadly and rapidly. Now the Internet has exponentially sped up and broadened the diffusion of fashion trends."

"In a way, fashion is the exemplar of dissemination," she continues, "because it is so much about trends. Fashion is not just a trivial interest, but a real indicator of where a culture is going. Like theater, film, art, or music, it has become one of the cultural vectors that give us a sense of what is going on in our society."

Fashion is also attracting attention from business-school faculties and students. "In business schools in general, the study of fashion is new," says associate professor of business administration Mukti Khaire, who teaches a course on entrepreneurship in creative industries. "Most of the past scholarly work has been in sociology—gender, the body politic, how changing styles reflect social norms. For business research, there were real hurdles. The main one is that, until recently, most fashion firms were privately owned, so they never had to disclose data on financial performance. When I was in New York doing research for my Ph.D., I went to the Garment District and knocked on doors. Almost every firm was an individual DBA [Doing Business As]. No databases exist, making quantitative analyses difficult. Another obstacle was the attitude of the people in the industry: designers don't like to think of themselves as a business—they're in it for the creative satisfaction."

"In some ways, fashion firms are like restaurants, which are known as the fruit flies of the business world," she continues. "It's easy enough to start a fashion company. But it is very hard to scale it, and even harder to grow beyond the founder. We know the ones that survived beyond the founder—they have names like Chanel, Prada, Balenciaga, Dior. All start-ups are dependent on their founders, and you can learn a lot from fashion companies about how to manage succession after the founder leaves or dies. Chanel went through a period of not doing very well after Coco Chanel died [in 1971]. There is something ineffable, intangible, about understanding the design code and language of a brand, and interpreting what Chanel stands for in the present moment."

can't be embarrassed about calling over and over again. A hurdle is actually a step to the next thing."

WHEN HE FINISHED his senior thesis film in visual and environmental studies, Alexander Olch '99 designed a souvenir for each member of his production crew—a handmade tie. He soon learned how difficult tie-making can be: it took 18 months for him to finish the first tie based on his design.

Olch is still making films (including a documentary on his mentor, Richard Rogers; see "The Windmill Movie," May-June 2009, page 17), and is finishing a feature-length screenplay. And

a personal note still runs through Alexander Olch, LLC, which sells handkerchiefs, suspenders, and scarves as well as neckties and bowties. At Harvard, he'd been a stylish undergraduate who "wore a tie every day for four years" and once, at a Halloween party, encountered three friends costumed as him ("and there were only two Marilyn Monroes," he notes).

In the fall of 2001, Olch dined with four well-paid classmates in New York and showed them a sample tie he had made: he sold four at \$100 apiece. He next sold out a run of eight, then 16, as word of mouth spread to friends of friends. In 2003 he set up a website to sell his ties and in 2005 *The New York Times* Style section called one of them—a classic red seersucker—the number-one tie to buy for Father's Day. Business took off.

In 2007 Olch took a small collection of 24 ties, arranged in two desk drawers, to Bergdorf Goodman; they took him on. Today he has 50 accounts worldwide, including Neiman Marcus and the online haberdashery MrPorter; neckties sell for \$150, bowties for \$110, and scarves for \$200 to \$350.



He describes his collection's look as "relatively personal, connected to my life. I grew up on the Upper East Side in a fashion environment saturated with the New England prep style. After college, I returned to New York, but lived downtown. So my life is a mix of uptown and downtown: I like playing with the idea of

Model-turned-entrepreneur Olga Vedisheva; below, her Shoptiques.com website

classic in a more adventurous way. For example, the shop colette in Paris, which many consider the most fashion-forward store in the world, sells my ties, and they are also on the first floor at Barney's."

OLGA VIDISHEVA, M.B.A. '11, was working 120-hour weeks as an investment-banking analyst at Goldman Sachs in New York, "sleeping on the floor of my office." Exhausted even while on vacation in Paris, she "staggered into a boutique where I bought a pair of Phoebe Cham Pour Schu flat shoes. Everybody complimented me on them—I wanted more! But I didn't travel often, and couldn't go back to Paris. I thought, this is the twenty-first century—why can't I go back there virtually?"

Vedisheva left Goldman Sachs to enroll at HBS. "I realized I'm not interested in doing deals," she says. "I wanted to run a business—to strategize, to grow the business. I want to be the doer, not the adviser." In her second year, she was president of the school's Retail and Luxury Goods Club and developed her Paris idea into a business plan for Shoptiques.com. It launched a few months after she graduated. Shoptiques sells fashion clothing and accessories from more than 180 small boutiques across the United States and in Europe. "Thirty-five to 40 percent of all transactions in this [fashion] sector happen at small retailers," Vedisheva says. "Apply that to the online world, and you get a \$20-billion market."

"Our clothing is produced in very small quantities," she explains. "There might be only five copies of this dress—a lot are one-of-a-kind. We do breadth, not volume. With mass-produced goods, you see everybody wearing the same thing. Celebrities come to our site, even though the price points are only in the \$50 to \$400 range, because we are unique—you will never end up in 'Who Wore It Better?'" (The *Us* magazine feature compares celebrities sporting identical designer outfits.)

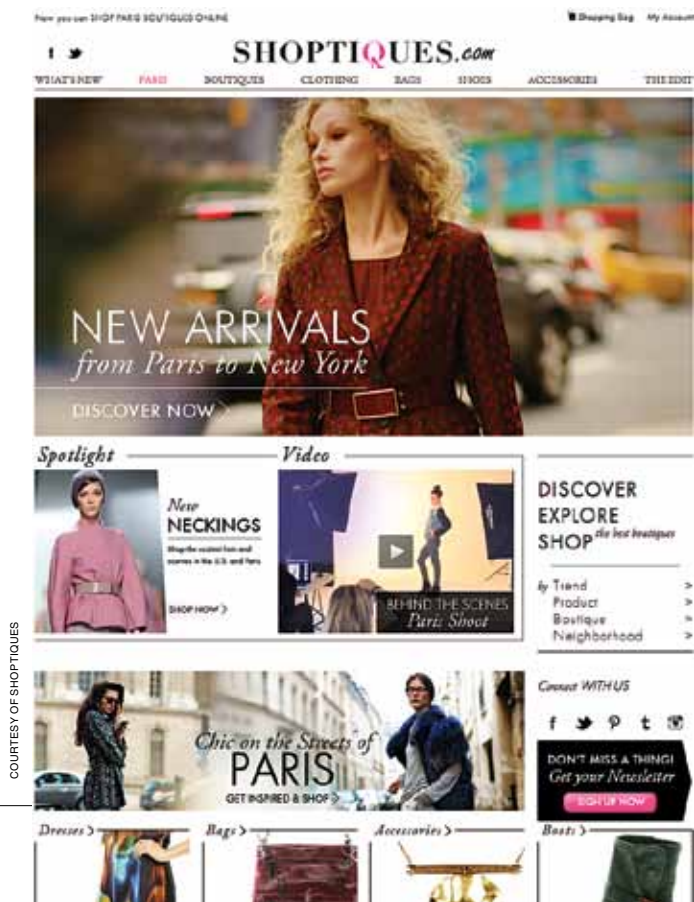
"The consumer wants all the boutiques to be available in one place—a lot of dresses, shoes, bags," Vedisheva continues. "A woman in Kansas who has been watching *Sex and the City* for 10 years can travel virtually to New York City and shop in Nolita like Carrie Bradshaw."

Shoppers used to insist on trying on garments—especially shoes—before buying. Now, consumers "will use the Internet as a dressing room," says Saks's Steve Sadove. "Someone will order a dress delivered in sizes eight and ten, try them both on, and return the one that doesn't fit as well." Websites like Shoptiques.com can display high-quality photographs and videos of garments, shoes, and accessories. "We do a really good job of describing things—and you can zoom in on dress details," says Vedisheva, "so we get low return rates." Comments from women who've tried on the garments in stores appear as well.

Born in Kyrgyzstan, Vedisheva came to the United States at 17, speaking no English. She had modeled in Russia (she was on the cover of a teen magazine) but says that the mentality there "suppressed individuality. They wanted people to dress identically, to wear a uniform. Clothing should be a way to make an individual statement." She enrolled at Wellesley, majoring in economics, and helped finance her education by modeling all over the United States. She calls the work "well paid and flexible. I'd be studying for school while they were doing my makeup. My modeling experience is vital for managing Shoptiques."



Visit www.harvardmag.com/extras for coverage of online clothing retailer Karmaloop.com, owned by alumnus Greg Selkoe, and of other Harvard-related online fashion entities.



Model Student

THE INDIAN-AMERICAN fashion model Sonia Dara '12 ('13) broke into the field at 15 at an actor/model/talent competition in Orlando judged by agents. She grew up in Atlanta; her Hindu parents supported her modeling ambitions as long as she maintained her grades. Unlike many of her peers, who wanted to “drop everything, move to New York, and model,” Dara continued high school and so signed with the local Elite Model Management agency. (Fashion models work with different agencies in different cities; today, IMG represents Dara in New York, London, and Milan; Factor in Atlanta and Chicago; Nathalie in Paris; and Munich Models in Munich.) She worked weekends or after school, and took time off from classes only for really big jobs—the runway show for Yves St. Laurent in Atlanta, or the Paris shoot for *Vogue India*. “I try to take it as professionally as possible,” she says. “There’s very quick turnover in the industry; if you slide down that slippery slope, there’s another girl waiting to take your place right away. Lots of talk about who’s in, who’s hot, who’s fresh.”

Versace, Valentino, Oscar de la Renta, Balenciaga, Saks, Neiman Marcus, *Seventeen*, and *Women’s Wear Daily* have featured her. After her freshman year at Harvard, *Sports Illustrated* (SI) booked her for its 2010 swimsuit issue. The magazine flew her, business class, to the state of Rajasthan in northwest India (her family’s home turf), building on her status as their first South Asian swimsuit model. She spent 48 “super-excited” hours in India, amid “racks and racks of swimsuits. This shoot is more about the girl than the swimsuit, but since I was the first model from India to do this, I made it a point to pose as elegantly as possible; I was more hesitant to do risqué stuff. I’m not comfortable with that.”

Though she wasn’t paid for the SI job, “the exposure you get and the jobs you book afterwards are incredible—it’s booking on a whole different plateau,” she explains. Dara took two semesters off to work through the surge of opportunities. She did interviews with the *Wall Street Journal* and Fox News, was on the cover of *Elle India*, and served as a guest judge on the *America’s Next Top Model* television series, where she met the show’s creator, supermodel Tyra Banks (who took an intensive executive-education program at HBS in 2010). That led to a summer internship at Banks’s company in New York. Dara also won a modeling contract with Laura Mercier Cosmetics, a far more lucrative engagement than runway modeling or editorial work.

Nonetheless, Dara is fully aware of the “flavor of the week” fickleness of the industry. Last summer, the economics concentrator interned in investment banking at Deutsche Bank in New York City. During her year off, she recalls that, “As a 20-year-old, I sat there at a casting with 15- and 16-year-olds—they barely have hips!—and I felt *old*! You have to have a backup plan, and I’ve got the best backup plan ever: Harvard.”

Sonia Dara at the 2011 student-run fashion show *Eleganza*



ONE SYNONYM for the American fashion industry is “Seventh Avenue”—a Manhattan business district focused on the clothing trade. Historically, Paris was where fashion design happened; New York was home to the “garment industry.”

Today, fashion is a multifaceted, complex, ever-changing global industry with new business models springing up almost daily and an ever-growing fraction of sales transacted over the Internet. “With its presence everywhere, every day, and its increasing growth and influence, fashion is less and less a ‘niche’ specialty,”

says professor of law Jeannie Suk (see “The Study of Fashion,” page 43). “It is easier now for the general culture to have a natural schooling in fashion, in what people are wearing. Everyone participates in some way: you put something on your body that expresses something about who you are. A little while ago, many people at Harvard could say, ‘I know nothing about fashion,’ and even be proud of it. That has become less and less the case.” ▽

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

Irna Phillips

Brief life of soap opera's single mother: 1901-1973

by LYNN LICCARDO

IF EVER A WRITER embodied Thornton Wilder's observation that "art is not only the desire to tell one's secret; it is the desire to tell it and hide it at the same time," it was Irna Phillips.

In 1930, Phillips—a 29-year-old, unemployed Chicago school-teacher and part-time radio actress—was asked to write and act in radio's first serial drama, *Painted Dreams*. She jumped at the chance. In the next 43 years, she would create or co-create 18 radio and television serials; four were still on the air when she died, including *Guiding Light* and *As the World Turns*, the two longest-running daytime dramas on television. Acting out the parts, she dictated her stories to secretaries for six to eight hours a day, producing an estimated two million words a year and earning more than \$250,000 annually in the 1940s, when she had five programs on the air. She knew the role soap played in "soap operas," and had a decades-long relationship with Procter & Gamble, but she focused on content: her innovations included adding doctors, lawyers, and other professionals as characters and cliff-hanger endings for episodes.

Soap-opera historians have long acknowledged the impact on the genre of *As the World Turns* in particular. When it premiered in 1956, serial dramas were all 15 minutes long; ATWT doubled that. Phillips believed "better story and characterization could be developed in a half-hour format"; when Procter & Gamble initially resisted, she took action. Aided by her longtime colleagues Agnes Nixon and Ted Corday, she wrote and taped a pilot at her own expense, and changed the face of daytime drama forever. ATWT also departed radically from its predecessors in style: for the first year, there was virtually no plot. Critic Robert LaGuardia has noted that "story to Irna was simply a vehicle; it was from the moment-to-moment emotions of her characters, expressed to each other in quiet scenes, that viewers derived vicarious pleasure." Phillips knew that viewers would need time to get used to this format, and nothing illustrates her industry clout more than the licensing-agreement clause requiring CBS to air the show for a full year regardless of ratings. Fans expressed their pleasure by keeping ATWT at the top of the daytime ratings for 20 years, making it the first soap opera to fully penetrate the cultural landscape: an episode of the current television hit *Mad Men* showed secretary Joan Holloway engrossed by an "unmissable" ATWT episode from 1962—the end of the genre's first super couple, Penny Hughes and Jeff Baker.

Phillips shared viewers' vicarious pleasure. In her unfinished memoir, she acknowledged that she "had generally fictionalized my own life," but it was in ATWT that she "fantasized as well as fictionalized" her life. LaGuardia suggests, "It was quite as if for Irna, Oakdale [ATWT's fictional Midwestern setting] was a real place—far more real than New York or Chicago, and far better."

One likely reason was the patriarch she created for Oakdale, attorney Chris Hughes: the loving husband she never found for herself, the devoted father she never found for the two children she adopted as a single mother.

Her need for Oakdale began in the mid 1920s when Phillips, who never had a date in high school or college, met an English doctor, "not handsome," but "with charm and intelligence," and decided he was the man she would marry. Things didn't work out as she hoped. She became pregnant but the doctor abandoned her, and she then lost not only the baby but any chance for another. The resulting sterility led her to decide "to never become involved with an unmarried man," thus sparing herself "the pain and embarrassment of telling a man I couldn't have children." That vow played out through characters like ATWT's jilted Edith Hughes, who later fell in love with her brother's unhappily married law partner. Phillips presented the story through characters neither all black nor all white, forcing viewers, writes *La Guardia*, "to grieve over the heartbreak of the human condition rather than hang on to a fixed value judgment."

In 1964, Phillips created *Another World*, and the character through whom she would both tell and hide her own story: Pat Matthews, who would murder the man who impregnated her and then coerced her into an illegal, botched abortion that left her sterile. In her memoir, Phillips wrote that her own pregnancy ended with a stillbirth, followed by an infection. What really happened will likely remain a mystery, but her efforts to exorcise her demons through Pat's story took its toll on Pat's portrayer; after 18 exhausting months, the actress asked to be released from her contract.

Phillips herself was never able to provide a sense of warmth and family involvement for her children; in the end, she described feeling "as unhappy in adopting them as they were in being adopted by me." Haunted by her lost pregnancy, in 1972 she created ATWT's beautiful and independent Kim Reynolds, who was meant to have a baby of her own. Of course, to conceive that baby, Kim seduced her sister's husband. Sponsor Procter & Gamble, unwilling to reward adultery, chose to veto that happy ending; when Phillips—increasingly difficult to work with and unwilling to sensationalize her plots to compete with rival shows—was fired, Kim's pregnancy ended in a miscarriage. It's hard to say what caused Phillips more pain—losing the show that was so real to her, or reliving the loss of her baby as Kim lost hers. A few months later, she died of a heart attack, or perhaps of a broken heart. ▢

Lynn Liccardo, A.L.B. '83, is the author of *as the world stopped turning*.... She posts her critical observations on soap opera at redroom.com.



PHOTOGRAPH CBS/GETTY IMAGES; INSET PHOTOGRAPH COURTESY OF THOMAS PHILLIPS

THE Placebo Phenomenon

An ingenious researcher
finds the real ingredients of
“fake” medicine.

by CARA FEINBERG

TWO WEEKS INTO Ted Kaptchuk's first randomized clinical drug trial, nearly a third of his 270 subjects complained of awful side effects. All the patients had joined the study hoping to alleviate severe arm pain: carpal tunnel, tendinitis, chronic pain in the elbow, shoulder,

wrist. In one part of the study, half the subjects received pain-reducing pills; the others were offered acupuncture treatments. And in both cases, people began to call in, saying they couldn't get out of bed. The pills were making them sluggish, the needles caused swelling and redness; some patients' pain ballooned to nightmarish levels. “The side effects were simply amazing,” Kaptchuk explains; curiously, they were exactly what patients had been warned their treatment might produce. But even more astounding, most of the other patients reported real relief, and those who received acupuncture felt even better than those on the anti-pain pill. These were exceptional findings: no one had ever proven that acupuncture worked better than painkillers. But Kaptchuk's study didn't prove it, either. The pills his team had given patients were actually made of cornstarch; the “acupuncture” needles were retractable shams that never pierced the skin. The study wasn't aimed at comparing two treatments. It was designed to compare two fakes.

Although Kaptchuk, an associate professor of medicine, has spent his career studying these mysterious human reactions, he doesn't argue that you can simply “think yourself better.” “Sham treatment won't shrink tumors or cure viruses,” he says.

But researchers *have* found that placebo treatments—interventions with no active drug ingredients—can stimulate real physiological responses, from changes in heart rate and blood pressure to chemical activity in the brain, in cases involving pain, depression, anxiety, fatigue, and even some symptoms of Parkinson's.

The challenge now, says Kaptchuk, is to uncover the mechanisms behind these physiological responses—what is happening in our bodies, in our brains, in the method of placebo delivery (pill or needle, for example), even in the room where placebo treatments are administered (are the physical surroundings calm-

ing? is the doctor caring or curt?). The placebo effect is actually many effects woven together—some stronger than others—and that's what Kaptchuk hopes his “pill versus needle” study shows. The experiment, among the first to tease apart the components of placebo response, shows that the *methods* of placebo administration are as important as the administration itself, he explains. It's valuable insight for any caregiver: patients' perceptions matter, and the ways physicians frame perceptions can have significant effects on their patients' health.

For the last 15 years, Kaptchuk and fellow researchers have been dissecting placebo interventions—treatments that, prior to the 1990s, had been studied largely as foils to “real” drugs. To prove a medicine is effective, pharmaceutical companies must show not only that their drug has the desired effects, but that the effects are significantly greater than those of a placebo control group. Both groups often show healing results, Kaptchuk explains, yet for years, “We were struggling to increase drug effects while no one was trying to increase the *placebo* effect.”

Last year, he and colleagues from several Harvard-affiliated hospitals created the Program in Placebo Studies and the Therapeutic Encounter (PiPS), headquartered at Beth Israel Deaconess Medical Center—the only multidisciplinary institute dedicated solely to placebo study. It's a nod to changing attitudes in Western medicine, and a direct result of the small but growing group of researchers like Kaptchuk who study not *if*, but *how*, placebo effects work. Explanations for the phenomenon come from fields across the scientific map—clinical science, psychology, anthropology, biology, social economics, neuroscience. Disregarding the knowledge that placebo treatments can affect certain ailments, Kaptchuk says, “is like ignoring a huge chunk of healthcare.” As caregivers, “we should be using every tool in the box.”



Ted Kaptchuk in his home office in Cambridge

WESTERN MEDICINE, however, has been slow to agree with him—partly because of his message, and in his case, often because of the messenger. An acupuncturist by training, he is an unlikely leader in the halls of academia. With a degree in Chinese medicine from an institute in Macao, Kaptchuk is one of the few faculty members at Harvard Medical School (HMS) with neither a Ph.D. nor M.D.—“a debit, not a credit at most medical schools,” says Finland professor of clinical pharmacology emeritus Peter Goldman, one of his early Harvard advisers. (Kaptchuk’s diploma is recognized as a doctorate in many states, but not in Massachusetts.) When Kaptchuk came to Harvard in 1995, “he knew about Chinese herbs and healing needles, and he’d written a very fine book on Chinese medicine [*The Web That Has No Weaver* (1983)],” says Goldman, “but he didn’t know the first thing about how to conduct clinical studies.”

Kaptchuk joined the faculty as an instructor in medicine and apprenticed himself to several seasoned clinicians and investigators. Within a few years, he was winning National Institutes of Health grants and publishing in medicine’s top journals. “What his colleagues saw was a fierce intellect and curiosity,” said Goldman. “He was asking questions no one was asking.”

Ironically, says Kaptchuk, it was his success as an acupunctur-

ist that made him leave the profession for academia. “Patients who came to me got better,” he says, but sometimes their relief began even before he’d started his treatments. He didn’t doubt the value of acupuncture, but he suspected something else was at work. His hunch was that it was his engagement with patients—and perhaps even the act of caring itself.

For his ideas to gain traction with Western doctors, however, Kaptchuk knew he needed scientific proof. His chance would come in the early 2000s in a collaboration with gastroenterologists studying irritable bowel syndrome (IBS), a chronic gastrointestinal disorder accompanied by pain and constipation. The experiment split 262 adults with IBS into three groups: a no-treatment control group, told they were on a waiting list for treatment; a second group who received sham acupuncture without much interaction with the practitioner; and a third group who received sham acupuncture with great attention lavished upon them—at least 20 minutes of what Kaptchuk describes as “very schmaltzy” care (“I’m so glad to meet you”; “I know how difficult this is for you”; “This treatment has excellent results”). Practitioners were also required to touch the hands or shoulders of members of the third group and spend at least 20 seconds lost in thoughtful silence.

The results were not surprising: the patients who experienced

the greatest relief were those who received the most care. But in an age of rushed doctor's visits and packed waiting rooms, it was the first study to show a "dose-dependent response" for a placebo: the more care people got—even if it was fake—the better they tended to fare.

Kaptchuk's innovative studies were among the first to separate components of the placebo effect, explains Applebaum professor of medicine Russell Phillips, director of the Center for Primary Care at HMS. For years, doctor-patient interactions were lumped into a generic "placebo response": a sum of such variables as patients' reporting bias (a conscious or unconscious desire to please the researchers); patients simply responding to doctors' attention; the different methods of placebo delivery; and symptoms subsiding without treatment—the inevitable trajectory of most chronic ailments. "There was simply no way to quantify the ritual of medicine," says Phillips of the doctor-patient interaction. And the ritual, he adds, is the one finding from placebo research that doctors can apply to their practice immediately.

But other placebo treatments (sham acupuncture, pills, or other fake interventions) are nowhere near ready for clinical application—and Kaptchuk is not recommending that they should be. Such treatments all require deception on the part of doctors, an aspect of placebo medicine that raises serious ethical questions for practitioners.

This was disturbing for Kaptchuk, too; deception played no role in his own success as a healer. But years of considering the question led him to his next clinical experiment: What if he simply *told* people they were taking placebos? The question ultimately inspired a pilot study, published by the peer-reviewed science and medicine journal *PLOS ONE* in 2010, that yielded his most famous findings to date. His team again compared two groups of IBS sufferers. One group received no treatment. The other patients were told they'd be taking fake, inert drugs (delivered in bottles labeled "placebo pills") and told also that placebos often have healing effects.

The study's results shocked the investigators themselves: even patients who *knew* they were taking placebos described real improvement, reporting twice as much symptom relief as the no-treatment group. That's a difference so significant, says Kaptchuk, it's comparable to the improvement seen in trials for the best *real* IBS drugs.

ALTHOUGH this IBS "open-label" study was small and has yet to be replicated, fellow placebo researcher Frank Miller of the department of bioethics at the National Institutes of Health considers it a significant step toward legitimizing placebo studies. But to really change minds in mainstream medicine, Miller says, researchers have to show biological evidence that minds actually *change*—a feat achieved only in the last decade through imaging technology such as positron emission tomography (PET) scans and functional magnetic resonance imaging (fMRI).

The first evidence of a physiological basis for the placebo effect appeared in the late 1970s, when researchers studying dental patients found that by chemically blocking the release of endorphins—the brain's natural pain relievers—scientists could also block the placebo effect. This suggested that placebo treat-

ments spurred chemical responses in the brain that are similar to those of active drugs, a theory borne out two decades later by brain-scan technology. Researchers like neuroscientist Fabrizio Benedetti at the University of Turin have since shown that many neurotransmitters are at work—including chemicals that use the same pathways as opium and marijuana. Studies by other researchers have shown that placebos increase dopamine (a chemical that affects emotions and sensations of pleasure and reward) in the brains of Parkinson's patients, and patients suffering from

The results shocked the investigators themselves: even patients who *knew* they were taking placebos reported twice as much symptom relief as the no-treatment group.

depression who've been given placebos reveal changes in electrical and metabolic activity in several different regions of the brain.

Kaptchuk's team has investigated the neural mechanisms of placebos in collaboration with the Martinos Center for Biomedical Imaging at Massachusetts General Hospital. In two fMRI studies published in the *Journal of Neuroscience* in 2006 and 2008, they showed that placebo treatments affect the areas of the brain that modulate pain reception, as do *negative* side effects from placebo treatment—"nocebo effects." (*Nocebo* is Latin for "I shall harm"; *placebo* means "I shall please.") But nocebo effects also activate the hippocampus, a different area associated with memory and anxiety. As happened with Kaptchuk's patients in the "pill versus needle" study, the headaches, nausea, insomnia, and fatigue that result from fake treatments can be painfully real, afflicting about a quarter of those assigned to placebo treatment in drug trials (see "The Nocebo Effect," May-June 2005, page 13). "What we 'placebo neuroscientists'...have learned [is] that therapeutic rituals move a lot of molecules in the patients' brain, and these molecules are the very same as those activated by the drugs we give in routine clinical practice," Benedetti wrote in an e-mail. "In other words, rituals and drugs use the very same biochemical pathways to influence the patient's brain." It's those advances in "hard science," he added, that have given placebo research a legitimacy it never enjoyed before.

This new visibility has encouraged not only research funds but also interest from healthcare organizations and pharmaceutical companies. As healthcare companies increasingly reward doctors for maintaining patients' health (rather than for the number of procedures they perform), "research like Ted's becomes increasingly relevant," says Minot professor of medicine and HMS dean for graduate education David Golan, a professor of biological chemistry and molecular pharmacology.

This year, the Robert Wood Johnson Foundation, the nation's largest philanthropy focused on health and healthcare, awarded Kaptchuk's PiPS program a \$250,000 grant to support a series of seminars at Harvard designed to connect placebo experts with researchers in related fields. And the latest findings to emerge from PiPS—a 2012 study showing that genetic variations may explain why only certain people respond to placebo effects—has caught the attention of the Food and Drug Administration.

That study, published last October in *PLOS ONE*, showed that

patients with a certain variation of a gene linked to the release of dopamine were more likely to respond to sham acupuncture than patients with a different variation—findings that could change the way pharmaceutical companies conduct drug trials, says Gunther Winkler, principal of ASPB Consulting, LLC, which advises biotech and pharmaceutical firms. Companies spend millions of dollars and often decades testing drugs; every drug must outperform placebos if it is to be marketed. “If we can identify people who have a low predisposition for placebo response, drug companies can preselect for them,” says Winkler. “This could seriously reduce the size, cost, and duration of clinical trials...bringing cheaper drugs to the market years earlier than before.”

NOT ALL OF Kaptchuk’s studies have been so warmly received. Though few academics quarrel with the quality of his research, he’s remained a prime target for such watchdog groups as Quackwatch and The Skeptics’ Society, organizations that question nonconventional medical approaches. (Other well-known targets include Deepak Chopra, Andrew Weil ’63, M.D. ’68, and the late Nobel Prize winner Linus Pauling.) In 2011, he and a team of researchers published a paper in *The New England Journal of Medicine* (NEJM) that raised the hackles of some of his fiercest critics.

That paper (praised by scholars as one of the most carefully controlled and definitive placebo studies ever done) described a study of 40 asthma patients given four different interventions: active treatments with real albuterol inhalers; placebo treatments with fake inhalers that delivered no medication; sham acupuncture treatments; and intervals with no treatment at all. The patients returned for 12 sequential visits, receiving each type of treatment three times—a novel approach in placebo study that created a large amount of data (480 treatments in total) and turned subjects into their own controls (if patients are compared to themselves from one treatment to the next, researchers can eliminate subjects’ individual differences as a variable). The researchers had hoped to find improved lung function with both the real and sham treatments; what they found instead was that only the real treatment yielded results—the others showed no significant improvement. Yet when Kaptchuk’s team measured patients’ own assessments of improvement, the researchers found no difference reported between the real and sham treatments: the patients’ *subjective* responses directly contradicted their own *objective* physical measures.

To Dr. Harriet Hall, a retired family physician who writes critically about alternative and complementary medicine for such publications as *Skeptic Magazine* and *Skeptical Inquirer*, this discrepancy between objective and subjective results is precisely where the danger lies. As she told a reporter for *The Atlantic* in December 2011, following the publication of Kaptchuk’s NEJM study, “Asthma can be fatal. If the patient’s lung function is getting worse but a placebo makes them feel better, they might delay treatment until it is too late.”

To Kaptchuk’s team, on the other hand, the conflicting results not only reveal important lessons for researchers and clinicians, but illuminate a gap that is central to placebo research. “Placebos have limitations, and we need to know what they are,” Kaptchuk says. “We’d hoped for measurable objective changes in breathing; what we got instead was a more precise diagram of placebo effects and how clearly the ritual of medicine makes people more comfortable.” That in itself is important information, he says. “Our job is to make people feel better,” and though this study

was small, “what we’ve really done here is open up a new set of questions.” No one has yet studied how long-term experience with the ritual of medicine might ultimately affect the course of chronic afflictions, he says. “We hope we’ve opened up that path.”

Kaptchuk and his team have begun to take steps in that direction, continuing to ask new questions and push the boundaries of placebo research. A study published online this past year in the *Proceedings of the National Academy of Sciences* demonstrated that the placebo response can occur even at the unconscious level. The team showed that images flashed on a screen for a fraction of a second—too quickly for conscious recognition—could trigger the response, but *only* if patients had learned earlier to associate those specific images with healing. Thus, when patients enter a room containing medical equipment they associate with the possibility of feeling better, “the mind may automatically make associations that lead to actual positive health outcomes,” says psychiatry research fellow Karin Jensen, the study’s lead author.

Those findings led to the team’s most recent work: imaging the brains of physicians while they treat patients—a side of the treatment equation that no one had previously examined. (The researchers constructed an elaborate set-up in which the doctors lay in fMRI machines specially equipped to enable them both to see their patients outside the machine and administer what they thought was a nerve-stimulating treatment.) “Doctors give subtle cues to their patients that neither may be aware of,” Kaptchuk explains. “They are a key ingredient in the ritual of medicine.” The hope is that the new brain scans will reveal how doctors’ unconscious thought figures into the treatment recipe.

WITHIN ACADEMIA, Kaptchuk and his fellow researchers have not escaped criticism, but the voices have been few and far between. The most notable appeared in 2001 in the NEJM—the same publication that included Kaptchuk’s asthma study a decade later. In a paper titled, “Is the Placebo Powerless?” two Danish researchers reviewed 114 published studies involving 7,500 patients and questioned both the research methods and the short duration of most placebo studies. Many of the trials reviewed lacked “no-treatment” groups—an important control group missing even in Kaptchuk’s first “pill versus needle” study.

But Kaptchuk’s response to such criticism is perhaps as rare in academia as his pedigree. “If I remember correctly,” said Asbjorn Hrobjartsson, the lead author of that 2001 paper during a recent phone conversation, “Ted was already thinking along the same lines as we were and realized [our paper] pointed out real methodological problems.” When Hrobjartsson came to speak at Harvard a year later, he stayed at Kaptchuk’s home, and in 2011, the two coauthored a paper (with the NIH’s Frank Miller) on biases and best practices in placebo study.

When Kaptchuk talks about Hrobjartsson’s 2001 paper now, he winces, then nods with acceptance. “At first when I read it, I worried I’d be out of a job,” he says. “But frankly, [Hrobjartsson] was absolutely right.” In order to legitimize his findings to mainstream practitioners, the results must be expertly quantified, he acknowledges. “We have to transform the art of medicine into the science of care.” ▽

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Rethinking the Walls

An unusual art collection in an unexpected place

IN THE SECOND-FLOOR LOBBY of Hawes Hall: a large portrait of Mahatma Gandhi by Brett Cook-Dizney, loosely sketched in gold—with a lettered text of Gandhi’s “seven deadly sins,” including “wealth without work,” “knowledge without character,” and “commerce without morality.” On a wall in the high-ceilinged, neo-Georgian Spangler Center: Radcliffe Bailey’s incongruous *Minor*, a mixed-media work of color blocks and one of his familiar, sepia-toned historical photographs, mounted on a high-gloss piano lid. Along Aldrich Hall’s long second-floor corridor: Steve Ellis’s painstakingly detailed oil rendition of *Crashed MGB*—the very model of a car built for pleasure, abraded and broken, its absent



Photographs by Jim Harrison

At left, *Mahatma Gandhi* (2001), by Brett Cook-Dizney, Hawes Hall; left, bottom, *#384, Kokuritsu-Soko 2* (1999), by Tokihiro Sato, Shad Hall; at right, *Defense Wall, Gilo Neighborhood, Jerusalem*, (2004), by Shai Kremer, Hawes Hall; bottom, *Crashed MGB* (2002), by Steve Ellis, Aldrich Hall

driver perhaps ejected or being treated for similar abrasions. Halfway up the stairwell in Shad Hall: Whitfield Lovell's huge *Strive*, a charcoal figure of an African-American woman on reddened wood, like old barnboard, with suspended boxing gloves attached.

These radically heterogeneous artworks in fact have much in common. All are contemporary (Lovell's, the oldest, dates to 2000). Each is on display, alongside a couple of hundred other recent pieces, in the highly trafficked corridors of Harvard Business School's main classroom buildings (Aldrich, Hawes), student center (Spangler), and gymnasium (Shad)—where students will encounter them every day, if only through peripheral vision. And their presence at the business school reflects the very directed vision of Gerald W. Schwartz, M.B.A. '70, founder and CEO of Onex Corporation, a private-equity and investing firm based in Toronto.

As a law student, Schwartz recalled in a recent conversation, he became acquainted with a senior partner at a law firm who had built a collection of Impressionist paintings. When Schwartz saw them, he "got the bug"—making his own first acquisition, for \$300, and then pursuing his passion in personal collections at his

homes and in the "tons" of artworks he has acquired to display at his company: "Our offices have been enriched and people are responsive to them." He said he loved his business-school experience, and was a regular HBS donor, but found that he wished to have a specific, focused impact on the institution. In discussions with then-dean Kim Clark, his interest in art came up, and a collecting program was born.

When the idea got under way in the mid 1990s, the school was embarking on a campus master plan and subsequently pursued a significant program of renovation (Aldrich) and new construc-





At left, *The Hush of Your Silence* from the *Who What When Where* series (1998), by Carrie Mae Weems, Spangler Center; below, *Minor* (2003), by Radcliffe Bailey, Spangler Center; at right, top, collection steward Sharon Black with *Astro Beeing* (1995), by Radcliffe Bailey, Aldrich Hall; bottom, right, *Star Remains* (1997), by Eva Lundsager, Aldrich Hall

tion (Spangler, Hawes)—creating perfect venues to display art. At the same time, said Sharon Black, HBS's director of planning and now the very part-time steward of the collection, the increasingly diverse student body had commented, not favorably, on the portraits of eminent faculty members of yore that were the main decorative element in many public areas.

It was a rare opportunity, she said, to “rethink the walls” in a way that would change how students experienced the school, with its traditional design vocabulary of red brick and ivy. Serendipitously, Black—who in 2000 succeeded Susan A. Rogers

(HBS's chief planning officer at the time) and then Angela Q. Crispi (now associate dean for administration and senior executive officer) in overseeing the collection—came to the role with a credential unusual at HBS: an M.F.A. degree. A sculptor seeking a salary to pay off graduate-student loans, she joined the staff in 1987, while continuing to work in her studio (she gave it up seven years later). Now, she shapes space on a much larger scale: HBS's campus. She works closely with Schwartz, who has said that he missed art on campus in his M.B.A. days and was surprised at how many students and business colleagues did not go to museums and had not been exposed to contemporary art—what she termed “a void that needed filling.”

That filling has been under way systematically for more than 15 years. Aided by a consultant, Schwartz, Black, and leaders of HBS's student Art Society (founded in 2001 as the Art Appreciation Society) go on annual buying trips to New York City galleries. Because they aim to purchase pieces for an educational institution, Schwartz said, they focus only on work “by very young, emerging artists.” Their selections, he explained, are guided by “things that interest us”—by which he means *not* solely art that satisfies the





buyers' personal tastes. A decisive criterion, he indicated, is that the art "evoke some reaction."

The result is a collection that is, in the school's spirit, entrepreneurial. It combines diverse media: paintings, lots of photography, a Magic Marker composition on an old school desktop, a subtly pigmented shadow box of beeswax, a crowd of spectators at a game rendered in chocolate syrup (and then photographed by the artist as the permanent work), ink and pastel creations on old pages of *The New York Times* (the paper version, for digital-era students who need reminding), fabrications from crushed soda cans—food for thought about evolving technologies, materials, and ways of making, morphed through an aesthetic lens. There are works that could pose unsettling questions about prevailing assumptions: that Gandhi image; a trio of photographic self-portraits by the Dutch artist Teun Hocks depicting Everyman figures engaged in absurd situations (including jobs that never resolve themselves); and paintings that quote earlier ones, from Rembrandt's *The Night Watch* to what might be a disturbing take on a Degas dancer. Some even have political overtones: Shai Kremer's photograph of a blast wall in Jerusalem that has been painted, in trompe l'oeil technique, to show the landscape beyond (an image of a society on war footing); Amy Wilson's fantasy landscapes of stick figures and skeletons spouting highly polarized rhetoric from modern American discourse. (The artwork appears in a



searchable database, www.hbs.edu/schwartz/index.html.)

Because Schwartz's "real goal was to create a provocative environment," Black said, the collection—now one of the major holdings of contemporary pieces at the University, which is expensively renovating the Harvard Art Museums in Cambridge—is not closeted in a controlled setting. Rather, it is part of students' routine experience: vending machines, copiers, and study nooks separate works hung in Aldrich; on Spangler's lower level, entrances to the post office, the Coop, and the grill do the same. The art's immediate accessibility advances its intellectual and aesthetic purposes; in Black's fierce phrase, the collection is "*not* décor."



At left, *Istanbul Project I* (2003), by Doris Salcedo, Aldrich Hall; below, *Untitled* (1999), by Dan McCleary, Spangler Center; at right, *Strive* (2000), by Whitfield Lovell, Shad Hall

are now in the care of the library's historical collections. The student Art Society sponsors behind-the-scenes visits to New York galleries and museums, a trip to Art Basel Miami, and a student exhibition.

The Schwartz collection has even come to figure in the M.B.A. curriculum. During this fall's iteration of "The Moral Leader in Literature, Film, and Art"—a course designed to introduce understanding of other people and their ideas—Sandra J. Sucher, MBA Class of 1966 professor of management practice, arranged for the first time to draw on the HBS holdings for her late-October session on visual arts. With the help of professional art educators, students examined and analyzed eight works. As they discussed Doris Salcedo's *Istanbul Project I*—the maquette for a cascade of hundreds of wooden chairs piled high between two modern buildings, evoking victims of violence in her native Colombia and in Turkey—some of the participants drew on their prior viewings of (and questions about) the work as it hung in Aldrich Hall. Sucher observed later that engaging with the art had caused the students to confront ambiguity, assemble elements of meaning, and draw upon each others' diverse perspectives to tease out both factual interpretations and the very real weight of emotion in their responses.

According to Gerald Schwartz, when one encounters art—as he has done throughout his life—"sometimes you think about a problem differently."

—JOHN S. ROSENBERG

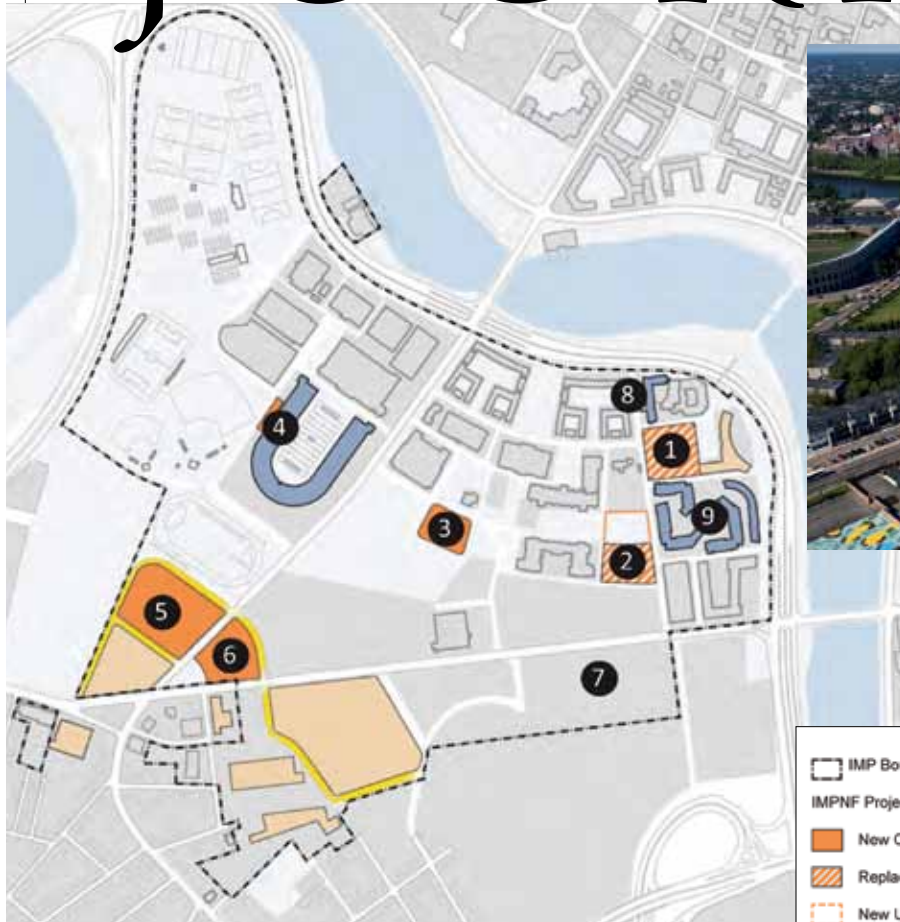
Nor is it, like some private collections, an investment. According to an *HBS Alumni Bulletin* report, most purchases cost a few to several thousand dollars apiece. A few of the artists, like Carrie Mae Weems, became famous after the Schwartz collection acquired their works (never the other way around). Nothing is to be sold—and no one is calculating an ROI.

But returns there have been. Around the campus and among staff members, Black said, "People are much more aware of art when their surroundings are sparse" and ask for it in or near their offices. (HBS doesn't provide artworks for such personal uses—yet.) There is a pervasive sense, she said, that "art has a predominant place at the school"—and those remaining faculty portraits





JOHN HARVARD'S JOURNAL



The new master-plan submission: (1) Harvard Business School's (HBS) Kresge Hall replacement; (2) Burden Hall replacement; (3) Faculty and administrative office building; (4) Harvard Stadium addition/renovation; (5) Athletics department's basketball venue and institutional/mixed-use facility; (6) Institutional/mixed-use project (on existing Charlesview site); (7) Hotel and conference center; (8) Renovation of HBS's Baker Hall; (9) Renovation of Soldier's Field Park housing. Above: Allston aerial view, with the science-center site in the foreground



Economic Realities in Allston

HARVARD'S October filing of a new Institutional Master Plan Notification Form (IMPINF), describing projects it hopes to build in Allston during the next decade, marked the formal withdrawal of the grandiose plans for a new campus described in a similar submission in January 2007. Gone are the reconfigured bridges over the Charles River, the new undergraduate Houses, the 10 million square feet of building space, and the performing-arts pavilion at Barry's Corner. In the vicinity of the latter, a parking lot is now contemplated for the construction vehicles used to build the mix of housing, retail, and athletic facilities that administra-

tors are proposing for the land Harvard began quietly acquiring in 1988, 25 years ago. Later, a mixed-use institutional building is slated to rise on the southernmost portion of the Charlesview apartments site. (Harvard planners, comparing the new IMPINF to the former one in meetings with the Allston community during the past 18 months, have characterized its proposals as practical, noting their greatly reduced scope, geography, and time frame—a decade, rather than the 50-year vision detailed in 2007.)

The new plan, when considered with recent and concurrent amendments to the existing IMP (which dates to 1997), largely follows the recommendations outlined by Harvard's Allston Work Team in June 2011

er in this decade of a hotel and conference center on Western Avenue (behind the Genzyme building that fronts the Charles River), either by a private developer or in partnership with one; completion, starting in 2014, of a 500,000- to 700,000-square-foot Health and Life Sciences Center (on the foundation mothballed in 2010 when Harvard ceased work on an earlier four-building science complex); and construction, with a development partner, of a 300-bed housing and retail project at Barry's Corner. In addition, the 2012 plan includes a host of building projects—from renovation to new construction—on and adja-

cent to the Harvard Business School campus, as well as the construction of a new basketball venue, a vehicular-maintenance and police-training facility, an addition to Harvard Stadium, and two mixed-use institutional buildings (including one on the prominent site near the intersection of Western Avenue and North Harvard Street) that were *not* part of the original Work Team recommendations.

Notably absent from the new IMPNF are plans for an “enterprise research campus,” described in June 2011 as having the potential for 1.5-million to 2.5-million square feet of commercial space. Such a center, perhaps modeled on Research Triangle Park, situated near three universities in North Carolina, would serve as a major technology hub between Harvard and MIT. The site, in the same vicinity as the hotel and conference center, would be in direct competition with the locus of high-tech firms in Cambridge Center at Kendall Square (where MIT last year announced plans to invest \$700 million to redevelop its buildings), as well as with new technology-focused developments at the Seaport along the Boston waterfront—challenging alternatives in the current economic environment. That part of the University’s landholdings, and much else on Harvard’s new Allston map, is blank space—for unspecified use well in the future.

The net result, at least in the most public-facing locations of greatest interest to Allston residents, is a substantially more modest 10-year undertaking than contemplated even 18 months ago. At 175 North Harvard Street, near the intersection with Western Avenue, Harvard plans a 60,000-square-foot, 3,000-seat basketball arena to replace the existing 1,950-seat Lavietes Pavilion at Briggs Cage, which is the the smallest in the Ivy League. The com-



A landmark HBS gift: Dean Nitin Nohria with Angela Chao; May Chao; Elaine L. Chao; Dr. James Si-Cheng Chao; Christine Chao; Grace Chao; and President Drew Faust

plex might also include as much as 140,000 square feet of mixed housing, retail, and institutional or commercial office space. Local residents have greeted the proposal with some skepticism: “Sports facilities around Boston tend to be in conflict with the surrounding community. The nature of the evening activity, the parking, the crowds after and before the game—they just rub each other the wrong way,” commented one resident. Existing institutional uses at the North Harvard Street site, including vehicle-maintenance garages, will be moved to 28-38 Travis Street, the proposed site for the police-training facility as well.

Another 200,000-square-foot building of unspecified mixed institutional use is planned for the most prominent location within Harvard’s Allston holdings: the site of the existing Charlesview apartments at the intersection of Western Avenue and North Harvard Street. Demolition will begin after apartment residents are relocated, probably in late 2014, to new housing at Brighton Mills, now under construction.

The new plan, which adds 27 acres to Harvard’s existing 151-acre Allston campus, plays to fundraising strengths—from the athletics department to Harvard Business School (HBS), where on October 12, dean Nitin Nohria announced a \$40-million gift from the Dr. James Si-Cheng Chao and Family Foundation to help replace Kresge Hall with a new 90,000-square-foot executive-education facility (see <http://harvardmag.com/>

chao-13 for more information). The gift comes as construction continues on the \$100-million, 150,000-square-foot Tata Hall, a 179-bedroom expansion of executive-education facilities. Tata, the new Ruth Mulan Chu Chao Center, a planned renovation of the 78,000-square-foot Baker Hall, construction of a 130,000-square-foot replacement for Burden Hall,

and a new 110,000-square-foot faculty and administrative office building will result in a revitalized HBS campus. Nearby, the 423,000-square-foot Soldiers Field Park Housing complex is slated for extensive renovation in the latter half of the decade.

The totality of projects planned for Allston in the next 10 years is perhaps more inward-looking than residents might have wished. But by focusing on a much-reduced construction schedule, and with funding from capital-campaign gifts in the offing, the plan no longer relies on massive debt financing or unrealistic endowment payouts (see “An Allston Accounting Adjustment,” page 48). Thus, as one Harvard administrator put it, these projects reflect “new economic realities matching our academic needs.”

Sober Finances

HARVARD’S ANNUAL financial report for fiscal year 2012 (ended last June 30), released in early November, paints in attention-getting terms a sober portrait of the University’s circumstances today—and likely in the years to come. That context overshadows the latest (nearly break-even) financial results, summarized in the chart on the next page and analyzed in full detail at <http://harvardmag.com/financial-report>.

President Drew Faust’s introduction extolls some achievements of the year—the learning and teaching initiative, edX, and the I-Lab—before pivoting to financial crises in Washington, D.C., and in Europe, and other uncertainties “likely to prove even more destabilizing in the months ahead.” This proves a gentle segue to the castor oil in the blandly titled “Financial Overview” by vice president for finance Daniel S. Shore, Harvard’s chief financial officer, and Corporation member James F. Rothenberg, University treasurer since 2004.

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A fiscal roller-coaster ride. “Since Harvard thinks and acts in long-term timeframes,” Shore and Rothenberg write, “we believe it is important” to consider fiscal 2012 “in the broader context of Harvard’s changed financial circumstances and prospects.” Beginning in 2002, “the University enjoyed substantial growth through fiscal 2008 driven by large increases in both net assets and debt”; a chart accompanying their text demonstrates that as the endowment more than doubled (to \$37 billion), so did borrowings (to nearly \$4 billion). Faculty ranks expanded 10 percent. Campus facilities were enlarged by more than four million square feet (20 percent), heavily funded with debt—and all entailing expenses for operations and maintenance. The financial-aid budget boomed.

Then, they continue, “The global financial crisis changed the University’s financial profile in a sudden and consequential

For the year ended June 30		
In millions of dollars	2012	2011
Operating Revenue:		
Total student income	\$776.8	\$740.6
Total sponsored research	832.6	851.8
Endowment distributions	1,422.1	1,321.7
Other income*	1,005.7	993.3
Total Operating Revenue	4,037.1	3,907.5
Operating Expenses:		
Salaries and wages	1,497.9	1,420.0
Employee benefits	476.4	461.0
Interest	287.1	298.8
Other expenses**	1,780.3	1,727.8
Total Operating Expenses	4,041.7	3,907.6
Deficit	(4.6)	(0.1)

Adapted from *Harvard University Financial Report Fiscal Year 2012*; numbers may not total exactly because of rounding.

*Gifts for current use, other investment income, all other income

**Depreciation, space and occupancy, supplies and equipment, scholarships, all other expenses

Revenue increased \$130 million, to just over \$4.0 billion—but expenses increased a few million dollars more (also to more than \$4.0 billion), yielding a negligible \$4.5-million operating deficit. Endowment distributions for operations drove revenue growth in fiscal 2012. Student income increased about 5 percent, to just above three-quarters of a billion dollars (after \$357 million in financial aid is subtracted from tuition and fee revenue). But sponsored research support declined. Increased expenses reflected higher compensation—the people costs that account for nearly half Harvard’s annual spending. Interest expense declined; in fiscal 2012, the University redeemed about \$300 million of outstanding debt.

way.” The endowment lost \$11 billion in value. Harvard incurred \$3 billion in additional losses on various financial and investment transactions, and had to take on additional debt. Interest costs doubled, to nearly \$300 million from fiscal 2008 to

fiscal 2011, as endowment funds for operations—the schools’ largest source of revenue—suddenly declined. Worsening matters, “over the past 10 years the University experienced only minimal inflation-adjusted growth in key non-endowment

An Allston Accounting Adjustment

Harvard’s 2012 financial statements reclassify for this year and last the “administrative assessment” (an annual decapitalization, equal to 0.5 percent of the endowment’s value) from a capital item to an operating expense—a different way of presenting about \$129 million of funds in fiscal 2011, and slightly more in fiscal 2012. That change tells a story about Harvard’s altered financial circumstances, a useful accompaniment to the narrative from chief financial officer Daniel S. Shore and University treasurer James F. Rothenberg.

In 2001, late in his presidency, Neil L. Rudenstine and the Corporation created a “strategic infrastructure fund” (SIF) to prepare for campus development in Allston. Each school’s endowment would be tapped 0.5 percent annually, for five years, to yield \$500 million to indirectly reimburse the central administration’s investments in necessary infrastructure and improvements in Allston, on the grounds that all Harvard would benefit as new facilities were funded by their tenant schools and created in coming decades.

President Lawrence H. Summers then advanced a sweeping vision for accelerated Allston development (science labs, new homes for the schools of education and of public health, cultural facilities), and in early 2004 the SIF was extended to 25 years and applied to broader uses, including the renovation of facilities vacated by units relocating to Allston and the cost of new buildings there. Given the endowment value then (about \$19 billion), the assessment would yield an additional \$2 billion over its extended life, even if the endowment did not appreci-

ate—a sum that could support billions of additional borrowing to build in Allston. Meanwhile, as Shore and Rothenberg note, the University was already increasing its debt financing substantially. Centrally managed liquid funds were invested long term, alongside the endowment, to take advantage of the bull market, and Harvard put in place interest-rate exchange agreements meant to stabilize the costs of the anticipated future borrowings for the Allston work.

Today, *none* of the assumptions equating the administrative assessment with capital investment in Allston development remain. The University cannot borrow substantially more if it wishes to retain its top-tier credit ratings, and has much higher, continuing debt-service costs. The endowment, one-sixth smaller than at its fiscal 2008 peak, must support a larger faculty, physical plant, and financial-aid budget. After punishing losses on the interest-rate swaps and from lack of liquidity, the University is pursuing a lower-risk strategy for investing all its assets, including the endowment. That more cautious strategy must fund not only past Allston-related costs but also the extra, University-wide debt service. And the new Allston master-planning proposal (see “Economic Realities in Allston,” page 46) is vastly reduced from prior schemes. Much of the land is now a blank slate, for potential academic use far in the future.

Thus, treating the SIF as an Allston-related decapitalization item no longer makes sense; rather, it is an operating item—an assessment on endowment assets that defrays central operating expenses. A financial-reporting change thus reflects almost revolutionary upheaval in Harvard’s fiscal assumptions, operations, and position.

H A R V A R D P O R T R A I T

sources of revenue.” For instance, increased financial-aid spending has meant that “undergraduate net tuition actually has declined on an inflation-adjusted basis during the past decade at an average rate of 5 percent.” Excluding the national economic-stimulus program, “federal sponsored research revenue has had an inflation-adjusted compound annual growth rate of only 2 percent since 2002, and non-federal sponsored research has fared worse. Meanwhile...benefits expense has more than doubled in the past decade to \$476 million in fiscal 2012.”

The near-term response has been retrenchment: tighter staffing and attempts to rationalize information technology, purchasing, and the decentralized libraries structure. But Shore and Rothenberg call that merely a prologue to “an even more fundamental examination of our activities with the goal of more crisply prioritizing what we do and what we are willing to forgo.”

The future. Sketching the need for a new economic model for Harvard and other private research universities, they observe:

We are challenged by volatility in the capital markets due to our endowment dependence and disproportionately fixed cost structure. We depend considerably on [federal] funding of biomedical research at a time when the government’s projected deficits and accumulated debt create enormous pressure to reduce such discretionary dollars. The University’s sizable campus requires significant annual funding to maintain and still more funding to address deferred maintenance.

Turning to matters at hand, they term the increase in employee-benefit costs “unsupportable...relative to actual and expected growth” in revenue. Harvard is now addressing those costs largely by effecting changes in healthcare benefits (co-insurance and deductibles rose during calendar 2012), and by increasing the share of premiums borne by higher-paid employees in calendar 2013.

In a sign of the rising pressures, disagreements about compensation and healthcare costs have caused a public, contentious breach with the Harvard Union of Clerical and Technical Workers, the University’s largest union; at press time, the parties had not negotiated a successor to



Ann Forsyth

“After walking to work my whole life, I’ve become this new, middle-aged cyclist,” says Graduate School of Design professor Ann Forsyth. Raised on a farm in Australia, she has built a career on making sprawling urban areas healthier: improving walkability, green space, food sources, and affordable housing. The author of *Reforming Suburbia* and *Designing Small Parks* says there has been “a snobbiness about the suburbs, a perception among designers that they are full of affluent people who can be left to their own devices.” But growth of the burbs and their immigrant populations means “there are often more poor children there now than in the core cities,” making Forsyth’s work even more relevant. This spring, she’ll lead GSD students in a hands-on project to help redevelop downtown Malden, a working-class city north of Boston. She is also working with Harvard’s business and law schools to improve other struggling communities. Forsyth left the farm for college in Sydney, marrying her talents in science and art in an architecture degree. Desiring broader societal impact, she switched to urban planning, earning a master’s at UCLA and a doctorate from Cornell, where she was a professor before joining the GSD last May. She has also taught at the University of Minnesota and UMass Amherst, among other places, moving homes about 28 times in three decades. Now she has settled in Arlington, near the bike path into Cambridge. “Making more sustainable and healthy communities is a matter of balance—helping people make choices that help the wider community in the longer term,” she says. “As a researcher, I not only talk the talk, I ride the ride.”

the contract that expired last June 30. Academically, increased distributions from the endowment were the largest source of additional operating revenue in fiscal 2012 (after two years of reduced distributions). For fiscal 2013, the Corporation approved a further 5 percent increase, but it now uses a multiyear smoothing formula to set future distributions. The endowment recovered robustly in fiscal 2010 and 2011, but its value declined in fiscal 2012 (reflecting a slightly negative investment return and spending during the year). So in guidance for fiscal 2014 budgets, the Corporation has approved only a 2 percent increase in the distribution—and that subject to revision if there is “severe market dislocation.”

Foreseeing a lasting shift from “many decades of growth and stability” to “rapid, disorienting change” buffeting higher education, the two men restate the case for “integration opportunities” (further wringing out costs through the library reorganization, centralizing information technology, and other initiatives); attack “generous employee benefit offerings”; and urge “exploring incremental revenue” (including “more creative strategies to leverage the University’s space and its vast intellectual resources for additional monies that can be reinvested in our teaching and research aspirations”). And, of course, “a fundraising campaign” (see “The Coming Campaign,” below).

Despite initial fundraising progress, they view Harvard’s long history and traditions in a decidedly cautionary spirit:

The need for change in higher education is clear given the emerging

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A “Common Space” at Harvard’s Crossroads

A redesigned Science Center plaza will provide space for new social functions on the Cambridge campus.

harvardmag.com/science-center-12



Harvard Museums’ Public Face

Jane Pickering is named executive director of the science and culture museums. harvardmag.com/pickering



Tony Kushner Talks Lincoln

The screenwriter spoke to the Harvard community at a private screening of the film.

harvardmag.com/kushner

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disconnect between ever-increasing aspirations and universities’ ability to generate the new resources to finance them. Certain aspirations more closely resemble imperatives and will require universities to make decisive and inevitably difficult choices from among competing priorities. We can be successful if we equate change with the opportunity to improve and move forward.

...Success will require a tolerance

for ambiguity, an openness to different ways of doing things, a commitment to experimentation, an underlying confidence in our ability to implement a sustainable economic model, and an abiding passion for the University and its impact in the world. These are the same success factors that have enabled Harvard to thrive throughout the centuries, and we expect to achieve similar results in the future.

The Coming Campaign

HARVARD’S capital campaign—long in planning, long hinted about—is under way. When the goal and “quiet phase” fundraising results are publicly unveiled, presumably next autumn, they will mark the first institution-wide capital drive since the \$2.65-billion University Campaign concluded on December 31, 1999—cons ago, in development terms. A campaign matters both for the resources it secures and for what it tells constituents about this still decentralized University’s highest priorities for renewal and the future pursuit of knowledge and education.

Evidence of the preannouncement fundraising appears in Harvard’s annual financial report, published in early No-

vember (see “Sober Finances,” page 47). In fiscal year 2012, ended last June 30, gifts received (including current-use gifts, capital sums for endowment, and corporate and foundation research grants) totaled \$650 million, up slightly from \$639 million in the prior year. But pledges rose sharply, to \$909 million in fiscal 2012 from \$758 million and \$772 million in the

House renewal under way: rendering of the “light court” beside Leverett House’s dining hall



COURTESY OF KIERANTIMBERLAKE

two prior years, respectively—the leading indicator of future gift income, and a sign that major commitments are being made toward the campaign’s nucleus fund.

In a December 3 interview with the *Harvard Gazette*, President Drew Faust hinted at the retrospective and prospective nature of a fundraising drive now, observing that a “campaign can strengthen our financial foundations and at the same time enable some important new investments and initiatives.”

Funding financial aid, renovating buildings, and resuming work on the Allston science center might fit the former category; ideas naturally abound for the latter. Several significant gifts already delineate some of these priorities—and the scale of philanthropy involved in a twenty-first-century campaign:

- The \$40-million initiative on learning and teaching created by Rita E. Hauser, L.'58, and Gustave M. Hauser, J.D. '53, announced just before Harvard's 375th-anniversary celebration in October 2011. (For background information, see <http://harvardmag.com/hauser-13>.)

- The \$30-million gift from Joseph J. O'Donnell '67, M.B.A. '71, and his wife, Katherine A. O'Donnell, disclosed last March, for uses as yet unannounced. Joe O'Donnell was named a fellow of the Harvard Corporation in mid 2011, and serves as co-chair of its joint committee on alumni affairs and development. He is also one of four campaign leaders named to date. (See <http://harvardmag.com/ODonnell-13>.)

- The Dr. James Si-Cheng Chao and Family Foundation's \$40-million, mid-October gift to fund replacement of a building on the Harvard Business School (HBS) campus and fellowships for students of Chinese heritage. (See <http://harvardmag.com/chao-13>.)

- The \$30-million gift to the Faculty of Arts and Sciences (FAS) from the Hutchins Family Foundation, endowed by Glenn H. Hutchins '77, J.D.-M.B.A. '83. Part of the gift, announced in late October, initiates a matching fund to support the first steps in renewing the undergraduate Houses, FAS's principal announced capital-campaign priority and Harvard's largest single construction investment. Hutchins, another of the four campaign leaders, co-chairs the FAS component of the fund drive with Carl Martignetti '81, M.B.A. '85. (See <http://harvardmag.com/hutchins-13>.) House renewal, already begun at Old Quincy, advanced in early December with the release of plans for work on Leverett's McKinlock Hall, to begin this coming June.

Yesterday's News

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

1918 To save coal for the war effort, the University closes various buildings on selected days and cuts off heat to student dormitories after 9 P.M.

1928 Harvard Medical School researchers George R. Minot and William P. Murphy prove that eating half a pound of mammal liver or kidney daily will improve and maintain the health of a patient with pernicious anemia. Though the kidney and liver may be either raw or cooked, Minot and Murphy observe that most patients prefer to ingest the substance as raw pulp or mash.

1933 The Board of Overseers approves the creation of President Lowell's long-cherished project, the Society of Fellows.

1938 The Nieman Fellowships are created when the President and Fellows, in accordance with the provisions of a \$1-million bequest from Mrs. Agnes Wahl Nieman, approve a plan "to promote and elevate the standard of journalism in the United States."

1953 Professor Kirtley Mather, on retiring as president of the American Association for the Promotion of Science, warns that the stultifying atmosphere imposed upon scientists by political trends is hurting the field and stifling intellectual freedom.

1968 President Nathan M. Pusey speculates that undergraduate tuition will be \$4,000 by 1988. (It hit \$12,015.)

1973 Assistant professor Ivan Tche-repnin proposes a new course, Music 159: "Composition with the Electronic Medium." Though he anticipates resistance from his department—which is inherently distrustful of the new technology—his course is approved for the following year. The concern is raised, however, that offering credit for "tinkering with electronics" could set the stage for credit courses in such topics as basket-weaving and woodworking.

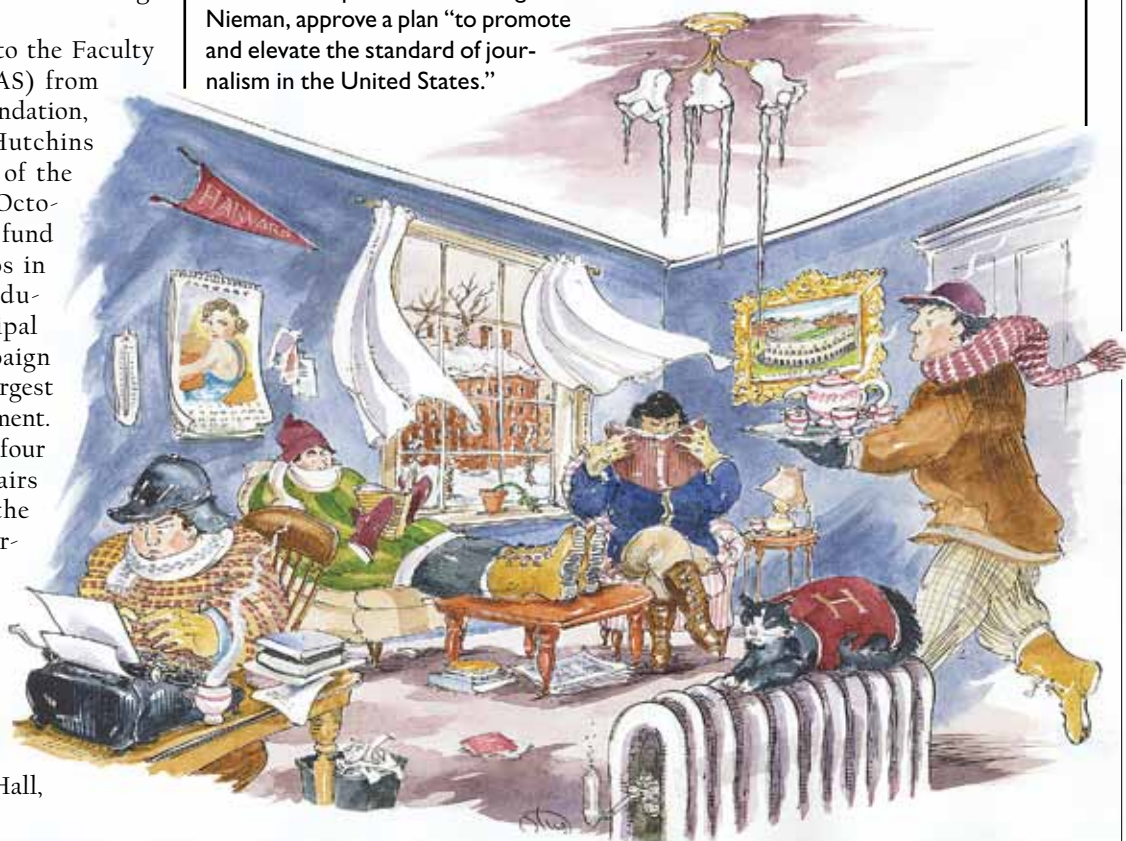


Illustration by Mark Steele

The mixture of uses (a pedagogical program, building plans, scholarships, and other goals), recipients (the University overall, HBS, FAS), and donor affiliations (domestic and international, with degrees from the College, HBS, and Harvard Law School) all suggest emerging aims and funders' hopes.

THE QUIET PHASE of a capital campaign is just that: a period for completing plans and testing potential donors' receptiveness to supporting the institution's goals. Given modern multibillion-dollar fund drives—like those recently completed by Stanford and Yale, and well under way at Columbia, Cornell, and Penn—this initial work with alumni and other friends is crucial to securing “leadership” gifts and pledges and anchoring the multiyear, public drive. Though Harvard is still months away from any public announcement, likely objectives for the University include:

Learning and teaching. The Harvard Initiative on Learning and Teaching, launched with the Hauser gift, is an area of further emphasis, as is online learning: the University's edX venture with MIT, launched last May, to which each partner committed \$30 million, is explicitly predicated on philanthropic and other support.

Arts. President Drew Faust's arts task force announced ambitious plans for undergraduate art-making, graduate programs, and new facilities—in December 2008, at the height of the financial crisis. Implementation has largely been deferred, but the recommendations lend themselves to campaign funding: a University Committee on the Arts has worked to refine goals.

Financial aid. Student support is a perennial wish—now more than ever. FAS, for example, extended its undergraduate aid program in December 2007 (again, ahead of the financial crisis), and as of fiscal 2011 reported a *decline* in net tuition and fee income (its largest source of unrestricted revenue) because of aid spending that has increased beyond endowed funds. The recession strained family incomes, requiring still more financial aid. Similar needs exist across the graduate and professional schools.

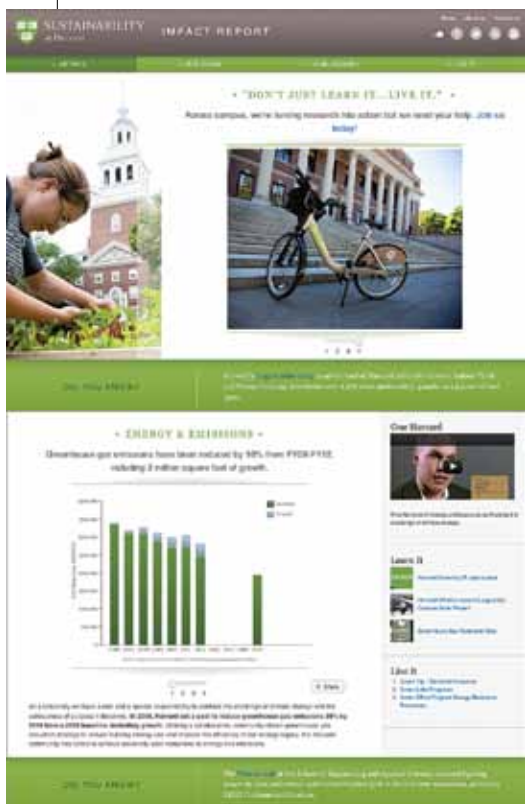
Engineering and applied sciences. Within FAS, the School of Engineering and Applied Sciences has outlined plans to use reserves and raise new funds to expand its faculty, enlarge graduate-student enrollment, accommodate rising undergraduate interest, and invest in teaching and research facilities and equipment.

Allston. The University's recent Allston planning submission to the Boston Redevelopment Authority (see page 46) outlines, among other elements, investments in athletics and HBS buildings, new and renovated, and continuing work on other facilities, including a major science laboratory where construction was halted in 2010 for financial reasons.

Many other elements of a campaign—faculty positions, international ambitions, research ventures in fields from medicine to energy and the environment, and individual school programs—remain to be fleshed out in coming months. Harvard's ambitions are significant, and many have had to be deferred, given the long interval since the University Campaign officially launched in 1994. What the recent large gifts make clear, however, is that there are supportive friends who will make substantial commitments of resources and time to fulfill those ambitions, and such work is very much begun.



Glenn Hutchins



Making Harvard Green

HARVARD THIS FALL released its first University-wide Sustainability Impact Report—an interactive website filled with data on efforts to make the campus environmentally friendly. “We’re trying to be very transparent and use an online platform to encourage our community to have an honest and open conversation about the challenges we face in implementing Harvard’s sustainability goals, so we can develop solutions that will help us move forward,” explained Heather Henriksen, director of the Office for Sustainability. Those goals are challenging—notably, to reduce emissions of greenhouse gases (GHG) sharply. Progress to date reflects myriad energy-conservation projects as well as investments in clean energy sources (such as electricity purchases from a Maine wind farm and the installation of solar hot-water panels in Harvard Yard and of photovoltaic cells on the Gordon Indoor Track roof).

A “metrics” section in the report includes interactive charts and graphs that present a variety of data from across the

campus, including information on energy and emissions, transportation, health and wellness, water use, green buildings, waste reduction, and recycling. According to the “Our Vision” section, the University has made three specific commitments to sustainability:

- Reduce GHG emissions 30 percent below a fiscal year 2006 baseline by 2016, including growth in facilities (adopted in 2008).
- Comply with comprehensive Green Building Standards for capital projects, renovations, and building-system upgrades costing \$100,000 and above (adopted 2009, following 2007 guidelines that applied to projects of \$5 million or more).
- Adhere to campus-wide Sustainability Principles that provide a broad vision to guide University operations and planning (adopted in 2004).

The “Our Journey” section of the website offers a timeline that lets users scroll through photographs and facts highlighting the University's movement toward a green campus since a community event attended

Rhodes and Marshall Scholars

Six members of the College class of 2013 were awarded Rhodes Scholarships: Aiden C. de B. Daly, a computer-science concentrator, from New York City and Quincy House; Julian B. Gewirtz, a history concentrator, from Hamden, Connecticut, and Quincy House; Allan J. Hsiao, a concentrator in economics and East Asian studies, from Louisville, Kentucky, and Adams House; Benjamin B. H. Wilcox, a history concentrator, from Winnetka, Illinois, and Quincy House; Nina M. Yancy, a social-studies concentrator, from DeSoto, Texas, and Quincy House; and Phillip Z. Yao, a physics concentrator, from North Caldwell, New Jersey, and Winthrop House. A Canadian Rhodes was subsequently awarded to Madeleine E. Ballard '11, a social-studies concentrator and former Quincy House resident from Baie d'Urfé, Quebec....Harvard also gained two Marshall Scholars: Aditya Balasubramanian '12 ('13), a history concentrator from Leverett House and Bethesda, Maryland, and Alex Palmer '12, a social-studies concentrator formerly of Quincy House, from Elm Grove, Illinois.

edX and Tex, and More

The Harvard-MIT online learning joint venture edX has taken on a fourth partner, the University of Texas System (following the earlier affiliation of University of California, Berkeley). Texas officials expressed particular interest in using the technology for large-enrollment introductory and general-education classes—thus broadening edX offerings beyond the initial upper-level courses introduced this past fall—and focusing on for-credit instruction. Both initiatives are consistent with edX's November announcement that it will partner with Bunker Hill Community College and MassBay Community College to offer a blended online and in-class computer-

Brevia



HARVARD STRATEGY HEAD: President Drew Faust has appointed Leah Rosovsky '78, M.B.A. '84, vice president for strategy and programs. She will focus on Harvard's international agenda, Faust's "One Harvard" initiative, and searches for senior University appointees, among other responsibilities. Rosovsky returns to Harvard from the School of Arts and Sciences at Tufts, where she has been executive administrative dean since 2006; she was previously involved in development for the Faculty of Arts and Sciences (FAS), and then in senior administrative positions in University Hall. In crossing the Yard to Massachusetts Hall, she follows family tradition: her father, Henry Rosovsky, Geyser University Professor emeritus, served as dean of FAS, acting Harvard president, and a member of the Corporation (and is now president of Harvard Magazine Inc.).

programming course. That initiative is funded by the Bill & Melinda Gates Foundation, which focuses on enhancing students' basic skills and improving learning outcomes and graduation rates. A fifth partner, Wellesley—the first liberal-arts college to affiliate—joined edX in December. And HarvardX is gearing up to offer four online courses in the spring term, following two this past au-

tumn, plus many "modules"—shorter units focused on discrete learning objectives. Separately, 2U and a consortium of 10 universities—including Duke, Emory, Northwestern, Notre Dame, and Washington University—announced full-credit, online, full-cost undergraduate courses, with selective admissions.

Alcohol Adjustments

The Faculty of Arts and Sciences enacted new undergraduate alcohol policies at its November 6 meeting. The rules detail, among other measures, registration of private parties in student suites, the counseling hosts must undergo, and the requirement that "ample water, non-alcoholic beverages, and food" be provided—and that alcohol purchases

be "scaled for the reasonably anticipated number of attendees of legal drinking age." Sanctioned events may offer "only beer, wine, and malt beverages," but mixed drinks with hard liquor in specified quantities may be served at House formals. A primary concern is ensuring that new College students realize that they must comply with state laws. Unlike their peers nationwide, 70 percent or more of enrolling freshmen are considered "naïve" (not experienced in) drinking—a percentage that declines to the national average (more than 50 percent of students this age have significant experience with alcohol) during their first few months on campus.

On Other Campuses

Yale in early November appointed provost Peter Salovey, a psychology professor, as its twenty-third president, succeeding Richard Levin, whose 20-year term will end next June....Dartmouth tapped alumnus Philip J. Hanlon, who graduated in 1977, as its next president, beginning July 1. A mathematician who is now provost and executive vice president for academic affairs at the University of Michigan, he also serves on the advisory board of Coursera, the online education



NOBEL NOTABLES: Alvin E. Roth (far left) and Lloyd Shapley '44 (left) shared the Nobel Memorial Prize in Economic Science. Roth, an experimental economist, has been Gund professor of economics and business administration, with a dual appointment at the Business School and in the Faculty of Arts and Sciences; he departs for a professorship of economics at Stanford as of January 1. Shapley, professor of mathematics and economics emeritus at UCLA, is a leader in the field of game theory. David J. Wineland, Ph.D. '71, of the University of Colorado, shared the Nobel Prize in physics.

company....Princeton's search for a successor to Shirley Tilghman continues.... Seeking to better prepare students for practice, New York University School of Law has introduced several curricular changes, including a required financial-literacy course and options for a third-year study-abroad experience, a semester in Washington, D.C., and the opportunity to specialize in a field of law....Columbia, Cornell, and Yale have partnered to offer instruction in less commonly taught languages at each institution, using live videoconferencing and small classes (12 students maximum); the program began with Romanian and Dutch, and is now expanding to 10 more African, Asian, and Eastern European languages.

Nota Bene

RELIGIOUS RECOGNITION. Thomas professor of divinity Leila Ahmed has received the 2013 Grawemeyer Award in Religion for her recent book, *A Quiet Revolution: The Veil's Resurgence, from the Middle East to America*; the recognition comes with a \$100,000 honorarium. Ahmed's research was described in "The Veil's Revival" (September-October 2011, page 17).



Leila Ahmed

GRAWEMEYER AWARD

EARLY ACTION ACCELERATES. The College received 4,856 early-action applications for admission to the class of 2017, up 15 percent from 4,228 last year, when the program resumed after a four-year hiatus. Most other Ivy League schools also reported more early applicants this year, as students seek an admissions edge.

at Wellesley, has won the 2012 National Book Award in poetry for his new collection, *Bewilderment* (Chicago).

J.D. TV. Harvard Law School has begun using videoconferencing to conduct interviews of applicants for admission to the J.D. program—and will offer more candidates the opportunity for an interview; for the past six years, interviews have been conducted telephonically.

MEDICAL HONOR. The Institute of Medicine elected as members Amitabh Chandra, professor of public policy and director of health policy research at the Harvard Kennedy School, and Donald E. Ingber, Folkman professor of vascular biology and professor of bioengineering. Ingber is founding director of the Wyss Institute for Biologically Inspired Engineering (see "Designing from Life," May-June 2011, page 46).

FRIENDING THE FACULTY. The office of the senior vice provost for faculty development and diversity has deployed social-media tools to knit Harvard's far-flung professors together: a tool to show the members where they all live, in case they want to carpool or meet outside the campus (see the "geomap" at www.faculty.harvard.edu); and one they can use to find babysitters, pet walkers, or other helping hands from within the community.

NATIONAL BOOK HONORAND. David R. Ferry, Ph.D. '55, poet, translator, and professor emeritus of English

NOTABLE CLINICIAN. The Institute of Medicine conferred its Lienhard Award on Donald M. Berwick '68, M.D.-M.P.P. '72, lecturer on healthcare policy and former administrator of the Centers for Medicare and Medicaid Services. The award recognizes his career of leadership in establishing clinical quality improvement, which catalyzed a national effort to enhance medical care and safety.

MISCELLANY. The Kennedy School's Center for Public Leadership conferred its biennial Gleitsman Citizen Activist Award on Rebecca Onie '98, J.D. '03, CEO of Health Leads, which aims to assure that the healthcare system addresses all patients' basic needs. The award is accompanied by a \$125,000 prize; Onie also received a MacArthur Fellowship for her work, in 2009....Margaret H. Marshall, Ed.M. '69, Ed. '77, L. '78—a past University vice president and general counsel, and retired Chief Justice of the Massachusetts Supreme Judicial Court—has received a Lifetime Achiever Award from *The American Lawyer*; the honor noted her "career working to ensure that courthouse doors are open to all." (Marshall is an Incorporator of Harvard Magazine Inc.)...The Baker Library historical collections at Harvard Business School have received the papers of An Wang and Wang Laboratories Inc., from 1948 to 1992, an important resource in documenting early innovation in the New England-based computer industry; Wang Laboratories was especially known for its pioneering word-processing equipment....Alpha Phi will begin recruiting next spring, making it the fourth campus sorority to be recognized; the others are Kappa Kappa Gamma, Delta Gamma, and Kappa Alpha Theta. There are three fraternities. During each of the past two seasons, *The Harvard Crimson* reported, about 250 undergraduate women rushed sororities.



Amitabh Chandra



Donald E. Ingber

KRIS SNIBBE/HARVARD NEWS OFFICE
STEPHANIE MITCHELL/HARVARD NEWS OFFICE

by 15,000 people in Tercentenary Theatre in the fall of 2008, keynoted by Al Gore '69, LL.D. '94. "Sustainability at Harvard is about more than recycling and turning off lights," it states. "It's about shifting the culture of an institution and inspiring the next generation of environmental leaders."

These data, compiled by Henriksen's office, highlight the current status of Harvard's progress toward achieving the sustainability goals:

GHG emissions: Emissions were reduced 16 percent from fiscal 2006 to 2012,

despite the three million square feet of growth on campus during that period. *Excluding* that growth, emissions in fiscal 2006 "base buildings" have dropped 24 percent. As of 2012, 23 percent of electricity is generated from renewable or alternative energy sources.

Green Buildings: As of October 2012, the University has 78 certified and 23 registered LEED building projects (a project must be registered before it can be evaluated for certification).

Energy Conservation: To date, a thou-

sand energy-conservation measures have been implemented, yielding an annual savings of \$9 million.

Green Loan Fund: To date, the fund has loaned more than \$15 million to various campus schools and departments supporting nearly 200 projects that have yielded more than \$4 million in energy savings annually.

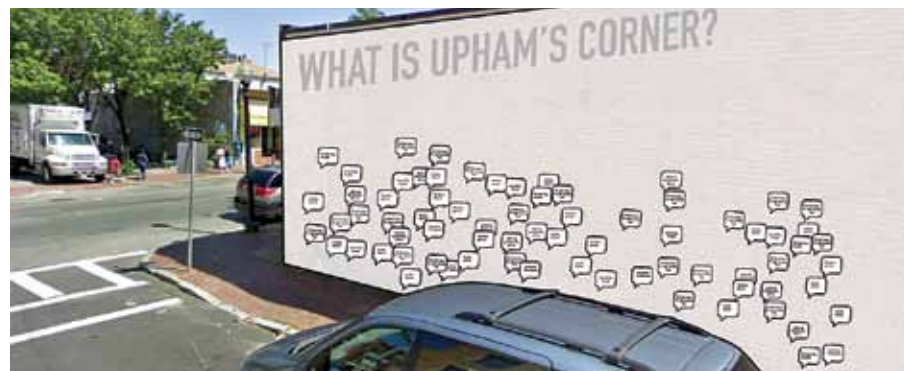
For further information, including data on transportation, solid waste, and water usage, see the website at <http://report.green.harvard.edu>.

A Community Innovation Lab

IMAGINE a large blank bulletin board hanging in the middle of Upham's Corner in Dorchester covered with stickers that read "Upham's Corner is...the best Cape Verdean food" or "Upham's Corner is...the place I grew up"—designed to spark discussions about community identity. Or a themed website for the Strand Theater there that would host a resource portal with a local feel—to attract neighborhood businesses. Or interactive, multi-touch panels running along both sides of the entryway of the affordable-housing project Orchard Gardens—to serve as a community spotlight and increase residents' engagement.

In the fall class "Solving Problems Using Technology," students from Harvard's Kennedy School (HKS) and Graduate School of Design (GSD) teamed up with three community groups in Boston and the Mayor's Office of New Urban Mechanics to make these "big ideas" a reality in the Dudley and Upham's Corner neighborhoods.

Guided by visiting Stanton professor of the First Amendment Susan Crawford and assistant professor of urban planning Michael Hooper, GSD and HKS students worked together in nine different interdisciplinary teams to enhance projects already undertaken by their partner community groups and to develop their own unique ideas for addressing urban and civic challenges. At the end of the semester, the teams presented their projects to their community partners, community residents, and mayoral representatives at Hibernian Hall in Dudley Square. The mayor's office, Crawford said, will implement the best of the student designs.



The GSD students focused mainly on participatory planning and design, the HKS students on implementation of the ideas. The "novel and exciting" structure of the class, Hooper says, brings students with various interests together and gives them direct experience in solving real community issues. In groups of four to six, students tackled questions such as how can an affordable-housing project serve as a model for a twenty-first-century public space *and* involve residents in the design process? How can the housing project's board form a strong link between residents and City Hall? What can be done to draw people from other parts of Boston to shop, eat, and see a show in Upham's Corner? How can technology enhance the visual identity of this area?

Students began by learning about the Dudley area before homing in on specific community needs with their partners—the Dudley Street Neighborhood Initiative, the Orchard Garden Residents Association, and the Upham's Corner Main Street Initiative—and brainstorming solutions, narrowing their focus to one "big idea" they deemed most workable. The second half of the course was the lab portion—a user-centered design class that brings all the students together in Harvard's I-Lab

Students Sneha Khullar, Laura O'Connor, Billy Pope, and Salmaan Khan suggested using a central location as the site for a blank canvas hosting stickers filled in by community residents, as a way to spark a dialogue about the identity of Upham's Corner.

to work on their projects. "A lot of projects at the end of a term go on your C drive, they've been a great experience, but that's the end," Hooper said during the first class meeting. "The hope here is that these projects can see the light of day, be implemented, and live beyond your computer."

One group's members—Alex Tischenko, Jean You, Beth Lundell Garver, and Rodrigo Davies—focused on a way to make Dorchester North Burying Ground, one of the oldest cemeteries in the country, a recognized landmark and a stronger asset to the Upham's Corner community. Their solution was to transform the "experience on the ground" through an annual community day bridging economic, cultural, and generational boundaries: "Living Souls Day"—an event in collaboration with local arts groups featuring dance performances, food, music, and fun. "We want to work with these groups to co-design a story and interactive production," said You during the group's presentation at Hibernian Hall in December. "It will be a cultural celebra-

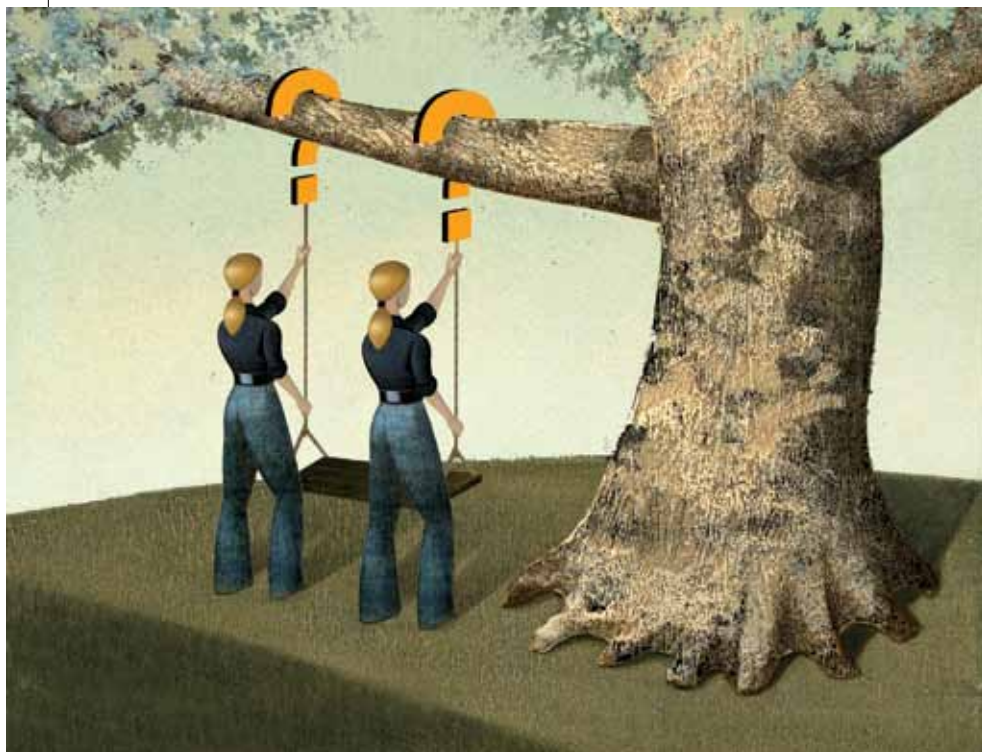
tion...we see this as a way to transform the site and really make it attractive.”

Leslie Feinberg, Jake Cummins, Alix de Zelicourt, and Karina Qian concentrated on ways to empower the Orchard Gardens Residents Association, to ensure its relevance and service to the community. Their idea was the “Walk of Stars”—the

interactive, multi-touch wall display in the housing project’s entryway. The display would offer different kinds of content: information on events, board-member profiles, media stories around the community, even birthdays. An interactive floor would control many of the digital screens—as people stepped on different tiles, differ-

ent displays would pop up. “We want the lobby to serve as this fun, highly engaging place,” said Cummings. “The metaphor is that you are walking through this corridor into the future.”

The Mayor’s Office of New Urban Mechanics will announce the projects it decides to fund in January.



THE UNDERGRADUATE

A Perforating Doubt

by CHERONE DUGGAN '14

I REMEMBER getting very worried during my freshman year. People seemed to care about grades and GPAs and extracurriculars an awful lot more than I did. I found myself getting stressed in spite of myself—stressing about not being stressed. I was worrying about not being worried, caring about not caring about what other people cared about. These concerns seemed the silliest of things, but for my freshman self, they were quite real. Never before had I been more conscious of other

people’s notions of what success meant, and of how off I was from those measures. I didn’t want to spend hours cranking out essays that I wasn’t interested in so I could “do well.” I didn’t want to do problem sets for that reason, or anything, for that matter. To me, the notion of “doing well” just didn’t matter—not in the sense that appeared to be that of my freshman peers, at least.

At that point, and at points since, I did what any young idea-lover does. I knelt before my bookshelf, as if before an altar,

and I asked the divine souls of characters and authors what I should do. With knees and ego bent, I searched the titles, looking for one that promised salvation. I knew the stories they contained, but wanted to remind myself of them, to take my mind out of my head for a while, and put another one in. I found the most beautiful of minds; those of poets and dreamers, of clairvoyants and philosophers. I spent hours with them, curled up in corners of far-off spaces, unraveling intrigue and the present tense, slowly untying their knots. But, this didn’t seem to be enough, my present never fully spoke to these writers’ pasts. No matter what wisdom their tomes conveyed, the voices of the dead and distant minds I was convening with weren’t able to speak back to me; they could only ever speak forward, toward lives and times they never lived. And I could only look back, retracing their steps to hunt for answers where they did not necessarily appear.

So at that point, and at points since, I did what any young idea-lover does, and sought out someone wiser and more well-read than I, to see what she could see. I went to office hours. I went to the office of the professor of my freshman seminar—a seminar about different modes of reading books and the world. I didn’t really have a question, more a series of worries and emotions: about how the freshman culture of thought fixated on grades and conventional pat-on-the-back success made me feel like a lonely idler in the midst of a checklist, about to be crossed out; about how far away the lives of people I knew seemed, across seas and schedules; about how learning unsettled, and about how difficult it was for me to continue thinking of myself as a me in the middle of all these thoughts and contradictions. In other words, at that point, and at points since, I’ve had what any young person, middle-aged person, or old person has had: a glaring existential crisis of perforating doubt.

My professor sat and listened to me. In

my sharing of my doubts, she shared with me. I do not remember the exact words she said. And I don't know that remembering them in the present would make them make the same sense they made to me when I heard them in that moment of the past. I know that back then, they made sense. They made sense because they spoke to me, the me that was then, and has since ceased to be.

Now, I know that the words I shared with her that day, and on days since, have made me confident that I am not alone in doubting, and that nobody ever needs to be. In the raw honesty of approaching someone with doubt worn plainly, there is a reality of openness to learning that I have been unable to find in any other situation, book, or maxim. I trust that in the simultaneity of sharing doubts, of admitting that I don't know, and don't like not knowing—there is the potential for connecting, a reality of living, that no book could ever encompass. I have discovered that, for me, my relationships with thoughts and people are strengthened when I see the acknowledgment of doubt. When my sister is sad, my friend is upset and confused, or my thoughts are derailed by questioning and opposition from within themselves, things really become real. Perhaps psychoanalysts would say that it has something to do with childhood and vulnerability. I'm not sure; all I'm sure of is that it's OK not to have any answers, or even any questions.

AFTER REVEALING my worries to my professor on that day in my freshman year, I am no longer afraid to share when I'm feeling alone in my thoughts, or utterly confused. She has helped to show me that emotion is necessary in learning, and that in admitting uncertainty, failure does not follow. There is a gradation to learning that cannot be graded, a succession that does not end in "success"... It is not a goal that can be reached in a moment of completion—at least, not the type of learning I've come to want and value, the type that forgets about grades and deadlines, stress and success. It's the type that cannot be capped with designations, because it does not stop. It's timeless. Tenseless. That's why, for me, the best classes and interactions I've had here have been those where people speak in the true presence of one other, instead of past one another: where past and future cease to exist. In my experience, this type of interaction occurs when

people really love the material they are learning, or when they aren't worrying about their grade, when people take classes pass/fail or as electives. It's only in the sharing of emotion in excitement, in love, in confusion, and especially in doubt that I find true simultaneity with others. It's when I feel completely joined in experience of thought and emotion in this way, in classes, or dining halls, or office hours, that I feel what it means, not just to learn, but to be alive.

This is just what I've learned so far, from my mentors and my friends—what

I've come to think from many shared moments. Doubt is not something to hide, or run away from. It's the place from which to start. From this point, and, by the time this is read, at points since, I do what any young idea-lover does, I continue to share thoughts and time.

For there are many more ways to think, and many more things to share, no doubt.

Cherone Duggan '14 is one of Harvard Magazine's 2012-2013 Berta Greenwald Leducky Undergraduate Fellows.

SPORTS

Surprise Endings

The football team broke records, but the Ivy trophy went south.

IT WAS the championship season that wasn't. Heavily favored to retain the Ivy League title, the football team rolled over its first five opponents, outscoring them 205-67. Then came the October Surprise. In a calamitous fourth quarter at Princeton, Harvard blew a 34-10 lead, allowing 29 points in the game's last 11 minutes. The 39-34 loss—perhaps the most deflating defeat in Crimson football annals—snapped

a 14-game winning streak and scrambled the race for the Ivy trophy.

Successive losses to Cornell and Pennsylvania dropped Princeton to third place in the Ivy standings, leaving Penn and Harvard—both with 4-1 league records—to fight it out for the championship on the second-to-last weekend of the season. That brought the November Surprise. A Penn team that had taken four Ivy games

Quarterback Colton Chapple accounted for three touchdowns in the Yale game, passing for two and scoring another on foot. He threw 24 scoring passes in a spectacular senior season, breaking the Harvard record of 18 set by Neil Rose '03 in 2002.



Photographs by Mark Kelsey

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by slim margins took the measure of Harvard, 30-21.

With a narrow victory over Cornell the next weekend, Penn won the league title outright, and for the third time in the last four years the Ivy trophy went south. Harvard's 8-2 season was climaxed by an unexpectedly tense 34-24 victory over Yale—the Crimson's sixth straight in the 129-game series, and the eleventh in the teams' last 12 meetings.

THE PRINCETON SHOCKER and the upset at Penn's Franklin Field were jolting plot twists in the narrative arc of the highest-scoring Harvard team of the modern era. The Crimson's lethal offense scored a total of 394 points, breaking the single-season record of 374 set in 2011. Senior quarterback Colton Chapple threw a record 24 touchdown passes, and set new marks for passing and total offense. Senior tailback Treavor Scales ran for 1,002 yards and led the league with 13 rushing touchdowns.

The team showed its striking power by scoring 21 fourth-quarter points in each of its first two games—a 28-13 vic-

tory over the University of San Diego and a 45-31 slugfest at Brown—and by piling up 49 first-half points in a rain-soaked 52-3 wipeout of Holy Cross. Scales had a career-high 173 yards rushing and two touchdowns against San Diego, and 136 yards and four touchdowns at Brown. Chapple passed for four touchdowns and ran for another against Holy Cross, and he repeated that feat the next weekend, throwing four touchdown passes and scoring another on foot in a 45-13 win over Cornell.

Chapple's ability to make plays with his feet also helped the team to its fifth win, a 35-7 rout of Bucknell. In just over two quarters, he ran for 120 yards and two touchdowns—one of them on a 59-yard breakaway—and threw scoring passes to tight ends Cameron Brate '14 and Kyle Juszczyk '13. Like Chapple's long run, Juszczyk's catch-and-run covered 59 yards.

Harvard seemed to have the Princeton game won when the unthinkable happened. The Crimson had dominated the opening half, amassing 451 yards of total

offense to Princeton's 51 and holding a 21-0 lead at the break. Trailing 34-10 with 13 minutes to play, the Tigers proceeded to bombard the Harvard secondary with scoring passes of 7, 29, 20, and 36 yards—the last one with 13 seconds left on the clock. Missed tackles, penalties, and a dropped interception with 38 seconds to play all worked to keep Princeton drives alive. Almost obscured by the defensive collapse was a spectacular performance by Chapple. He had thrown five touchdown passes, matching a single-game record he'd tied the previous season, and his 448 passing yards broke the Harvard record of 443 set by Neil Rose '03 in 2002.

The team was on track again in a 31-14 night victory at Dartmouth a week later. Scales led the ground attack, rushing for 89 yards and three touchdowns. The Crimson's strong run defense, then ranked first in the NCAA's 122-team Football Championship Subdivision (FCS), held the Big Green rushing attack to 19 yards on 24 carries.

Back at the Stadium, 10 different players scored points in a 69-0 shutout of Colum-



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bia. In the two quarters he played, Chapple accounted for four touchdowns, three in the air and one on foot. The final score was the most lopsided in Ivy League annals.

THE TERMINAL TUSSELE with Yale has been canonized as The Game, but in the annual race for the

Ivy League title, the game is now Harvard-Penn. For the past 15 seasons, every meeting of the two teams has had title implications, and in 12 of those seasons the winning team has gone on to claim the Ivy trophy.

Harvard traveled to Franklin Field with a chance to redress the damage inflicted at Princeton and reclaim first place in the standings. But its bid was quashed by a fired-up Penn team that contained the Crimson attack, outmuscled the defensive line, and left the field with a 30-21 upset. The Quakers' game plan was to challenge Harvard's seemingly impregnable rushing

A High-Scoring Season

San Diego	W	28-13
at Brown	W	45-31
Holy Cross	W	52-3
Cornell	W	45-13
Bucknell	W	35-7
at Princeton	L	34-39
at Dartmouth	W	31-14
Columbia	W	69-0
at Penn	L	21-30
Yale	W	34-24

first and only opposing back to break 100 against Harvard. Billy Ragone, Penn's senior quarterback, ran for 95 yards, passed for two touchdowns, and scored another on foot before going down with a fractured ankle in the third period.

Behind 28-14 in the final quarter, the Crimson scored on a short pass from Chapple to Juszczuk. But the offense couldn't close the gap in the 10 minutes that remained, and the Quakers added a two-point safety with an end-zone sack of Chapple as time ran out.

A Crimson triumph at the Stadium the

defense, and the tactic worked. The Crimson defenders, who had held opposing rushers to 43.4 yards per game and led the FCS in quarterback sacks, yielded 227 yards on the ground and failed to register a sack. With 130 yards rushing, Quaker tailback Lyle Marsh became the

next weekend looked like a safe bet, but the combativeness of a Yale team with a 2-7 record came as a second November Surprise. Harvard took the field as a prohibitive favorite, but was given a rigorous test by a shape-shifting Yale defense and an injury-riddled offense that had two former junior varsity receivers filling in at quarterback.

Encumbered by turnovers and drive-breaking penalties, the game's opening half was a 3-3 stalemate—an anomalous scenario for a Crimson offense that had been averaging 24.4 first-half points. All that changed in a furiously contested second half. After taking a 6-3 lead on junior placekicker David Mothander's second field goal of the game, Harvard went up 13-3 when Chapple rolled out to pass, scrambled to his right, and sprinted 18 yards to the end zone. The lead would change hands four times over the next 15 minutes.

A 46-yard pass from fifth-string quarterback Henry Furman to receiver Cameron Sandquist set up a three-yard touchdown by sophomore Tyler Varga, Yale's

The advertisement features a man and a woman standing in front of a large glass window at night. The man, on the left, is wearing a bright blue jacket and holding a magazine titled "Harvard Business Review" with a red circular graphic on the cover. The woman, on the right, is wearing a brown jacket and holding a magazine titled "weddings" with a pink cover. Above them, the text "{Where Two Worlds Meet}" is written in a large, white, cursive font. At the bottom, a dark blue banner contains the text "{ THE CHARLES HOTEL }" in white, followed by "Harvard Square . Cambridge, MA . 800.882.1818 . www.charleshotel.com". Social media icons for Facebook and Twitter are also present.



Tailback Treavor Scales rushed for 177 yards against Yale, scoring the clinching touchdown on a 63-yard breakaway with just over a minute left to play. His rushing yardage tied a Yale game record set in 1996 by tailback Eion Hu '97.

hard-running back-of-all-work. The Blue then forged ahead, 17-13, after receiver Grant Wallace made an unlikely catch in an end zone crowded with Crimson defenders. Harvard regained the lead on a 32-yard pass from Chapple to wide receiver Andrew Berg '14, but an interception on the Crimson's next series allowed Yale to score once more on a short-yardage dive by Varga, putting the Blue ahead, 24-20.

On Harvard's next play from scrimmage, Chapple broke loose on a quarterback draw and dashed 61 yards to Yale's nine-yard line, where he was caught by Eli cornerback Collin Bibb. After a pass-interference penalty moved the ball to the four-yard line, Chapple and tight end Cameron Brate confected *The Game's* decisive play.

"When we broke the huddle," Chapple said later, "Cam told me, 'If I'm covered, give me a high ball.' You can't draw it up any better than that. He made an unbelievable play." Outjumping Ryan Falbo, a six-foot-three Yale linebacker, the six-five Brate hauled down Chapple's perfectly thrown pass for the go-ahead touchdown.

A strong defensive stand forced Yale to punt on its next possession, but with 1:19 left on the clock, Harvard faced a third-and-13 and the distasteful prospect of returning the ball to Yale. Taking a pitch from Chapple, Scales raced down the right side-

line for a 63-yard touchdown that clinched Harvard's win.

"We had nothing left," said coach Murphy afterward. "We gave it everything we had. We didn't just have to make plays—we had to make really big plays to win this game. It was a great heavyweight fight, and we landed the last punch."

TIDBITS: With an Ivy record of 1-6 (2-8 overall), Yale finished last in the

league for the third time in three decades. The Eli's sole Ivy win was a 27-13 upset of Penn.

Precocious: In his 17 varsity starts—the first seven in backup roles—Colton Chapple came within two touchdown passes of tying the Harvard career record of 41 set in 2002 by Neil Rose, a starter for three seasons. In five of his starts, Chapple passed for four touchdowns or more. No Crimson passer had ever recorded more than two such games...Chapple ranked second nationally in passing efficiency, and his 3,169 yards of total offense (an average of 7.9 yards per play) set a Harvard single-season record. Against Yale he completed 22 of 32 passes for 229 yards and two touchdowns, and ran for a career-high 128 yards...."We've had such a lineage of quarterbacks, but I don't think anyone has been a better decision-maker, been more poised," said coach Murphy. "It's amazing how he can just get everything to play in

slow motion—just seemingly doing all the right things, all the time."

Finishing touch: Scales's 63-yard breakaway in the Yale game was his 29th career touchdown. "I have never seen Treavor run so fast, I guarantee you that," said Chapple after the game....Only Clifton Dawson '07, with an astonishing 66 touchdowns, has scored more in a Harvard career.

Crimson state: Because Chapple and Scales both played high-school football in the Greater Atlanta area, the *Atlanta Journal-Constitution* sent a staffer to cover *The Game*. As writer Mike Knobler noted in his report, "Georgia is not only a red state but a Crimson one as well. Harvard has 157 undergraduates from Georgia, 13 of them on its football roster. There were no Georgia players dressed in Yale blue." Harvard scouts will surely continue to keep Georgia high-schoolers in their sights.

Triple threat: Kyle Juszczuk, a bruising runner and blocker who could line up at tight end, slot back, or fullback, was the team's top receiver, with 52 catches for 706 yards and eight touchdowns. His 22 career touchdown catches are the third-most in Harvard annals.

Front four: The Crimson's defensive line—seniors John Lyons, Nnamdi Obukwelu, and Grant Sickles, and junior Jack Dittmer, with sophomore Zach Hodges as swing man—ranked second nationally in rushing defense, holding opponents to an average of 69.4 yards per game. Harvard led the FCS in quarterback sacks, with 4.2 per game.

All-Ivies: Linebacker Josh Boyd '13 ('14) and tight ends Juszczuk and Brate were unanimous all-Ivy selections. Chapple, Scales, guard John Collins '13, and center Jack Holuba '13 also made the offensive first team, while end Zach Hodges was a first-team defensive choice. Placekicker David Mothander and punter Jacob Dombrowski '13 were first-team kickers. Nine others earned second-team or honorable-mention citations.... Chapple won the Bushnell Cup as the Ivy League's offensive player of the year, and received the New England Football Writers' Gold Helmet Award as New England player of the year.

Laurels: Chapple also won the Crocker Award, given annually to the team's most valuable player. Scales received the LaCroix

Final Ivy League Standings

	Ivy and overall records		Points for/against	
Penn	6-1	6-4	235	241
Harvard	5-2	8-2	394	174
Brown	4-3	7-3	217	166
Dartmouth	4-3	6-4	251	210
Princeton	4-3	5-5	266	199
Cornell	2-5	4-6	265	302
Columbia	2-5	3-7	145	272
Yale	1-6	2-8	158	289

Award for enthusiasm, sportsmanship, and loyalty. The inaugural Joe Restic Award for scholarship, leadership, and integrity—memorializing the innovative coach who guided the Crimson from 1971 to 1993, and died a year ago—went to team captain Bobby Schneider. A linebacker, Schneider was leading the team in tackles when he broke his arm in the Princeton game. After four weeks on the sideline, he took the field for the final play against Yale.

Captain-elect: Josh Boyd, of Hyde Park,

Massachusetts, and Adams House, will captain the 2013 squad. A sociology concentrator, he led the Crimson defense with 67 tackles.

Not-quite-full house: Though rows of seats in the Stadium's colonnade were empty, The Game was announced as a sell-out, with a stated attendance of 31,123.... The average draw for the season's five other home games was 7,599.

Upper hand: Harvard now leads Yale, 32-24-1, in games played since the formal-

ization of Ivy League play in 1956. Coach Tim Murphy is 14-5 against the Blue.

New high: The Crimson's 394-point season broke the Ivy League record of 375, set by Brown in 2000.

Westbound: The 2013 campaign will kick off with a road game against the 2012 season's opening-day opponent, the University of San Diego, at Torero Stadium on September 21. Harvard's last West Coast venture was a 44-0 mismatch with Stanford in 1949. ~"CLEAT"

Squash, Egyptian Style

Two national champions rule the walls with flicks, nicks, and immense talent.

TWO PLAYING STYLES dominate elite squash today: English and Egyptian. The English style emphasizes steadiness, long points, and superior fitness—winning, essentially, by wearing down an opponent's physical reserves and minimizing one's own errors. In contrast, the Egyptian style accents the creative and deceptive aspects of squash, and taxes the opponent's mental toughness. "The English game penetrates your legs first, and your head second," says Ali Farag '14, the Harvard men's varsity number-one player. "The Egyptian style reverses that, and gets into your head first. An Egyptian player will go for a trick shot and win a point out of nowhere."

Egypt has now become the world's leading power in squash, with England, Australia, and France also strong. A skilled Egyptian player can demoralize an opponent with, for example, "nicks and flicks." A *nick* is a shot that, after striking the front wall, lands exactly at the junction of the floor and sidewall—and so rolls out on the floor, impossible to play and a winner for the one who hit it. Traditionally, nicks have been considered fortunate shots, but today's top players have such precise control that they can aim for a nick and often make one. *Flicks* are shots that veer in an unexpected direction at the last split second. With a flick of the wrist, a player who is clearly set up to hit a "rail"—a long shot close to the wall—instead flips the ball crosscourt toward the opposite wall, tying the opponent in knots.

Harvard is now blessed with two top

players—Farag for the men and Amanda Sobhy '15 among the women—versed in the Egyptian style. Both arrived in the fall of 2011 and had similar seasons last year: undefeated in all matches and winners of national individual championships at the College Squash Association (CSA) season-ending tournament. They are the reigning royalty of American college squash, both coached by Mike Way, whom they cite as a major factor that drew them to Harvard. Farag is 100 percent Egyptian. Sobhy has an Egyptian father and American mother; appropriately enough, her game is "a mix of the Egyptian and British styles," she says. "I do have shots and deception, but

when I want to, I can play the standard patient game, hitting length and crosscourts and not going for things too much."

Coach Way, who mentors both the men's and women's teams, calls Sobhy "a good athlete with an unbelievable drive and work ethic. She steamrolls her opponents—probably more than 90 percent of them—with sheer power. Hitting that hard, Amanda gives them less time to react, so they have to lift the ball, slowing it down and setting her up in attacking positions." Farag is "a purely instinctive player with a natural feel for the ball. The way he caresses and slices his shots is on a par with the best men in the world. Ali reads the game like a book: tactically, he is always anticipating the opponent's shots, and he attacks relentlessly. He controls an extraordinary percentage of the rallies."

In 2010 Sobhy, who comes from Long Island, became the first American to capture the World Junior Squash Champion-

**Ali Farag and
Amanda Sobhy**



Photograph by Ian Maclellan

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ship, winning in Cologne, Germany, on her seventeenth birthday, June 29, by taking down Egypt's Nour El Tayeb in a demanding final—"at the end of the match my lungs were about to explode." Even before college, Sobhy was ranked first in the United States and as high as seventeenth in the world; she had won four U.S. junior national titles and five tournaments in the professional Women's International Squash Players Association.

It is hard to overstate Sobhy's dominance last year: she tore through women's squash like a tornado. College matches use a best three-of-five game format; Sobhy not only won all her matches (15-0), but won all her *games*, recording five consecutive sweeps at the CSA individual tourney, capped by a shutout of defending champion Millie Tomlinson of Yale in the final. Sobhy was, inevitably, both Ivy League Rookie of the Year and Player of the Year. To get challenging competition, she often practices against Harvard's male players or with the plethora of pros and coaches who visit the Murr Center courts. (And bear in mind that Harvard's number-two player, Laura Gemmell '13, was herself an undefeated national champion as a freshman.)

Sobhy typically sets a blazing pace in her matches, which frequently are decided in 15 to 25 minutes. She has both foot speed and enough power ("I've got a lot of muscle") to hit rockets off both the forehand and backhand sides. She speeds up play by volleying as many balls as possible; professional players can handle the dizzying pace, but many collegians cannot. Sobhy also loves drop shots; she now seeks to cultivate a more varied pace in her game, to "throw in some lobs." An anthropology concentrator, she hopes to play professionally after college and some day open her own club.

Farag hails from Cairo and completed a year at American University there before Harvard. Egyptian players have the advantage of being largely concentrated in Cairo; at Farag's Heliopolis Sporting Club, he often plays with many of the world's best, including Ramy Ashour, frequently the world's top-ranked player in recent years. Farag aims high: his sporting idols, he says, are Roger Federer (yes, he plays tennis, too) and retired French soccer star Zinedine Zidane.

In 2009, Farag was ready to quit the game and sell his racquet after a pair of devastating losses—a player he feels he should have beaten bested him instead, 3-0, twice in

two months. But his older brother, Wael, a strong player himself, took over as his coach and a few months later Farag reached the finals of a national tournament. He captained his Egyptian team to the world junior title in Quito in 2010 and was ranked the number-one junior player in the world after winning the British Junior Open in 2011.

At Harvard, he went 16-0 (he did lose six games over the course of the season) and swept all opponents en route to his CSA national championship, triumphing over Columbia's Ramit Tandon in the final. During the regular season, he unhorsed Princeton's defending national champion, Todd Harrity, settling a score for his family, as Harrity had handed Wael Farag a tough defeat years earlier. Naturally, Farag, too, was Ivy Rookie and Player of the Year.

He nearly didn't come to Harvard. Initially he was adamant about staying in Egypt, but he played a tournament in St. Louis and, with parental encouragement, made a visit to Cambridge and had an interview. He returned to Egypt two days before the revolution there, and his father urged him to earn a Harvard degree and use it to help his homeland. An academic

all-Ivy, Farag is a mechanical engineering concentrator who wants to bring solar-energy technology to Egypt. "There's a massive resource of sunlight there," he says. "An average of 9.5 hours per day."

Though the two champions have had similar Harvard careers, their teams' success has diverged slightly. Last year, the women's team went 17-0, winning the Howe Cup, symbolic of the CSA national team championship. The men's squad (16-4), finished third in the country, up from fifth the year before, losing to Princeton, Yale, and Trinity in the regular season and to Trinity at the CSA national tournament. (Princeton won the 2012 Potter Cup and national title, besting Trinity in the final.)

This year, the Harvard men return all their starters from the young squad that played last year—the season in which Yale finally ended Trinity's unearthly 252-match winning streak that dated to 1998. "Trinity's players have the eyes of the tiger," Farag says. "They are strong mentally and have the most intense fighting spirit. This year, we'll be the most intense. That's all it takes—we have the will, so we will find a way." ~CRAIG LAMBERT

ALUMNI

Paradise Found

The dazzling beauty and strangely human behavior of one of the world's most diverse bird families.



Blue Bird-of-Paradise, Tigibi, Tari area

IN 2010 biologist and *National Geographic* photographer Tim Laman, Ph.D. '94, again found himself more than 80 feet off the ground, hidden in a rainforest blind made of skinny palm trees and leaves woven together with vines. At 4:30 A.M. it was still dark.

He and his research partner, ornithologist Edwin Scholes, had taken 10 different planes and two boats to get to the Aru Islands, between New Guinea and Australia, then hiked a few hours into the forest to

create a campsite. It was their fifteenth expedition on an eight-year mission to document all 39 species of the birds-of-paradise in the wild—something never done before.

The palm-tree blind faced a lek, a spot where male birds assemble for competitive mating displays. The blind held not only Laman's muscular six-foot-four-inch frame, but also his tripod and digital SLR cameras (for close-up stills and video), an

audio recorder, and a laptop computer. The last was connected, by a cable he had run across the canopy, to a camouflaged camera that took wide shots by remote control.

At sunrise, two male Greater Birds-of-Paradise arrived. With billowing golden plumage rising above their rust-red wings, they spread their feathers wide and hopped about madly, singing a one-note tune, their yellow-and-iridescent-green heads bobbing for attention. Then each froze, like a runway model jutting out a chiseled jaw, as their less dazzling female counterpart nosed around critically, checking them out. A choice was made and the pair did what they were born to do, then flew away.

As the one lone male lingered on the branch, Laman saw his “dream shot” emerge. “He was hanging out with all his plumes spread and the sun came up and illuminated these pale clouds over the mist of the rainforest, casting a yellow light,” he says. “And I got the shot!”

That became the opening spread of Laman and Scholes’s *Birds of Paradise, Revealing the World’s Most Extraordinary Birds*, published by *National Geographic* and the Cornell Lab of Ornithology, which together funded most of the pair’s 51 field-research sites in New Guinea and parts of northeastern Australia. The new, coffee-table book features ethereal and intimate images of the birds in all their glory, culled from 39,568 that Laman brought back—from 2,006 hours spent in rainforest blinds—and painstakingly catalogued.

“The book celebrates the beauty and diversity of these birds and the importance of conservation in protecting them,” says



One of the 146 trees Tim Laman climbed to capture images of the rain forests’ avian dwellers.

Laman, whose doctoral research focused on rainforest ecology. “I’m also excited about the contribution we’ve made to scientific understanding.” Their project offers the most comprehensive look so far at this dynamic avian family. Detailed accounts of habits, habitat, calls, evolutionary history, and singular features are paired with maps of and notes on migration and terrain.

The birds’ unique anatomical features and comparative sexual selection practices are highlighted. The Twelve-Wired Bird-of-Paradise male, for example, uses elongated central shafts of plumage to “tickle” the female; the Superb male transforms into a ghoulish turquoise smiley face by dramatically repositioning his plumage; the Western Parotia male engages in a whirling dance during which its side feathers flare out like a tutu. “The diversity of the forms were extraordinary: the variety

of shape, size, feathers, colors, the long tail feathers, and the wires coming out of their heads,” Laman notes. The researchers’ extensive new material, such as documentation of two species’ previously unseen courtship

Twelve-Wired Bird-of-Paradise, Nimbokrang, Jayapura area

rituals, and 2,256 video and audio recordings, are now archived at the Cornell Lab’s Macaulay Library, where Scholes is the biodiversity video curator. At least six scientific papers outlining their findings are also slated for publication.

Further enlivening the book are histories of earlier explorers—such as Laman’s hero, the nineteenth-century naturalist Alfred Russel Wallace, co-discoverer of natural selection—interspersed with tales of the pair’s own adventures. On one trip, Scholes’s appendix burst at a remote campsite and they spent five days getting him to a hospital. Twice they found themselves adrift at sea in broken-down boats. Not to mention all the other discomforts field biologists endure. “It’s not cool to whine about the bugs,” Laman maintains. “Although the leeches in Borneo are bad.”

ALL TOLD, Laman has spent five years in Bornean rainforests, on projects including his dissertation on the interactions between strangler fig trees and the wildlife that help disperse their seeds. He often shared the same field station in the Gunung Palung National Park with orangutan expert Cheryl Knott, Ph.D. ’99—now his wife, and an associate professor at Boston University. (The couple and their two children, Russell, 12—named for Wallace—and Jessica, 8, live in Lexington, Massachusetts.) The whole family has traveled many times to Borneo, and will journey to the Galápagos Islands in February. In 2011, Laman took his son to Antarc-





In Papua New Guinea, Tim Laman takes advantage of a rare hotel stop to dry out his 20 lenses, 4 camera bodies, audio and lighting gear, computers, and tree-climbing and camping equipment—not to mention his clothes and boots.

tica for three weeks, prompting Russell to note not long ago that he'd already set foot on every continent except Africa. Yet they are just as thrilled to observe the life of local species. A phoebe nest sits above their front door: the brown-and-white birds migrate from South America and, atypically, have used the same nest for three years. Laman rigged a video camera so that he and his kids "could sit inside and watch the babies being fed and raised," he explains. Not as exciting as fording rivers and climbing trees in the rainforest, but wondrous just the same.

Laman has always been riveted by the natural world, with all its complex and beautiful forms. Born and raised in Japan, "never far from lakes, mountains, or the ocean," where his parents were American missionaries, he believes his international upbringing "has probably led me to being comfortable working all over the world. I had no clear career plan: 'I'm going to get a Ph.D. and then become a professional photographer,'" he adds. "I kind of made it up as I went along." Two years of a doctoral program in neuroscience and animal behavior at Harvard left him unhappy about spending the rest of his career indoors, so in 1987 he took a year off as a field assistant in Borneo with biologist and ecologist Mark Leighton (then an assistant professor in biological anthropology and now an instructor at the Harvard Extension School).

There, Laman fell in love with the terrain and wildlife. He transferred to the department of organismic and evolutionary biology on his return and completed his doctorate. But along the way, he became frustrated by aca-

demic articles that "only reach a handful of scientists," and wanted a wider audience.

He chose to return to Borneo for post-doctoral research and to focus on his photography, a longtime hobby. His first *National Geographic* article, published in 1997, covered strangler figs; it was quickly followed by another article, written by Knott, that used his images of orangutans. "I soon became their rainforest guy," Laman says; by 1999, wildlife photography (supplemented by some science journalism) was his full-time job.

Since then he's produced 20 feature stories for *National Geographic*; has worked for other publications, such as his kids' favorite, *Ranger Rick*; and has won awards for his

images (<http://timlaman.com>). He's also a frequent lecturer on environmental education trips. In fact, his first glimpse of a bird-of-paradise came while accompanying a Harvard Museum of Natural History trip to Indonesia in 1990.

It "was just enough to make me eager to go back," he says. He had read Wallace's tales of exploration, *The Malay Archipelago*, before his first trip to Borneo in 1987; one section chronicles the naturalist's own trip to the Aru Islands more than 150 years ago, where he was the first Westerner to see these "most beautiful and most wonderful" creatures alive in their homeland. Related to crows in structure and habit, these enchanters, Wallace wrote, "are characterised by extraordinary developments of plumage...unequalled in any other family of birds. In several species large tufts of delicate bright-coloured feathers spring from each side of the body beneath the wings, forming trains, or fans, or shields; and the middle feathers of the tail are often elongated into wires, twisted into fantastic shapes, or adorned with the most brilliant metallic tints." Today, the rural parts of the Aru Islands are largely unchanged since Wallace's visit, but there are far fewer birds, due to their only consistent enemy: humans.

Laman's birds-of-paradise odyssey began in 2003, when *National Geographic* accepted his pitch to do a photo spread on the subject; the birds had not been covered



Raggiana Bird-of-Paradise, Kiburu, Mendi area

since the 1950s because they are so difficult to find and record. Laman then contacted Scholes, the only active researcher in the field he could find, and thus began a five-trip project from 2004 to 2006 that led to a 2007 article. The subsequent "mission," Laman recalls, came out of a fateful "semi-delirious camp fire talk in which Ed and I said, 'Hey, we ought to get all 39 species. It can't be that hard, we're already halfway there!'"

Laman sees his project as a modern ver-

sion of Wallace's essential work. "If I had lived in his lifetime," he says, "I might have ended up in a similar line of work—as a roving naturalist." Wallace was fascinated by exploring foreign lands, "but he also had a high-level scientific inquisitiveness with which he pursued the species question—how many are there and how did they get that way?—that led him to natural selection.

"He was shooting birds and bringing them back for scientists and private

collectors," Laman adds, "and we were shooting video and audio of them so that people 100 years from now can still see how extraordinary these birds were in life. For me, that's the most exciting thing."

~NELL PORTER BROWN

National Geographic features the work of Laman and Scholes in its December 2012 issue (<http://ngm.nationalgeographic.com>); the pair travel on a U.S. and Canadian National Geographic lecture tour through April.

ESSAY

A Pediatrician Takes the Long View

I AM A converted pediatrician. A product of Harvard Medical School in the 1950s, trained almost entirely in adult medicine, I began my career as a hematologist focused on disorders of the blood in adults. Fortunately my base was the then Peter Bent Brigham Hospital, an excellent but entirely outmoded facility in close proximity to the then equally Dickensian Children's Hospital. Though its facilities were pathetic, Children's had a brilliant faculty, among them Louis K. Diamond, one of the fathers of pediatric hematology. Diamond showed me the way. He invited me to see his most complex patients, and I became utterly fascinated by them. When I was invited to join his division, become a pediatrician, and ultimately direct it, I jumped at the chance.

I had come to realize that treatment of ill children may allow a physician to have decades of experience with individual patients throughout their growth and development, and to take advantage of new therapies as they slowly emerge from research laboratories and pharmaceutical companies. Though the care of very ill children, particularly children with serious blood diseases, can be very challenging, when new therapeutic approaches enable former patients to enjoy productive lives, the reward is huge, as I was reminded this past May.

A trip to Clarkson University, in Potsdam, New York, offered an opportunity to reconnect with two brothers whom I had seen with Dr. Diamond in the mid 1960s, and who still lived in nearby Saranac Lake.

Michael, now in his fifties, was three years old when I first examined him. He

had been afflicted with severe anemia since birth and required regular red blood cell transfusions. It was readily apparent that his own erythrocytes were being rapidly destroyed, and his spleen, an abdominal organ that removes old or damaged red cells, was greatly enlarged. It therefore stood to reason that removal of the spleen might alleviate the anemia.

The operation was performed skillfully, but with mixed results. The need for transfusions was greatly reduced, but the red cells were still rapidly destroyed, and the boy remained anemic. As my colleagues and I pondered the case, Michael's mother bore a second boy, Joseph, with the same problem.

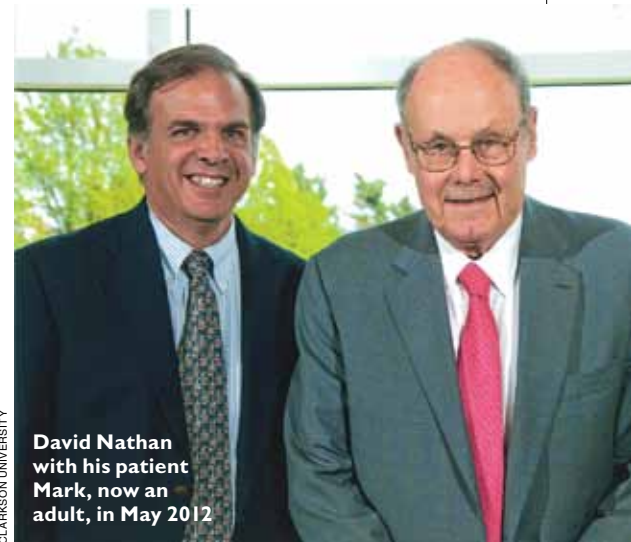
After a great deal of laboratory work, a survey of all members of the family, and searches of the literature, we determined that both boys had inherited a copy of an altered gene from each parent. The tiny defect or mutation, present in both copies of the gene in these boys, seriously damaged the function of an enzyme protein, pyruvate kinase, in their red blood cells. That enzyme protein, we soon learned, is essential to maintain the life span of all human red cells. The boys were only the second set of such patients to be so identified worldwide.

Michael and Joseph returned intermittently to Boston for follow-up studies until their early teens, when their care was transferred permanently to local physicians. But the challenge of their rare inherited anemia always preoccupied me. How, I wondered, could we find a way to

reactivate their genetically defective enzyme and cure their anemia? I was to gain a possible answer to that question almost a half-century later.

Before my trip to Potsdam, I e-mailed Michael and Joseph and asked them to meet me in Saranac Lake. Michael was there with his 90-year-old father, whom I had not seen since 1963. Michael had established a career as a technician in medical, food service, and computer laboratories; he has the background to understand the research related to his disease. We had a spectacular reunion during which I told them that a biotech company has just developed a drug that can reactivate the defective protein. That firm is now testing Michael's and Joseph's cells to see if the drug will reactivate their weakened enzyme. If that happens, my two former patients and others like them around the world may recover from their chronic anemia.

I continued on to Potsdam, where serendipity brought me together with Mark, a 52-year-old whom I had last seen at Children's in 1966, when he was only a



David Nathan
with his patient
Mark, now an
adult, in May 2012

six-year-old, growing up chronically ill in a Boston suburb. Today he is a communications engineer—he invented the interface between copper wire phones and broadband cable that allows voice messages to travel on the Internet, and is working to bring broadband to the rural areas of St. Lawrence County, New York—but then he suffered from repeated bouts of infection caused by ordinary skin and gut bacteria and fungi that cohabit harmlessly in normal people. He had developed one deep abscess after another.

Tests of Mark's immune system appeared normal, but Bob Baehner, a trainee in pediatric blood diseases, and I discovered something very unusual about his granulocytes. These are the most numerous white cells in the blood, and they ingest and destroy germs—but we found that a key enzyme, responsible for generating antimicrobial hydrogen peroxide, was defective in them. We developed a quick color test to measure the enzyme activity and soon found several other patients. Years later, Stuart Orkin, another faculty member in Children's pediatric hematology program, cloned and identified the gene complex. Since then, much more has been learned about the several different mutations that can cause chronic granulomatous disease, or CGD. Mark remains very susceptible to infections, particularly of his lungs, but he and his physicians have developed stopgap treatments that temporarily quell them.

Meanwhile intensive work is under way to develop curative gene therapy for CGD. A normal gene can be inserted into the bone-marrow stem cells of patients to replace the function of their defective CGD gene. The stem cells carrying the correct genes give rise to normal functioning granulocytes that can eat and kill germs by dousing them with peroxide. When that technique is fully mastered, Mark and patients like him will finally gain relief. Michael and Joseph could benefit as well, because we could quite possibly insert a normal pyruvate kinase gene into their bone-marrow stem cells and cure their anemia.

Gene therapy has a long, complex history. It sounds straightforward and has been successful in a few patients worldwide,



From left: Michael age four, in 1962, at Children's Hospital Boston; Joseph, almost seven months old, with his mother in 1968

but there are high risks of failure and of ugly complications as

serious as leukemia. Nevertheless, current technology suggests there may be safe and effective approaches on the horizon. My three middle-aged patients would be worthy beneficiaries.

They are examples of the excitement and satisfaction to be derived from a career devoted to overcoming difficult illnesses in children. Of course it is a gamble: the physician may not have the proper tools at

the first encounter, but if the patient is a child, biomedical science may in time develop those tools.

All the physician needs to do is keep trying—and live long enough to see the victory. I think I see victory around the corner for Michael, Joseph, and Mark.

—DAVID G. NATHAN

David G. Nathan '51, M.D. '55, S.D. '10, president emeritus of Dana-Farber Cancer Institute and physician-in-chief emeritus of Children's Hospital Boston, is Stranahan Distinguished Professor of pediatrics and professor of medicine at Harvard Medical School. His feature article about another of his child patients, "Lessons from an Unexpected Life," appeared in July-August 2009, page 36.

Crimson on Capitol Hill

THREE 2012 presidential candidates had Harvard affiliations—Barack Obama, J.D. '91; Mitt Romney, J.D.-M.B.A. '74; and Jill Stein '72, M.D. '79. The incumbent kept his seat, but on Capitol Hill, a larger and slightly more balanced Crimson contingent enters the 113th Congress, having added one Republican in the Senate and two in the House.

That body will contain 42 alumni (graduates of or matriculants in a degree program at the University), eight more than the 34 who took their seats for the 112th Congress. Those 42 members are joined by Harvard Law School professor Elizabeth Warren, RI '02, Democrat of Massachusetts, who becomes the second woman in the Harvard contingent. In the list below, asterisks mark newcomers:

Senate Republicans: Michael D. Crapo, J.D. '77 (Id.); *Rafael Edward "Ted" Cruz, J.D. '95 (Tex.); Pat Toomey '84 (Pa.); David Vitter '83 (La.)

Senate Democrats: Richard Blumenthal '67 (Conn.); Al Franken '73 (Minn.); *Timothy M. Kaine, J.D. '83 (Va.); Carl Levin, LL.B. '59 (Mich.); John F. (Jack) Reed, M.P.P. '73, J.D. '82 (R.I.); John D. Rockefeller IV '58 (W.Va.); Charles E. Schumer '71, J.D. '74 (N.Y.); Mark R. War-

ner, J.D. '80 (Va.); *Elizabeth Warren, RI '02 (Mass.)

House Republicans: *Tom Cotton '99, J.D. '02 (Ark.); *Ron DeSantis, J.D. '05 (Fla.); Thomas E. Petri '62, LL.B. '65 (Wisc.); and Michael R. Pompeo, J.D. '94 (Kans.)

House Democrats: John Barrow, J.D. '79 (Ga.); *Joaquin Castro, J.D. '00 (Tex.); Gerry Connolly, M.P.A. '79 (Va.); James H. Cooper, J.D. '80 (Tenn.); *Elizabeth Esty '80 (Conn.); *Bill Foster, Ph.D. '83 (Ill.); John Garamendi, M.B.A. '70 (Calif.); *Alan M. Grayson '78, M.P.P.-J.D. '83, G '87 (Fla.); Brian Higgins, M.P.A. '96 (N.Y.); Jim Himes '88 (Conn.); *Joseph P. Kennedy III, J.D. '09 (Mass); Ron Kind '85 (Wisc.); James R. Langevin, M.P.A. '94 (R.I.); Sander M. Levin, LL.B. '57 (Mich.); Stephen F. Lynch, M.P.A. '99 (Mass.); *Dan Maffei, M.P.P. '95 (N.Y.); James D. Matheson '82 (Utah); *Raul Ruiz, M.D.-M.P.P. '01, M.P.H. '07 (Calif.); John P. Sarbanes, J.D. '88 (Md.); Adam B. Schiff, J.D. '85 (Calif.); Robert C. Scott '69 (Va.); Terri Sewell, J.D. '92 (Ala.); Bradley J. Sherman, J.D. '79 (Calif.); *Mark Takano '83 (Calif.); Christopher Van Hollen Jr., M.P.P. '85 (Md.); and *Juan C. Vargas, J.D. '91 (Calif.)

For additional details, see <http://harvard-mag.com/election>.

Enhancing the Student Experience

LAST YEAR, more than 80 percent of the applicants offered admission to the Class of 2016 chose to matriculate at Harvard College, a yield not seen at the University since 1971. It was a wonderful threshold to cross as I neared the end of my fifth year as president—an affirmation that the student experience at Harvard continues to be among the finest in the world. Speaking with freshmen throughout the fall semester, I found myself thinking about recent changes that have made attending the College even more appealing, as well as upcoming enhancements that will strengthen the residential learning environment for future generations.

Cost of attendance continues to be a central concern of many students and families. At a time of sustained economic uncertainty, Harvard has remained committed to pursuing excellence and expanding opportunity, complementary purposes advanced through the expansion of financial aid. Between 2007 and 2012, financial aid expenditures at the College grew from \$92 million to \$163 million. Today, more than 60 percent of undergraduates receive institutional grant aid, and the average family contribution of a student on financial aid is \$10,500. The ability to attract the most promising men and women regardless of their economic circumstances shapes the experiences of all students, challenging them to think about their beliefs, their lives, and their world in different ways.

The Program in General Education, launched in 2009, connects liberal arts education to life in the twenty-first century. At the same time, students in the College are able to take advantage of intellectual resources of the broader University. Last year, faculty from across our graduate and professional schools taught 40 Gen Ed courses on topics such as entrepreneurship, K-12 education reform, and the evangelical tradition in America. The most popular “secondary field” or minor, currently enrolling 193 undergraduates, is Global Health and Health Policy, which draws on faculty from the Kennedy School, the Medical School, and the School of Public Health, as well as 22 departments in FAS. Collaborations with the Medical School also have enabled new concentrations in biomedical engineering and stem cell and regenerative biology.

In addition to more than 40 secondary fields of study and 48 concentrations, students have access to a remarkable array of extracurricular opportunities. As one student recently said to me, “you can do anything you love here.” From directing an original production at Farkas Hall to attending a Start-Up Scramble at the new Innovation Lab to tutoring local students at the Harvard Allston Education Portal, undergraduates explore their diverse interests with zeal. Supported by a variety of generous gifts to make international experiences possible for all our students, hundreds of undergraduates travel far afield each year, immersing themselves in unfamiliar cultures and languages to deepen their understanding of the connections and complexities that will shape their futures.

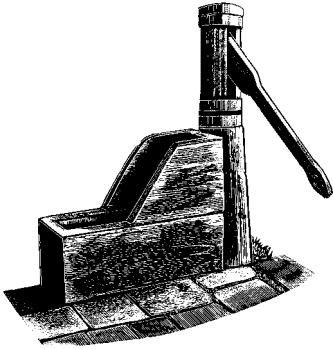


All of these roads, of course, lead back to the House system, a distinctive aspect of our educational mission and the heart of the student experience. When I meet with College alumni, I often find that their fondest Harvard memories are House memories: conversations concluded in the early morning hours, first meetings turned lifelong friendships, and beloved traditions adopted and adapted. The renewal of the nearly century-old Houses, a process that began this past summer with the commencement of work on Old Quincy, will ensure the endurance of one of our great treasures over the next 100 years. These improvements will coincide with the development of new social spaces for students and common spaces for the University as a whole, including Science Center Plaza renovations that will be completed by the spring.

Each year as Commencement approaches, I meet with a group of seniors who share with me their reflections on their years in the College and their plans for the future. Last year, when asked what was most daunting about imagining life after graduation, one young woman told the group she was concerned about having to choose which of her interests to pursue, a problem she had not faced as an undergraduate. This response, for me, encapsulates the student experience at Harvard: a period of freedom to pursue passions, to discover new avenues of inquiry, and to learn more both about oneself and about the world.

Sincerely,

Blessed Unexpectedly



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

TENNESSEE WILLIAMS, author of *A Streetcar Named Desire* and *Cat on a Hot Tin Roof*, was among 11 people awarded honorary doctoral degrees at Harvard's Commencement in 1982. Another was Mother Teresa of Calcutta, winner of the Nobel Peace Prize. Robert Kiely, now Loker professor of English emeritus and formerly the master of Adams House for 26 years, until 1999, was Williams's escort during the academic proceedings. In part two of a memoir of his years as master, just published by the Adams House online alumni magazine, *The Gold Coaster*, Kiely reveals this observed detail:

"At the honorary degree dinner the night before Commencement, Williams (a short, shy man) was nervous and a bit overwhelmed by Harvard formality, but after dessert and a little wine, when a student group came in to sing, he smiled, relaxed, and taking my hand and that of the elderly lady next to him, said (like one of his characters): 'I just want to be surrounded by beautiful people.' The next

morning when I met him at Johnston Gate for the procession, he seemed anxious again because he was in a sport jacket, had no academic gown, and felt out of place at Harvard. I tried to reassure him, but he became more tense when we were told to go into Massachusetts Hall where the honorands were to sign a guestbook. Inside the reception room there was a whirl of red gowns and 'important' people standing and chatting as if at a Cambridge cocktail party. I thought Williams was about to back out when he and I saw two very small nuns (ignored by everyone) sitting on a couch across the room saying the rosary. 'My God!' Williams whispered, grabbing my arm, 'That's Mother Teresa!' I had been on the honorary degree committee and knew she would be there though she had not come to the dinner. Tennessee (he had become 'Tennessee' by then) said, 'Will you introduce me to her?' I told him that I didn't know her, but 'Yes, of course' that's what masters are supposed to do: introduce everybody to everybody else. So over we went through the milling crowd of crimson and I—in the strangest introduction I have ever made—said respectfully to the

tiny, wrinkled nun, 'Mother Teresa, this is Tennessee Williams.' She looked up kindly, obviously having no idea who Tennessee Williams was. And then something extraordinary happened that I am almost positive no one else in the room saw. Tennessee fell to his knees and put his head on her lap. And she patted his head

and blessed him. After that and for the rest of the day, he beamed. During the procession, he said to me, 'Now I know why I came to Harvard.' (I have always thought that this was a deciding factor in his leaving some of his papers to Houghton Library.)"



WHY HE DIDN'T COME: Writer Gore Vidal, who died last July, managed to become a "gentleman bitch," as he called himself, without the ordeal of going to college. *I Told You So: Gore Vidal Talks Politics*, published in November by OR Books, is a collection of interviews of Vidal by historian and radio host Jon Wiener, Ph.D. '72. Wiener asked Vidal why he didn't go to college.

"I graduated from Exeter," Vidal explained, "and I was aimed at going to Harvard. Instead I enlisted in [the navy] in 1943. When I got out in '46, I thought, 'I've spent all my life in institutions that I loathe, including my service in the [navy] of the United States.' I thought, 'Shall I go for another four years?'"

"My first book was already being published. I said, 'I'm going to be told how to write by somebody at Harvard.... This is too great a risk.'"

"But I did go there to lecture," Vidal continued. "This was about '47 or '48. There was a big audience, and many of them were my classmates from Exeter, who were overage juniors and seniors.... I came out cheerily, as is my wont, and I've never felt such hatred radiating. They'd all predicted my total failure, because I was not to go to Harvard and meet a publisher or an agent—which is, I think, why they went."

Although he wouldn't start at Harvard, Vidal ended there; all his papers are at Houghton.

~PRIMUS V



Bon Anniversaire

Julia is feted in her centenary year.

(LEFT IMAGE) JULIA CHILD IMAGE, PHOTOGRAPH & RELATED RIGHTS™ ©2012 THE JULIA CHILD FOUNDATION FOR GASTRONOMY AND THE CULINARY ARTS



rials, the display focuses on Julia in post-World-War-II Paris, in Cambridge, and on television. At top left, she looms over the stove (she was six-feet, two- or three-inches tall) in the furnished apartment she and Paul rented at 81, rue de l'Université. Julia studied cooking in Paris and taught it, with two French colleagues, in this kitchen. She was keen to understand why things worked—or didn't. Why wouldn't a French recipe for a pie crust work

WATCHERS of Julia Child's TV show *The French Chef* marveled at how she disposed of dirty pans and kitchen debris by simply handing stuff down beneath her countertop. Was she putting it temporarily on a shelf out of sight, or was there a little man down below to receive it? Turns out there was a multitude around her ankles, at least in the promotional shot (top right) made in 1964 by her husband, artist and retired diplomat Paul Child, in the Cambridge Gas and Electric kitchen.

The photograph is from the vast Julia Child collection in the Schlesinger Library at the Radcliffe Institute for Advanced Study, which includes 5,000 cookbooks donated by her, her book drafts, the voluminous and often funny letters of Julia and

Paul, television scripts and production notes handwritten by Paul, some 20,000 photographs by him, film, audiotapes, a gaudy Cordon Bleu medal, and a formidable whisk. The happy couple liked to send Valentine's Day cards instead of Christmas cards; the one shown here dates from 1952-53.

The library has staged a number of events to mark the charismatic chef's hundredth birthday and has sampled the collection in a charming exhibition called *Siting Julia*, up through March 2. Put together by Marylene Altieri, curator of books and printed mate-

with American flour? Because French flour had a much higher fat content.

The great *Mastering the Art of French Cooking* appeared in 1961. Her television career began in 1963. In 1966, she won an Emmy; the splendid thing is in the exhibition.

People watched her very closely. The story goes, says curator Altieri, that Julia once got a letter from a viewer saying that she was setting a poor example because she was always brushing crumbs off her counter onto the floor. Julia replied, "That's because I have a self-cleaning floor." ~C.R.



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