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p. 18

FEATURES

- 33 An Extra Layer of Care | by DEBRA BRADLEY RUDER
The practice, and progress, of palliative medicine
- 38 Good Design | by STEPHANIE GARLOCK
The rise of public interest architecture
- 46 Vita: Lafayette | by LAURA AURICCHIO
Brief life of an American champion: 1757-1834
- 48 Computing in the Classroom | by SOPHIA NGUYEN
Toward twenty-first-century learning technologies

JOHN HARVARD'S JOURNAL

- 18 Allston's new era tangibly advances, a tenured jazz musician, pilfering Memorial Hall's clapper, honoring the Honorable Ruth Bader Ginsburg, when undergraduates give and take care, and the men's basketball team finds itself challenged



p. 28



p. 38

DEPARTMENTS

- 2 Cambridge 02138 | *Letters from our readers—and thoughts on Harvard's building costs*
- 3 The View from Mass Hall
- 11 Right Now | *Globalization and inequality, comprehending coffee consumption, visualizing music*
- 16A Harvard² | *A calendar of spring events, navigation instruments, eyeing Bette Davis, Manchester on the rebound, for the love of baseball, farm-based cooking, and more*
- 60 Montage | *The art of orchestrating opera, a photographer of "decisive moments," recalling the end of a mother's life, minimalist memoirist, Donald Hall after 80, and more*
- 67 Alumni | *She shoes horses, they stand for election as Overseers and alumni-association directors, club and other awards, and more*
- 72 The College Pump | *Love Story locale, and other passionate pursuits*
- 80 Treasure | *Seventeenth-century BMOCs*
- 73 Crimson Classifieds



p. 67

On the cover: Pictured at the Kennedy Longfellow School, educators Heather French, Ed.M. '13, at left, and Ingrid Gustafson integrate technology into Cambridge public-school classrooms, working with tools like Scratch and robotics kits. Photograph by Stu Rosner.

Cambridge 02138

*Publishing, women's safety, football***CASS SUNSTEIN**

AS HOMER TELLS US, when the Olympians come down from the heights to interfere with mere mortals, the consequences can be unpredictable at best and harmful at worst. Thus, I read Lincoln Caplan's article about Cass Sunstein's years in the crucible of the regulatory system and his years as head of the Office of Information and Regulatory

Affairs (OIRA) with caution ("The Legal Olympian," January-February, page 43).

Sunstein and many other adherents of cost-benefit analysis fail to acknowledge that such analysis is far from objective but is in fact value-driven in its definitions of both costs—which regulated entities generally exaggerate—and benefits—which protect broad populations and future gen-

7 WARE STREET

Bricks and Mortar

MUCH HAS BEEN MADE of the University's multimillion-dollar investments in online education. But this remains very much a physical campus, investing to renovate the undergraduate Houses, create new core facilities like the Harvard Art Museums, and grow expansively in Allston.

Harvard spent \$465 million on capital projects in the last fiscal year, and it's easy to envision the pace ramping up. The \$6.5-billion Harvard Campaign outlined at least \$1.3 billion in donor support for such ventures—no doubt to be augmented by internal funds, endowment decapitalizations, and incremental borrowing.

Harvard clearly expects the campus experience to remain a global draw. Its facilities will likely be built to Harvard standards: high-quality construction, meant for long-term use, and designed to attain very high levels of operating and environmental/energy efficiency. All to the good.

But none of this comes cheap. Last fall, *New York Times* architecture critic Michael Kimmelman praised the Arcus Center for Social Justice Leadership, at Kalamazoo College, designed by Jeanne Gang, M.Arch. '93, but noted "understandable grumbling about spending \$500 a square foot...considering the dire circumstances of many of those Arcus intends to help."

What would he think (even allowing for differences in construction costs and in other elements of the plan) of the Kennedy School's 77,000-square-foot expansion and campus reconfiguration—expected to cost three times as much per square foot? The work will rightly be funded entirely by gifts. But it is a lot of money, and there are many competing demands at the school (its campaign goal is \$500 million) and elsewhere. That is something for University leaders to think about.

A bit more institutional transparency might help, too. The Kennedy School has described its project's finances, but that is exceptional. Did the art museums cost \$350 million? More? Who knows? House renovation expenses dribble out in the footnotes to the dean's annual report. The Smith Campus Center and myriad Business School projects are anybody's guess. More illumination might inhibit excessive capital-project ambitions somewhat. That could be useful for a fortunate community that is, nonetheless, watching expenses; enduring some internal turmoil to restrain employee-benefit costs; and taking overdue steps to fund depreciation for its 25 million square feet of existing facilities—a valuable discipline, but one bound to pinch future academic budgets. Better to build that understanding now, along with all the new buildings on the drawing boards.

~JOHN S. ROSENBERG, *Editor*

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A Cosmopolitan Spirit

I WRITE TO YOU FROM SNOWY HARVARD, having just returned from a week in London, Cambridge, Zurich, and Davos—a trip that combined delivering the Rede Lecture at Cambridge University and meeting with alumni from five continents at the annual World Economic Forum. As this reaches you, I will be about to depart for China, where I will be visiting with some of the more than 1,700 alumni living and working there, meeting with University leaders from the country's burgeoning higher education sector, and delivering an address on the role that research universities can play in combating climate change.

In preparation for my international trips, I inevitably learn something new about Harvard's extraordinary reach. Across the University, global connections and collaborations are developed, sustained, and enhanced based on interest and opportunity. A wide range of entrepreneurial efforts are supported by thoughtful infrastructure, and the result is a global strategy that is especially nimble. Harvard is in the world and of the world in more ways than one might envision—or hope to include on a single page.

We start, of course, with our scholars. One in three faculty members comes from an international background or has international education experience. The College welcomed freshmen from 69 countries this fall, and one in five students enrolled at the University is international. Add to those numbers the thousands of individuals who study at Harvard for a week or a semester or a year, immersing themselves in non-degree programs offered across our Schools. The T.H. Chan School of Public Health and the Kennedy School, for example, co-host forums that bring health and finance ministers from around the world to our campus, creating a space for them to interact in person and share their knowledge with our community.

Bringing Harvard to the world is happening in more ways than ever before. Last year, research projects with international activity received \$165 million in support from the University. The Center for African Studies has become one of higher education's foremost voices on the study of Africa and was recently named a National Resource Center by the U.S. Department of Education. It is currently preparing to establish an office in Cape Town, which will bring the total number of Harvard offices outside of the United States to sixteen.

Our physical presence is exceeded by our digital reach. Nearly 2 million learners have registered for courses through HarvardX, almost two thirds of them from outside of the United States, with India, China, and Brazil among the countries most represented on the online learning platform. A high school student taking CS50, an introduction to computer science, became so enamored with the course that he offered to translate it into Portuguese. He is now a sophomore in the College and recently served as CS50's head teaching fellow, blending his digital and actual Harvard experiences in ways that are becoming increasingly common.



Harvard is one of the few places in the world capable of bringing together talented individuals to develop solutions to some of the greatest challenges facing humanity. Consider climate change. Any concern for the future of the planet must be based, in part, on an understanding of the outsized role the built environment plays in consuming—and wasting—energy. The Harvard Center for Green Buildings and Cities, launched just last year, convenes scholars and practitioners of design; of business, engineering, law, public health, and public policy; of the arts and the sciences to lead change in how people think about the buildings they inhabit and the buildings they construct—knowledge that can be used in Cambridge or Mexico City or Mumbai.

Bringing more intention to international efforts across the University will help to ensure that Harvard remains inherently global. Indeed, we are approaching an era when the phrase “global Harvard” will seem as redundant—and unnecessary—as “networked campus” seems to us today. Our students and faculty will think, work, and live without boundaries, situating their ideas and their aspirations in the broadest context possible, and the cosmopolitan spirit present from Harvard's earliest days will enliven all that we imagine and do.

Sincerely,

erations and are difficult to articulate or measure. Attaching dollar values to lives as a proxy is particularly fraught with ethical pitfalls, leaving little room for equity considerations of education, race, income, (dis)ability, and intelligence. And some of us, like the readers of this magazine, are more able to be “nudged” than others.



In fact, the regulatory process is actually about power, not sweet reason, a process in which large corporations and their lobbyists often prevail. The recent successful pushback of strong regulation of coal ash and CO₂ by Big Coal and Big Oil are recent examples. As Sunstein probably learned to his dismay, the White House makes the big decisions. Too bad he wasn't able to nudge the powerful hard enough, as the admirers of his Olympian intellectual excellence might have wished.

PATRICIA BAUMAN '63
Washington, D.C.

CASS SUNSTEIN, author of *Why Nudge: The Politics of Liberal Paternalism*, stated that his longtime aims for American governance were “to preserve individual freedom and strengthen the welfare of society.” If Sunstein had combined more history and more interaction within the people world and less within the world of theory, he would have recognized the glaring fallacies contained within his nudge approaches to bureaucratic governance.

First, by their nature politicians and government bureaucrats cannot “nudge”; they structurally and instinctively “coerce”—that is, they tax, fine, mandate, ban, or criminalize. Coercive federal nudges now already control everything from the light bulbs we use to how much and what crops we raise on our farms. As one of the most current examples, you must buy the overly expensive healthcare plans as defined by politically appointed experts like Kathleen Sebelius and Jonathan Gruber. If you fail to be nudged into buying their plans, you are assessed an ever increasing annual tax.

Second, the power of governmental coercion erodes the prerogatives of the people's elected legislators, devolving those powers to the president and to unelected

bureaucrats. The constitutional balance of power among the legislative, executive, and judicial branches is upended. The people are left to the mercy of a fourth regulatory branch of government whose rules are murky and remedies are at best costly and unpredictable. Historically the tyranny of the State evolves.

According to the article, Sunstein is an avowed and devoted advocate of the modern regulatory state, yet he fails to realize that more regulations also create an environment for government-sanctioned or government-owned monopolies. The Sherman antitrust legislation has essentially been repealed by industry consolidations nudged and coerced by governmental action. Think banking, healthcare, public accounting, financial-rating services, housing, student loans, K-12 education...the list goes on and on. Only the few largest organizations will ultimately be able to manage their way through the reams of regulation in Sunstein's highly regulated economy.

The regulatory state is in direct conflict with the individual freedom which Sunstein purports to advocate. A vibrant, growing economy is replaced with stagnant, European-style growth.

JOHN W. JENKINS, M.B.A. '63
Dallas

WHILE behavioral economists have been busy convincing their more orthodox peers that “we are not the rational self-interest maximizers that conventional economists have long assumed,” private enterprise has been busy exploiting such knowledge to manipulate our behavior for its own gain. Yes, we should be vigilant to ensure that when government nudging is used, it is both transparent and freedom preserving, and we should check to make sure that it achieves its intended societal objectives. We should also encourage continued debate on just what those objectives should be. I conjecture, however, that the greater part of the impassioned concerns expressed by Cass Sunstein's detractors might be better directed toward the private sector, whose actors surreptitiously use nudging to further their own self-interests, rather than toward the

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LETTERS

government's use of nudging to promote the welfare of its citizens.

STEPHEN DARROW, J.D. '09
Endicott, N.Y.

DID YOU INTEND the phrase "Defining democracy for the regulatory state" [on the cover] to be oxymoronic, or was it serendipity?

SCOTT G. DAVIS '66, A.M. '68
Prescott, Ariz.

IT IS IRONIC that Cass Sunstein now seeks to push the frontiers of aligning democracy and regulation at the same time that he declines questions about his government service. At OIRA (Office of Information and Regulatory Affairs), Sunstein refused to act on numerous agency environmental rules and public-health proposals authorized by Congress and backed by years of scientific research, cost-benefit analysis, and peer review by expert panels; often instead he sat on such proposals without explanation or comment for months and even years beyond what administrative law and practice required. It is difficult to distinguish his role

at OIRA, on behalf of the president of the United States and all Americans, from that of independent regulatory agency appointees famously captive of those they were charged to regulate. This record undermines Sunstein's standing and suggests he should not be lionized as a pioneer on behalf of the public interest—in theory or in practice.

ANDREW MAGUIRE, PH.D. '66
Former member of Congress
Ridgewood, N.J.

O HAPPY DAY! From the heights of Olympus the good Professor Sunstein has turned his gaze upon us here below and (in between bouts of squash) deigned to inform we error-prone, benighted plebs exactly how we should live our lives. What would we do without Big Brothers like Cass?

MARTIN COMACK, A.L.M. '94
Somerville, Mass.

I SUPPOSE it is the duty of a feature on a Harvard professor to glorify him or her. But Lincoln Caplan's piece on Cass Sunstein was an homage to progressivism itself. While

research has diminished the idea of *Homo economicus*, it is unclear how central bureaucrats have both the incentives and knowledge to improve over the free choices of individuals. Hayek and Mises made clear that calculation of cost-benefit on a grand scale was always impossible, but today's extreme pace of change exacerbates the problem exponentially.

Caplan dismisses those who have a presumption against so-called "reform" as conspiracy theorists and claims that our "objections are usually wrong." But the liberal technocratic approach must be viewed as engineering within an ideology that is subject to debate. The specious notions that regulative expansion should change how one interprets the Constitution and that a purpose of such a founding document is to "subject longstanding practices to critical scrutiny" deny the essence of what a constitution is. FDR's "Second Bill of Rights" that Sunstein so admires are not founded in freedom but



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in fear and constitute provisions to be obtained by coercion. That sounds nothing like the Declaration of Independence.

ANDREW SRIDHAR, M.B.A. '10
Redmond, Wash.

THE HARVARD FACULTY of every era represent the reactionary establishment, and no one embodies that principle better than Cass Sunstein. His America is a land of moral death with no virtue, no beauty, no charity, and no liberty. Harvard students of our era shouldn't despair when they survey that landscape, however, because Sunstein has inadvertently given them a gift: a great cause that will summon forth their best talents

SPEAK UP, PLEASE

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and require them ever bravely to live. That great cause is the long generational struggle to consign Sunstein's inhuman regulatory state to its rightful place on the ash heap of history.

ROBERT J. O'HARA, PH.D. '89
Fitchburg, Mass.

PUBLISHING PROBLEMS

CRAIG LAMBERT'S PROPOSAL ("The 'Wild West' of Academic Publishing," January-February, page 56) that the ever-increasing share of university library budgets consumed by expensive journals could be decreased by means of "Open Access" journals, with "Article Processing Charges" paid by the authors out of their research funds rather than subscriptions paid for by the libraries, does not differentiate between the natural (and medical) sciences and other areas of research. "Page charges" have long been required by many natural-science journals and have long been paid for from their research grants. But scholars in the humanities and in many areas of the social sciences rarely have research grants to pay for such charges; at least in the humanities,

even the most successful scholars win only a few research fellowships during their careers (Guggenheim, National Endowment for the Humanities fellowships, etc.), which provide only salary replacement (at best) for research semesters but no funds for page charges or article-processing fees.

Then again, humanities journals are not the problem: they charge libraries only a few hundred dollars a year for subscriptions, not the thousands or tens of thousands that many scientific and medical journals charge. Perhaps part of the solution should rather be that a larger portion of the overhead charges paid to universities from natural-science or medical grants should be going to the university libraries to pay for the expensive journals that the scientists need.

PAUL GUYER '69, PH.D. '74
Nelson professor of humanities and philosophy,
Brown University
Providence

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ticle is cited as being realistic and currently typical. It is further proposed that half of this fee be borne by “the funders of the research.”

All of my academic career was devoted to teaching classics at a college that could not be considered a funder of research. Since retiring in 2003, I have had three articles published in print journals and a fourth accepted. Retirees such as I are not usually supported by funders of research.

By my calculation, had my published work to date appeared in open-access journals of the sort recommended in your article, I would have reached into my own pocket for a total outlay of \$17,000. This does not strike me as an equitable solution of a very real problem, especially for the underpaid junior faculty who, as your article attests, have the most at stake.

CLIFF WEBER '65
Portland, Ore.

CRAIG LAMBERT presents a clear and vivid account of the complex problems facing academic writers and publishers these days. I would like to present a somewhat different angle on academic publishing, from one who is not an academic but writes scholarly books.

When I received my Ph.D. in philosophy from Harvard, I intended to become an academic, with some teaching stints at Brown and Penn. I like to write and almost immediately started doing so—but with the aspiration of doing scholarly books that were accessible to the serious reading public. In the meantime I also helped create a research organization, the Hastings Center, on ethics and medicine, thus moving out of the academic world. My publishing career, with such trade publishers as Macmillan, Scribner's, and eventually Simon & Schuster, was most successful. The latter published four of my books, one of which sold 36,000 copies and was a finalist for a Pulitzer Prize in 1987. Over the years, three of those books were reviewed in the *New York Times Book Review*. With the publisher's vigorous publicity efforts I had 100 reviews of that book, and was on every major TV talk show.

Then came the late 1990s. My long-time S & S editor, the prominent Alice Mayhew, informed me that my fourth book with them, published in 1998, sold only 5,000 copies in its first year and that was

no longer enough for them. The search for blockbusters, not serious books (save for politics) was in the saddle and has remained so. I was demoted to the academic presses, and have had since then a string of the best: Princeton, Oxford, and the University of California, and am now finishing a book for Columbia. Not one has come anywhere near selling 5,000 copies, and no more *Times* book reviews—and it's not just me: I would estimate that no more than one in 50 of its reviews now is of an academic-press book. Three-quarters of the places I got my 100 reviews in 1987 no longer publish book reviews at all. Those serious books that do get noticed in their pages are trade books. My two recent academic books got no more than five to eight reviews each; it was hard to find places to send the books to.

Some of my books can be read on Kindle, and that's where some people have discovered me of late. But I am a print book guy genetically and Kindle resonates in a dull way only in my soul.

DANIEL CALLAHAN, PH.D. '65
Hastings-on-Hudson, N.Y.

WOMEN'S SAFETY

WHILE APPLAUDING Rohini Pande's Forum, “Keeping Women Safe” in some parts of South Asia (January-February, page 50), I'm requesting that you commission a companion article, “Keeping Women Safe in the United States of America in the 21st century.” With a lifetime risk of 1 in 3 for rape, and 1 in 4 for domestic violence, and with gun violence increasing, I'm interested to read a lot more about plans to keep women and girls safe in these United States.

PATRICIA ROSE FALCAO, M.P.H. '90, M.D.
Needham, Mass.

A VERY IMPORTANT, if not the most important step would be to bring about a sweeping change in the global societal attitude toward women. The world must understand that in many ways women are more than equal to men. Everyone needs to learn that it is the women who started civilization, domesticated wild plants and animals, wove protective

clothing, built permanent shelters, and altogether provided surplus and reliable food, which inadvertently empowered man unequally. Women laid the path to men's even becoming “god-kings.” In the animal kingdom, lack of such surplus food prevents such imbalance from happening.

Can societal change happen and can it do the trick? It can. Take the example of two animals and how they fare globally purely because of different societal attitude—which incidentally is created, and not a part of innate human nature. In the United States, dogs are treated as integral members of a family and given enormous love and care, yet in many countries they are treated literally as dirt or dirty and in some they are even eaten. Conversely, cows are eaten in some countries and worshipped as sacred in others. It is thus possible to teach people, including women, to treat women for what they are: more than equal.

Can it be done soon enough? Yes, it can be. If humans can be taught to love dogs and cows, they can be taught to love, respect, and care for their moms and daughters, too, within a few years or a generation at the most.

A.N. “SHEN” SENGUPTA, M.ARCH. '63
Smyrna, Ga.

ATHLETIC RECRUITS

IN THE ACCOUNT of this year's Harvard-Yale game (“Just Perfect,” January-February, page 36), the writer refers to one Harvard player as “a former walk-on.”

I first heard the term “walk-on” when I left graduate school at Harvard to teach at a large public university with more or less semi-professional football and basketball franchises. I was then told that a “walk-on” was just an ordinary student who tried out for and made the team, as opposed to players who had been relentlessly recruited, let in under a special admissions policy, given “athletic scholarships” to pay their expenses, and, by and large, dwelt in an entirely separate subculture at the school.

Some of my colleagues, who had themselves gone to large public universi-



ties, couldn't understand why "walk-on" was a new term to me. I tried to explain to them that there were schools where the students on every team were "walk-ons": that is, regular college students who joined a team on just the same terms as others of their classmates wrote for the newspaper or sang in the Glee Club or acted in *The Pirates of Penzance* for the Gilbert and Sullivan Society. They weren't recruited, they weren't brought in on "athletic scholarships," they were on the same academic and intellectual level as their classmates, and they'd made the team only by succeeding in an open try-out.

I'd been assuming all that was still true at Harvard. Does the writer of the Harvard-Yale piece know something I don't?

W. C. DOWLING, PH.D. '73
Professor of English, Rutgers University
New Brunswick, N.J.

Dick Friedman amplifies: Not only are Harvard (and other Ivy) athletes recruited, but they also are courted as aggressively as players in the Big Ten. They have been so coveted since football emerged as a major campus activity at the turn of the twentieth century. The major difference is that the Ivies do not offer athletic scholarships, though of course Ivy student-athletes are eligible for the same financial aid that non-athletes can receive. (A book providing an insightful look into the Ivy recruiting process is *Playing the Game*, published in 2004 by Chris Lincoln.) For an unrecruited player to make the football team is a tribute to his pluck; for him to crack the starting lineup is exceedingly rare; for him to become All-Ivy, as Scott Peters has, is the longest of long shots.

FAN MAIL

I'VE BEEN MEANING to write, honest. Loved the carbon-tax piece ["Time to Tax Carbon," September-October 2014, page 52] and the predictable letters from superannuated grads going all grumpy about climate change. Learned a ton about Orlando Patterson and current trends in historiography [both, November-December 2014]. Smiled to read that Harry Lewis had actually volunteered to re-enter the realms of deanhood [Brevia, January-February, page 31]. Thank you for all that and more.

But what I need to tell you is how much I've loved the football coverage. Dick Friedman is a great acquisition. His ar-

ticles offer the best accounts on Crimson girdiron fortunes since Percy Haughton bent elbows with the regulars at Cronin's. Detailed, witty, and discerning. And fair-minded: Yale's "crashing, slashing, dashing" Mike Varga becomes a worthy Hector to Andrew Fischer's Achilles.

That's it. Check's in the mail.

CONN NUGENT '68, J.D. '73
Washington, D.C.

RESEARCH RESOURCES

APROPOS "Balanced Budget, Benefits Battle" (January-February, page 18) on Harvard's finances and sponsored research: At the end of World War II, the federal government made the momentous decision to flow revenues to universities for research conjoined with the training of future scientists. This decision was generally welcomed by academic leaders, but opposed by those who feared universities would become overly dependent on federal funding and its inevitably accompanying "strings." The National Institutes of Health (NIH) became by far the largest federal source of research and training grants; today, NIH provides about 70 percent of the total extramural research funding of major research universities, whether or not they have medical schools. The major exceptions are technology institutions like MIT or Caltech that receive the majority of their research funding from the National Science Foundation, the Department of Defense, the Department of Energy, and other federal agencies.

Federal funding of academic research differs importantly from that provided by foundations, corporations, and wealthy individuals, because federal funding includes both *direct* and *indirect* costs. The former are awarded *through* institutions to their faculty investigators for the *conduct of research*; the latter are awarded *to* the institutions for *partial recovery of overhead costs* from providing and maintaining the facilities required to conduct that research. During the past three decades, indirect costs have comprised about one-third of NIH's extramural research funding.

No other research sponsors approach the federal level of overhead reimbursement. Donors and many foundations pay *no* indirect costs, and corporate sponsors rarely pay anywhere near the negotiated federal indirect-cost rate in their funding of university research. As the magazine noted, student tuition levels are under severe pressure from

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LETTERS

the public and, ominously, the federal government, and wealthy donors generally come to the table with specific research objectives in mind and will not pay indirect costs.

But more important, federal funds will support *fundamental* research that years or decades later may provide the breakthroughs that prove to be transformative. Industry laboratories devoted to foundational research, like AT&T's storied Bell Laboratories, are distant memories.

So, corporate-sponsored research can generate cash flows for universities, but those funds will not cover the full overhead costs—nor will they, with rare exception, fund fundamental research that will underpin the next breakthroughs. It is a pity the United States is decreasing its support of fundamental life-sciences research while other nations are increasing their investments in what they see as the foundation of future leadership and prosperity in the “Century of Biology.”

DAVID KORN '54, M.D. '59

Professor of pathology

*Formerly, inaugural vice-provost for research
Cambridge*

Editor's note: A longer version of the preceding letter, with more historical context, appears online.

JOHN MUIR

READERS WHO ENJOYED the Vita about John Muir, by Steven Pavlos Holmes (November-December 2014, page 50), might be interested in *Nature's Beloved Son: Rediscovering John Muir's Botanical Legacy*, by Bonnie J. Gisel and Stephen Joseph—a sumptuous, oversize, but not overly expensive, appreciation of the great naturalist and conservationist, published in 2009 by Heyday, founded and led by Malcolm Margolin '62. For the past 40 years, Heyday, in Berkeley, California, has been publishing extraordinarily beautiful books on California's nature, history, and culture.

MARTY KRASNEY, M.B.A. '75

Sausalito, Calif.

ERRORS AND AMPLIFICATIONS

A NOVICE ERROR appears at page 49 of the article on Cass Sunstein. The New Deal provided us with a Securities Act and an Exchange Act and a Securities and Exchange

Commission. It did not provide us with a Securities and Exchange Act.

DAN BLATT, LL.B. '62

Granite Bay, Calif.

Editor's note: Geologist Thomas M. Cronin, Ph.D. '77, an adjunct professor at Georgetown University, alerted us to an error in the January-February issue letters section (page 5), in the response to a letter from W.E. Keller. Dinosaurs went extinct about 65 million, not 50 million, years ago (Ma); we regret this editing error and have corrected the text online.

Cronin continues: “One or several periods of Eocene warmth did occur roughly 56-50 Ma, when there were elevated atmospheric CO₂ levels. The Paleocene-Eocene Thermal Maximum (about 55.5 Ma) in particular is an intensely studied period of elevated CO₂ levels and warm climate.

“What is most important, however, is that the topics raised in these debates—paleoclimate records of past climate, warmth, and elevated CO₂ levels—are extremely relevant to the issue of modern climate change.”

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POACHING THE PROFICIENT

How Globalization Begets Inequality

CHINA'S recent economic history looks, at first glance, like a developing-world success story. In 1980, according to World Bank estimates, average income there was less than \$200, measured in current U.S. dollars. By 2013, income averaged nearly \$7,000.

But averages say little about who *really* benefited from development during this period of increasing globalization. In fact, this economic expansion and explosion in trade has been accompanied by growing income inequality. China's Gini index (a

measure of income distribution where 0 is perfect equality and 1 is perfect inequality) has grown from roughly 0.3 in the early 1980s to above 0.45 in recent years.

According to classical economics, this is puzzling. Nineteenth-century economist David Ricardo's theory of comparative advantage predicts that China's poorest workers should benefit most from the growth in trade. Before globalization, that country had a huge supply of unskilled workers and relatively few high-skill workers, who were thus in high demand; the situation was just the opposite in the United States. When two such countries begin to trade, the theory states, the less-

developed nation has the advantage in producing relatively low-tech products—so demand and income for under-educated workers should shoot up, while their high-skill countrymen suffer. Thus, the theory predicts, globalization should lower inequality in the developing world.

Instead, as Gates professor of developing societies Michael Kremer explains, in much of the developing world, “The empirical evidence is not really consistent with the idea that trade is reducing inequality.” He and Adams University Professor Eric Maskin, a 2007 Nobel laureate in economics, have therefore proposed a new model to help explain the discrepancy between traditional theory and current reality. The key, they say, lies in a more nuanced understanding of how global production cycles sort workers into different jobs.

Maskin and Kremer began working out their theory of “skills matching” while studying developed countries like Britain and France in the early 1990s, but they soon realized that their model helped ex-

Globalization's benefits flow unevenly to a garbage collector in Allahabad, India, and a call-center worker in Bangalore.



FROM LEFT: © JODI COBBEN/NATIONAL GEOGRAPHIC CREATIVE/CORBIS; © SHERWIN CRASTO/REUTERS/CORBIS

plain the upheavals of globalization. Their explanation of how globalization interacts with inequality begins with four groups of workers: high- and low-skilled in developed countries, and high- and low-skilled in developing countries. Before globalization, the local economy produces best when high- and low-skill workers *within* each country pair up. Maskin points, for example, to an old textile factory in a pre-globalization India, where an engineer might manage an unskilled laborer.

But a key component of the current wave of globalization is that international production chains now allow workers to pair up across borders. After global trade begins, that Indian engineer might be hired by an American firm that has moved parts of its company to India and sees value in the engineer's relatively skilled, yet still relatively cheap, labor. And as skilled Indian workers increasingly find jobs with international firms, the locally owned businesses which they once helped manage may be forced to close, leaving their unskilled former "partners" with no way to participate in the global economy. "That is a big difference," Maskin concludes. "And that, we argue, may explain why there's been such an increase in inequality in developing countries."

Further complicating matters is the fact

that even though few of these new developing-world jobs would be considered "high skill" by Western standards, they nevertheless remain out of reach for workers at the very bottom. "There's a big difference between low skill and zero skill," Maskin says. In countries like India, for example, call-center workers need a command of unaccented English, and maybe even a college degree. Kremer points to the even starker illustration of a Vietnamese factory producing an American-designed shoe. Low-skill workers—often peasants—"can't even get into the shoe production," he explains, because of the higher standards of export companies. "The factory doesn't want to hire them unless they've got at least a high-school education."

Workers in many factories in developing countries might be lower-skilled, Maskin adds, but "they have enough of an education so that they *can* be trained." The lower-skilled laborers who once might have been considered competent enough to work in a factory under local management, on the other hand, are left out of the newly globalized workforce.

Maskin and Kremer emphasize that they are not making a case against trade and international production: those growing average wages are proof of globaliza-

tion's benefits. Rather, they say they are making a policy argument *for* education. Those at the bottom of the pyramid may not have enough resources to gain skills on their own, and their potential employers have little incentive to train them. That means that developing-world governments, along with nongovernmental organizations, must provide the education necessary to raise workers' skills. In Cambodia, for instance, training programs have helped bring women into the thriving garment industry, giving them the industry-specific sewing skills that allow them to work from home. Gaining that skill has brought real benefits to those who otherwise might not enter the workforce.

Such programs, Maskin explains, are the best way to address the negative results of globalization. Now, having identified the problem and offered a plausible explanation, he acknowledges that the question remains: "How do you tweak the system so that people down at the bottom get something out of it, too?"

~STEPHANIE GARLOCK

MICHAEL KREMER WEBSITE:

scholar.harvard.edu/kremer/home

ERIC MASKIN WEBSITE:

scholar.harvard.edu/maskin/home

JAVA GENES

Self-Regulating Coffee Drinkers?

COULD GENETIC CODE determine someone's Starbucks habit? Apparently so, according to a new study by researchers at the Harvard T.H. Chan School of Public Health (HSPH). Their data suggest that people instinctively regulate their coffee intake in order to experience the optimal effects of caffeine.

Produced with the support of the Coffee and Caffeine Genetics Consortium and published in the journal *Molecular Psychiatry* this past fall, the study—one of several recent HSPH investigations of the popular beverage—involved a meta-analysis of genomic data from more than 120,000 regular

coffee drinkers of European and African ancestry. The researchers analyzed their subjects' genetic makeup through DNA sequencing, and compared those results to self-reported coffee-drinking figures, in an effort to understand why some people need more of the stimulant than others to feel the same effect.

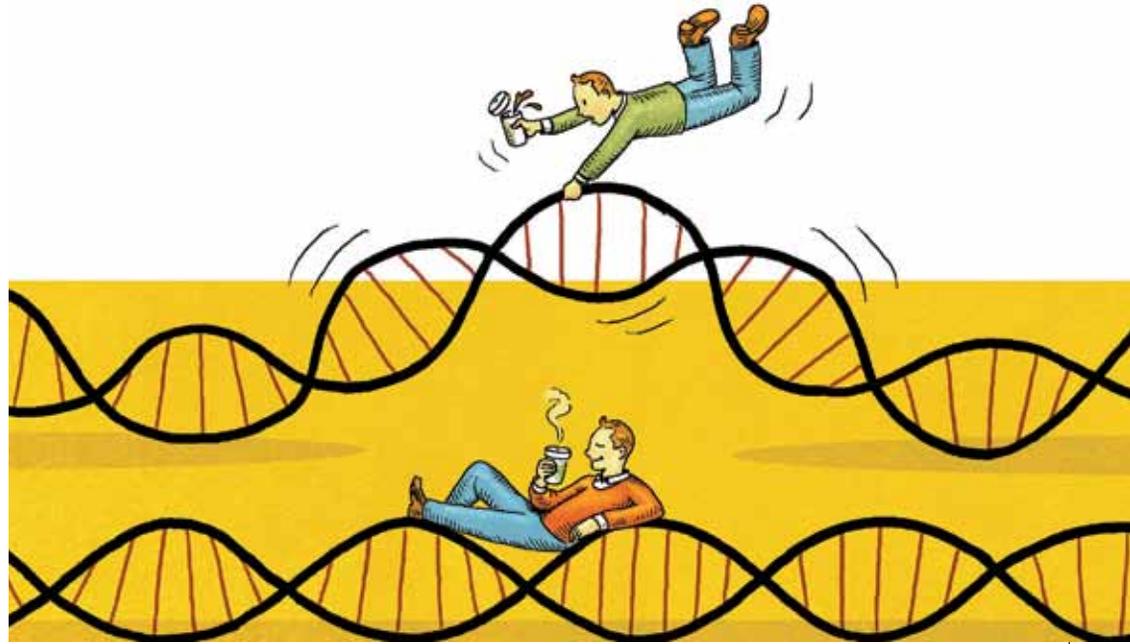
Lead author Marilyn Cornelis, a former research associate in the HSPH nutrition department who is now assistant professor in preventive medicine at Northwestern, says their findings provide insight not only on why caffeine affects people differently, but also on how these effects influence coffee-drinking behavior. One indi-

vidual, for example, may need three cups of coffee to feel invigorated, while another may need only one. If that one-cup-a-day person consumes four cups instead, Cornelis explains, any jitters or other ill effects that result may discourage that level of consumption in the future.

Given coffee's widespread consumption, its effects on health have been the subject of continuing interest and debate. The newest edition of *The Diagnostic and Statistical Manual of Mental Disorders*, for example, lists both caffeine intoxication and withdrawal as disorders. On the other hand, a study released in January by other investigators at HSPH found that drinking up to six cups of coffee a day showed no association with any increased risk of death (including from cancer or cardiovascular disease). "Going back several years...coffee often had a bad rap," Cornelis says. "I hope to finally account for those genetic variants and possibly other risk factors that might modify our response to coffee or caffeine."

Her team identified six new genetic variants associated with habitual coffee drinking, including two—*POR* and *ABCG2*—related to caffeine metabolism, and another two that may influence the psychological boost and possible physical health benefits of caffeine. The most surprising aspect of the study, Cornelis reports, was the discovery that two genes involved in glucose and lipid metabolism—*GCKR* and *MLXIPL*—are also linked for the first time to the metabolic and neurological effects of caffeine.

Another group of researchers at HSPH reported last year that coffee drinkers who increased their average consumption by more than one cup a day during a four-year period had an 11 percent lower risk of type 2 diabetes in the following four years, compared with people who did not change their intake. The study also found that



those who *decreased* their coffee consumption by more than a cup per day *increased* their type 2 diabetes risk by 17 percent. “We know there’s been a link between coffee and lower risk of type 2 diabetes, as well as between unfiltered coffee and lipid

levels, but whether these associations underlie the surprising associations between *GCKR* and *MLXIPL* and coffee-consumption behavior is unclear,” Cornelis says. “It’ll be very interesting to follow up on those particular genes in the future.”



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A third recent HSPH-affiliated study that tracked 50,000 women for 10 years found that those who drank four or more cups of caffeinated coffee per day were 20 percent less likely to develop depression than nondrinkers. The researchers speculate that long-term coffee drinking may boost the production of “feel good” hor-

mones such as dopamine.

“Coffee is possibly protective,” Cornelis says. Eventually, she hopes to “account for those genetic variants and possibly other risk factors that might modify our response to coffee or caffeine. We know coffee is one of the primary sources of antioxidants of the American diet. If some in-

dividuals can metabolize caffeine quickly, then they’re potentially getting rid of the adverse effects of caffeine yet still experiencing the beneficial effects of other coffee constituents.”

~LAURA LEVIS

MARILYN CORNELIS E-MAIL:

marilyn.cornelis@northwestern.edu

SOUND, SEEN

Animating Music

WHAT DO WE SEE when we listen to music? In 1940, Walt Disney’s *Fantasia* famously drew Tchaikovsky’s *Nutcracker Suite* as dancing flowers, and Stravinsky’s *The Rite of Spring* as a T-rex on the rampage. Today, the music-library software preinstalled on most personal computers offers customizable options: flames, puddles of color, wheeling galaxies. Although these interpretations have artistry, they neither promise nor grant real understanding of how music works. Coasting atop the waves of sound, the images reflect little of its actual structure. But what if a tool were designed to put sight squarely in the service of sound?

“It seems that the twenty-first century is really the right time to think about animated music analysis,” says Peabody professor of music Alexander Rehding. An array of recently developed digital tools, used by musicians and laypeople alike, suggests new possibilities for researchers

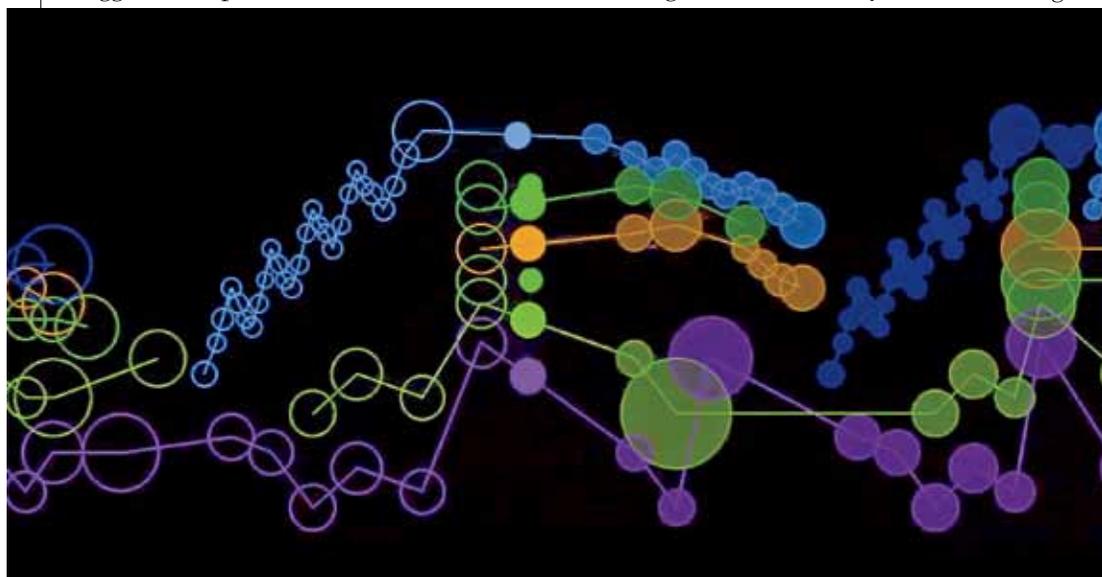
keen to map aural realms by visual means. Soundslice, for example, offers interactive sheet music that guides the learner through a score by integrating written notation with a sound file; SoundCloud presents a time-slider and the outline of a sound wave to orient a listener within the music, and also displays listener comments keyed to specific moments in a piece. Now, Rehding and his collaborator, Jones professor of African American music Ingrid Monson, are developing a Web application that will depict the insights of music theory, syncing an animated analysis with a sound file.

The application visually traces a piece’s progression through what’s known as “tonal space,” which encompasses chord transformations, intervals between pitches, and the relations between keys. Nineteenth-century theorists represented this aspect of music in a two-dimensional format: a grid with an x and y axis. As

the structural understanding of music advanced, the shape of tonal space also evolved in complexity—into a cylinder, then a spiral within a cylinder—before finally reaching the current model, which Rehding describes as “a doughnut that’s also a Möbius strip.”

In creating what he calls “the quite technical interpretation of how music works and how it hangs together, we use a lot of diagrams,” Rehding explains. The academic community already shares the structure of a symphony, or a jazz pianist’s chord transformations, through dense illustrations. But when used to communicate with even a slightly wider audience, these diagrams can confuse as often as they clarify. Even the most gung-ho undergraduates become bewildered when talked through these analyses, which are challenging to reconcile with the music itself. And there’s another problem, Rehding adds: “If you try to show how the flow of the music works, then the static medium of print isn’t well-suited to a lot of the things that go on.” By contrast, a dynamic diagram can situate the listener in time; a computer model can display change in a third dimension, even rotating as necessary.

The two ethnomusicologists study vastly different repertoires: Rehding focuses on nineteenth-century Germany; Monson works on jazz and the African diaspora. In her field, visual representation is a particularly fraught topic—many debate whether music that’s composed during in-the-moment performance, as jazz improvisation



Visualizations like Stephen Malinowski’s Music Animation Machine version of Debussy’s Arabesque no. 1 for piano solo can lead to new insights into musical compositions.

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is, should be transcribed into Western notation at all.

“We’re both interested in the sensory experience of listening, and view it as a kind of knowledge that’s not necessarily text-based,” Monson explained in August to the DARTH (Digital Arts and Humanities) Crimson group at Harvard. Digital tools

“The twenty-first century is really the right time to think about animated music analysis.”

could allow scholars to legibly depict their aural observations, while bypassing the score tradition. Expressing musical structures through new visualizations could also cut across the cultural biases and natural barriers presented by standard notation.

Chatting before a fortepiano concert at Jordan Hall in February 2014, the pair discussed a graduate seminar Monson was attending on new techniques of musical analysis. Intrigued by the idea of bringing theory’s insights into the digital age, they set their project in motion by reaching out to colleagues knowledgeable about

computer applications, including Michael Cuthbert ’98, Ph.D. ’06, an associate professor at MIT. While a fellow at the Radcliffe Institute from 2012-2013, Cuthbert had created an open-source toolkit for analyzing musical scores, and used it to examine more than 2,000 medieval French, Italian, and Spanish works.

He introduced Monson and Rehding to two of his undergraduate students, Adam Caplan-Bricker ’16 and Varun Ramaswamy ’15. “The beautiful thing,” Rehding says, “is that Ingrid and I don’t have experience in coding,” and most computer scientists lack a technical understanding of music, but Caplan-Bricker and Ramaswamy bridge the gap. They can parse the structure of music into the language of programming using the deep mathematical sensibility shared by both fields. “We just had to explain to them what we were after, and then they would come out

with something much more spectacular than what we could have imagined. I was blown away.”

For a public showcase of digital humanities projects later this semester, the team is now preparing animations of two test pieces—a Thelonious Monk solo and an excerpt from a Bruckner symphony—to demonstrate the toolkit’s range. The Web application requires some fluency in musical theory to create animations, yet its creators hope that the elegant illustrations will make intuitive sense to anyone with an attentive ear. As the tool brings patterns to the surface that listeners may only have guessed at on their own, it allows them to glimpse the music’s internal movements and “what makes it tick,” Rehding says. Introducing people to music in a sophisticated way, “and teaching them to hear things that they might not have heard before—that’s my highest aspiration.”

~SOPHIA NGUYEN

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(From left) *Untitled (2013-14)*, by Ralph Lemon, at the Institute of Contemporary Art; a Malagasy lemur, at the Harvard Museum of Natural History; and a scene from Mount Read, Tasmania, by photographer Rachel Sussman, who appears at the Arnold Arboretum

FROM LEFT: RALPH LEMON/INSTITUTE OF CONTEMPORARY ART; HARVARD MUSEUM OF NATURAL HISTORY; RACHEL SUSSMAN/ARNOLD ARBORETUM

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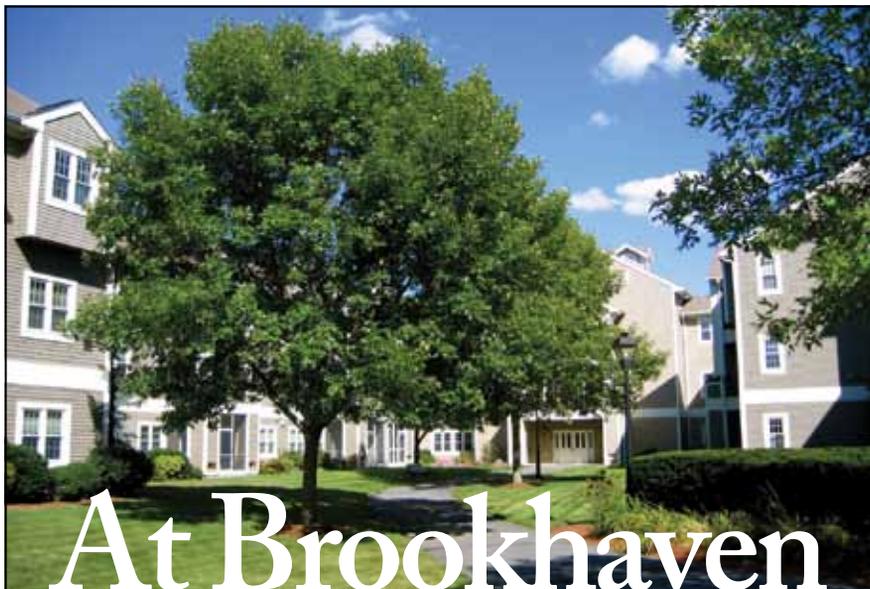
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Spotlight



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Using relatively simple tools, early explorers navigated the archipelagos of the southern Pacific and many other dangerous, uncharted corners of the world. *Finding Our Way: An Exploration of Human Navigation* traces such endeavors by mariners from the fourteenth to the nineteenth centuries. Items both functional and beautiful are on display: compasses, scaled models of canoes, nautical atlases, and astrological texts, as well as an astro-labe, octant, and cross-staff. The marine chronometer (above) is a very precise clock made by William Bond & Son, Boston, circa 1860. Navigators used them “to keep the time at their port of origin or at a designated starting point, such as Greenwich, England,” says Sara J. Schechner, Wheatland curator of the Collection of Historical Scientific Instruments. “By comparing the local time at their current geographical position with the time on the chronometer, they could find their longitude in hours, minutes, and seconds.”

**Harvard Museums of
Science & Culture**

<http://chsi.harvard.edu/index.html>

MUSIC

Sanders Theatre

www.boxoffice.harvard.edu

The Harvard-Radcliffe Orchestra performs Mahler's Fifth Symphony. (April 25)

EXHIBITIONS & EVENTS

Harvard Ceramics Program

www.ofa.fas.harvard.edu/ceramics

Resident artist Christopher Adams '94 has created perhaps the wildest permutations of organic forms in *Life, or Something Like It*. (March 23-April 24)

The Peabody Museum of Archaeology & Ethnology

www.peabody.harvard.edu

Metropolitan Museum of Art curator Donald J. LaRocca discusses "**The Allure of Collecting Arms and Armor**" in conjunction with the Peabody's *Arts of War: Artistry in Weapons Across Cultures*. (March 26)

The Carpenter Center for the Visual Arts

<http://ccva.fas.harvard.edu>

Thirteen artists consider the interplay between architecture and art in *The Way We Live Now, Modernist Ideologies at Work*. (Through April 5)

Harvard Art Museums

www.harvardartmuseums.org

"**Fragments of a Lost Past or Evidence of a Connected History: The Role and Concepts of Islamic Art in the Museum Context**," a lecture by Stefan Weber, director of the Museum of Islamic Art in Doha, Qatar. (April 8)

Harvard Museum of Natural History

www.hmnh.harvard.edu

Islands: Evolving in Isolation explores hotspots of biodiversity. The exhibit opens on April 25, with an introductory lecture on April 23: "**Islands: Natural Laboratories of Evolution**," by biologist Jonathan B. Losos, Lehner professor for the study of Latin America.

Wadsworth Atheneum Museum of Art

www.thewadsworth.org

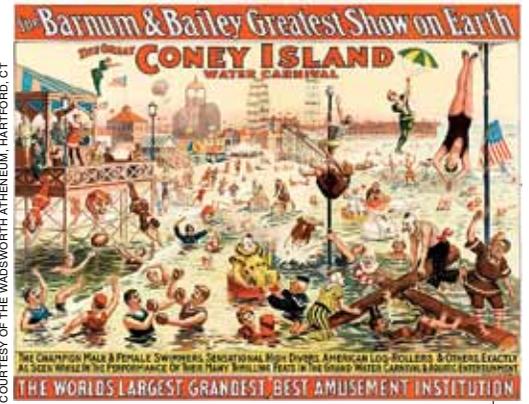
Coney Island: Visions of an American Dreamland, 1861-2008. American lives and history are revealed through artists' renderings of this once-vibrant, fabled Brooklyn landmark.

The Institute of Contemporary Art

www.icaboston.org

When the Stars Begin to Fall. Artists including Kerry James Marshall, Theaster Gates, and Kara Walker, and others who are self-taught, spiritually minded, or incarcerated, reflect on the American South and what, if anything, separates contemporary and "outsider" art. (Through May 10)

An 1898 poster for "**Barnum & Bailey Greatest Show on Earth**" at the Wadsworth Atheneum in Hartford, Conn.



COURTESY OF THE WADSWORTH ATHENEUM, HARTFORD, CT

STAFF PICK: Bette Davis at the Schlesinger

In *Dark Victory* (1939), Bette Davis plays a feckless young socialite who learns she's terminally ill. That's no spoiler. The diagnosis comes early, and the true drama springs from her reaction; it reveals how such news can transform who we are and how we love. (Especially if the physician is smart, attentive, and played by Irish-born actor George Brent.) Studio fears that dying was too depressing a topic turned out to be ill-founded: a *New York Times* critic called the film "One of the most sensitive and haunting pictures of the season." Not a dry eye in the house, yet the sentiment stops shy of schmaltz. Davis's willful character matures and ultimately finds dignity even as her body breaks down, notes Schlesinger Library archivist Susan Earle. That's one reason the film committee included *Dark Victory* in the Schlesinger Library Movie Night's "Gender and Bodies" series. Earle also points out that the diagnosis is initially hidden from the patient (not unusual at the time), further complicating the relationship. "Is the doctor a professional caregiver or a husband/lover?" she asks. "Women of a certain period in the movies frequently seem to end up with doctors: they take care of the women in more ways than one." (To be fair, in the film Davis also consorts with an affable drunk, Ronald Reagan, and her fiery horse trainer, Humphrey Bogart.) This spring's Schlesinger series also offers *Things We Don't Talk About*, a documentary that chronicles *The Red Tent* movement inspired by Anita Diamant's eponymous novel, on March 5; and *Cherry 2000*, a sci-fi adventure starring Melanie Griffith as a postapocalyptic bounty hunter, on May 7.

Schlesinger Library Movie Night
Dark Victory, April 2
[www.radcliffe.harvard.edu/
event/2015-dark-victory](http://www.radcliffe.harvard.edu/event/2015-dark-victory)



LECTURES

The Radcliffe Institute for Advanced Study

www.radcliffe.harvard.edu

"Faith in Nature: Noah's Flood and the Development of Geology," by University of Washington, Seattle, professor David R. Montgomery. (March 26)

"Confronting Violence." Discussions on hip-hop, activism, and cultural change aim to address society's dilemma. (April 9-10)

Events listings are also found at www.harvardmagazine.com.

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Manchester, Redux

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MANCHESTER, New Hampshire, in the 1980s was no kid's paradise. "Growing up, we didn't even come to this part of town," says Chris Pappas '02 while touring Elm Street, the city's main drag. "The vacancy rate was tremendous and you really wouldn't see any traffic or pedestrians." The scene was even more ghostly a few blocks away by the Merrimack River, where most of the grand nineteenth-century brick factories that once filled 137 acres and comprised the largest cotton-textile plant in the country—the Amoskeag Manufacturing Company—sat empty, in various states of decay.

Much has changed in Manchester since then, and even since Pappas, now an elected member of the state's Executive Council, returned to his hometown after graduation. For one, the "millyard" complex, still breathtakingly vast even at about half its peak size, now houses prime twenty-first-century businesses focused on technology, healthcare, and education (e.g., the University of New Hampshire and Southern New Hampshire University), along with

restaurants, the Millyard Museum, and the SEE Science Center. UNH alone has more than 1,000 students in Manchester, Pappas says, and is expanding into the iconic Pandora Building.

Originally an Amoskeag property that dates to 1839 (its Gothic-style tower was added in 1879), the building is named for its former occupant, Pandora Industries Inc., which produced sweaters there from 1940 until the early 1980s. But then it too stood vacant for decades, with trees growing out of its roofs, until it was overhauled in 2012 by Dean Kamen, the inventor of the Segway and numerous medical devices. Kamen established DEKA Research and Development in one of the mills in 1982 and has been a consistent force in Manchester's revitalization efforts, says Pappas. "Without his sinking millions of dollars into the Pandora, it would have been torn down."

Like regional cities everywhere, Manchester has survived, and will continue to weather, dramatic swings in fortune, Pappas acknowledges. Issues such as crime, employment, and the quality of the

Manchester's old mills still form the heart of the city; a steam fire engine at the Millyard Museum; native son Chris Pappas. Opposite, at the Currier Museum of Art: *Giummo* (1973), by Ben Schonzeit; *Origins* (2001-2004), by Mark Di Suvero, highlighting the entrance; and Charles Sheeler's serene view of the Amoskeag Canal (1948)

schools will always warrant attention. But the "renaissance of the district," he adds, coupled with projects like the new Manchester-Boston Regional Airport terminal and Verizon Wireless Arena, have helped spur economic development downtown.

Pappas has a stake in the city's stability as part of the fourth-generation team that runs his family's 98-year-old restaurant, The Puritan Backroom, a community gathering spot and frequent stop for presidential candidates. Yet he is also a force for growth and change. A proponent of the long-debated commuter railroad from Boston to southern New Hampshire, he



CURRIER MUSEUM PURCHASE, CURRIER FUNDS, 1948.4

influences statewide policies and finances as an Executive Councilor. (Viewed as a rising politician, he is considering a run for Congress in 2016.) There is “a great backbone of a young, creative class here,” he says, noting a rise in peers who recognize Manchester “as a good place to live and work,” many of whom are galvanizing civic engagement through the nonprofit Manchester Young Professionals Network.

Manchester, he points out, is also a great place to visit. The arena, restored Palace Theatre, and the Currier Museum of Art offer culture, while the Millyard Museum, America’s Credit Union Museum, and walking tours provide a fascinating look at New England’s industrial, architectural, and ethnic heritage. The SEE Science Cen-

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ter (also founded by Kamen) is a smaller version of Boston's Children's and Science museums—without the crowds.

The Currier Museum of Art, opened in 1929 and renovated and expanded in 2006-2008, offers an intimate look at European and American paintings, sculpture, and furniture, along with a growing collection of modern and contemporary art. "One of the things I've been working on," says Steve Konick, the Currier's director of public relations and marketing, "is reminding Bostonians that we are less than an hour's drive from Fenway. We have world-class art in a small city. That's what makes us unique." The winter exhibition, *M.C. Escher: Reality and Illusion*, drew nearly 30,000 people, while the current show, *Still Life: 1970s Photorealism*, on view through May 3, reflects how people and the built environment of that era actually looked. Works by Chuck Close, John Baeder, Audrey Flack, Tom Blackwell, and Duane Hanson are adjacent to museum-owned paintings by New Hampshire's James Aponovich. A small side exhibit, *Painterly to*

Precise: Richard Estes at the Currier, showcases two recent acquisitions: that artist's *Baby Doll Lounge* (1978) and *Qualicraft Shoes (The Chinese Lady)* (1974). Throughout the year, the museum runs art classes, concerts, and monthly parties: "Signs of the Times," inspired by the photorealism exhibit, is slated for April 2 (see www.currier.org/calendar for details). Also worth visiting is the Currier-owned Zimmerman House, the only Frank Lloyd Wright-designed building in New England open to the public. (Tours resume on April 16.)

The Millyard Museum, in a restored section of Mill #3, is run by the Manchester Historic Association. Exhibits explain the origins of this planned industrial city (hence the name change, from "Derryfield," in 1810), the lives of its workers (using poignant oral histories), and the machinery that revolutionized textile production. In 1831, businessmen who had already built textile-manufacturing centers in Waltham and Lowell, Massachusetts, bought the few existing mills powered by the Amoskeag Falls on the Merrimack, water rights to the canal that bypassed the falls, and all of



COURTESY OF THE SEE SCIENCE CENTER

SEE Science Center

the property now considered downtown Manchester. "The Amoskeag Manufacturing Company literally designed the city, from laying out the streets and parks to building the factories and workers' housing," explains Jeffrey R. Barraclough, acting director of the historic association.

The company had a hand in most aspects of residents' lives, too, even sponsoring athletic teams, fairs, plays, and concerts, he adds, keeping employees occupied and connected. Irish laborers built the mills, then worked in them; by the 1870s, they were joined by an influx of French-Canadians (who set up the nation's first credit union, now a museum), and then immigrants from Germany, Lithuania, Russia, Poland, and Greece. (Still a resettlement city for modern refugees, Manchester's high school reportedly has students speaking up to 60 different languages.)

At its peak, in 1915, the Amoskeag Manufacturing Company employed more than 17,000 workers, but was already ailing financially, Barraclough says. It closed in 1935, terminating thousands of workers

in one day, and the Great New England Flood of 1936 wrecked "any last hopes of recovering from bankruptcy."

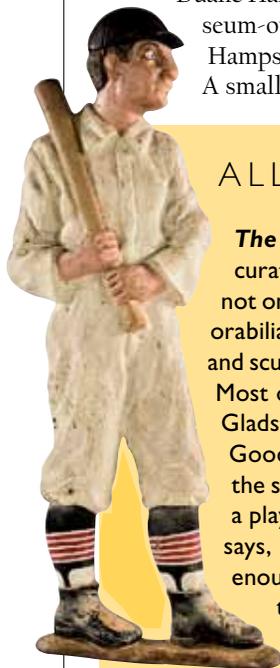
Manchester rebounded, as would become its practice. City leaders prevented the factories from being sold at public auction and gutted, then drew new companies—but those, too, began to shut down or move out in the 1960s and 1970s. Among the last to go, in 1975, was the Chicopee Manufacturing Company. (*Amoskeag, Life and Work in an American Fac-*

ALL IN A DAY: Take Me Out

The Art of Baseball, opening April 17 at the Concord Museum and guest curated by historian and fan Doris Kearns Goodwin, Ph.D. '68, celebrates not only the sport, but the love of the game. On display are eclectic memorabilia—a weathervane, quilts, posters, and tickets—along with paintings and sculptures by Robert Rauschenberg and William Zorach, among others.

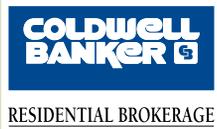
Most objects were collected by Millie and Bill Gladstone, starting in 1971. The couple (and Goodwin) are featured in a video made for the show. Of a woman's comb carved with a player sliding into base, Millie Gladstone says, "I love the fact that someone cared enough about baseball to go and do something like that." Also on view is a Ted Williams glove from the 1946 World Series and a Carl Yastrzemski cap, circa 1981 (both on loan from the National Baseball Hall of Fame), and other material from the Red Sox Hall of Famers. "I think the reason baseball has played such a large role in American history," notes Goodwin, "is that it really connects families over time...there are memories of having gone to games together, of having loved a sport when you were a child with your father, and now sharing that same sport with a child when you are a mother."

Concord Museum
www.concordmuseum.org



JOHN MAGGIOTTO/CONCORD MUSEUM

A painted andiron (c. 1909), and Edward Laning's *Saturday Afternoon at Sportsman's Park* (c. 1944)



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www.palacetheatre.org

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tory, coauthored by Randolph Langenbach '68, M.Arch. '82, chronicles this event and other aspects of the life of the mills.)

Through the late 1960s and 1970s, work crews periodically razed mill structures and other historic city buildings, and filled in the two canals. Nevertheless, much remains. "One of the greatest accomplishments since this current revitalization started," Barraclough adds, "is that many people in the city have developed a much greater respect for the past, for Manchester's history."

Pappas agrees. His Greek ancestors arrived at the turn of the twentieth century and, save for his time at Harvard, he himself has always lived within three miles of his childhood home. "I came back because I have a strong sense of place," he adds, "and a commitment to see it thrive. In many ways I've rediscovered Manchester. I've had a lot of friends and family who have moved away to do other things, but those who have stayed are pleasantly surprised by the opportunities here and share in the pride that we are doing well."

~NELL PORTER BROWN

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Grow, Pick, Cook

Old farmlands yield new life in a Boston suburb.

BUCOLIC Powisset Farm, which has developed a strong Community Supported Agriculture (CSA) program and on-site farm stand, now offers year-round culinary workshops.

The goal, says education and outreach coordinator Rachel Kaplan, “is to get people who love food and farming to join us in the kitchen and out in the fields”—even during the soggy springtime—“to learn how produce is grown and how to prepare it in easy and delicious ways.” Kaplan teaches many of the classes, including cheese-making, fermentation, and a “Field-to-Lunchbox” series for families, and sees her role as “creating new relationships with food.” “I am not going to be standing there, Martha Stewart-style, showing how it’s done,” she adds.

“These workshops are all hands-on, with recipes that are totally doable at home.”

The farm sits on nearly 108 acres in Dover, Massachusetts, that have supported crops and livestock, along with former timber and coal operations, for centuries. The land is now owned by The Trustees of Reservations, a nonprofit conservation organization that holds more than 125 properties throughout the state. Powisset Farm (from which visitors can walk or bike to another Trustees’ site, Noanet Woodlands) was opened as reservation and a working farm, with easy walking



trails throughout, in 2008.

About 15 acres are planted with vegetables, fruits, flowers, and herbs—for the 400-member summer CSA and its 150-member winter counterpart, explains Kaplan. The close to 175,000 pounds of vegetables harvested go to members, the farm stand, and to five local hunger-relief groups. In addition, “We have two mama pigs and raise 12 or so piglets in the spring each year,” she says; their meat is sold at the stand in the fall, while eggs from the farm’s 100 hens are available all year.

The “Powisset Cooks!” series seemed a

Clockwise, from top left: a winter soup-making workshop; the farm’s newly renovated barn; the Innis family enjoys a “Powisset Cooks Field to Lunchbox” session; onion seedlings wait out winter in the greenhouse

natural next step. “What better opportunity,” Kaplan asks, “not only to come support a farm and see a beautiful landscape,

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HARVARD
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HARVARD SQUARED



K. MCMAHON

Above: Visitors greet the farm's pigs and chickens. Below: A cooking class on sauerkraut and kimchee.

but to take your learning to a new level by engaging with food and people outside of your own kitchen?" The farm's historic barn was renovated last spring to create a communal kitchen and open classroom. Workshops began last August and have emphasized rustic fare and simple techniques—sometimes under the tutelage of guest chefs.

This spring's series includes: "Baking Bread with Local Grains" (March 10); "Field to Lunchbox: Creative Solutions for Lunchbox Boredom" (March 15); "Eggstravaganza!" (April 2); cheese-making (April 4); and "Farm-tastic Desserts" (May 7). Families may also enjoy "InstaFarm!":

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HARVARD SQUARED

an afternoon of snapping photos at Powisset (April 12), or a “Behind the Scenes” look at what volunteers and staff do to prepare for planting the crops (April 23).

“Even for those who are coming in the cold,” Kaplan notes, “we like to take excursions around the farm, to see what’s happening there, and see what’s been started in the greenhouse.” (All classes and events are open to both members and non-members of the Trustees, are limited to 12 people, and tend to fill up fast. To register, contact Kaplan at rkaplan@ttor.org, or call 508-785-0339, ext. 3003.)

During classes, participants line up along the long tables to chop, mix, and pound (in the case of cabbage en route to a new life as kimchee), talking and



R. SMITH



R. SMITH

learning as they go. The farm arranges private cooking classes as well, and Kaplan plans to bring in professional chefs for demonstrations and start organizing “Farm Dinners” featuring food grown

More than 17 miles of trails at Noanet Woodlands offer respite from urban life.

at Powisset and other CSAs and farms operated by the Trustees. These include Appleton Farms, on the North Shore in Ipswich, which sells fresh dairy products and meat at its own store and also offers cooking classes. (For a full list of the Trustees’ farms, visit www.thetrustees.org/places-to-visit/csa.)

Powisset is also a beautiful place simply to walk around, especially with young children. Trails loop throughout the property, and visiting (but not feeding) the pigs and chickens is encouraged. Those who want a more vigorous outing can venture less than a half-mile away, practically across the street, into the Noanet Woodlands. This property offers more than



FROM GOLD

Gold (above) and Boogaloo and Graham (below) reflect on the rights and roles of parents.

CURIOSITIES: Irish Pictures

This year’s Irish Film Festival at the Somerville Theatre features *Gold*, about an estranged father who returns to his family and nearly wrecks all of their lives. It’s a roaring good comedy, at least to many Irish moviegoers and others who enjoy the country’s traditional brew of offbeat, dark, or piercing works. “When you’re done with your shamrocks and shillelaghs,” suggests festival director Dawn Morrissey, “come see the *real* Ireland.” Held March 19-22 in Davis Square, the festival offers about 45 titles, including two Oscar nominees: *An Bronntanas*, a thriller, and *Boogaloo and Graham*, a short from Northern Ireland. (In the latter, children also grapple with parents’ life choices that here threaten baby chicks that two young brothers have vowed to keep and raise themselves.) The volunteer-run festival is in its fifteenth year, and gives out awards, such as best “Global Vision Documentary,” thus some of the directors and actors are also on hand and gladly discuss their work. Musicals, or movies that showcase Irish music, are always on the program, too, typically as the grand finale on Sunday afternoon that’s followed by a reception at The Burren, a traditional Irish pub down the street. Upward of 3,000 people turn out for the four-day event, many of them Irish-born, or close to it. “We have parties after the shows every night, open to everyone,” says Morrissey, who is from County Kildare; most patrons don’t wait until Sunday “to go out for the *craic*, or a *hooley*.” That was especially evident last

year when the charming and poignant documentary, *The Irish Pub*, was paired with *Handing Down The Tunes*, about the late, legendary musician Tommy McCarthy (whose son, Tommy McCarthy Jr., owns The Burren). Celebrants leaving the shows soon brought Davis Square the closest it may ever come to Dublin.

FROM BOOGALOO AND GRAHAM

The Irish Film Festival
March 19-22, Somerville Theatre
<http://www.irishfilmfestival.com>

17 miles of trails (from easy to strenuous) that are open to walkers and mountain bikers (after the trails dry). Moreover, a trail spur links to the adjacent Hale Reservation, a 1,200-acre preserve.

Take a couple of hours off from the daily grind, or spend all day, any day, from dawn to dusk, exploring these pastoral and wooded landscapes typical of central New England. The properties are a 35-minute drive (or 90 minutes by public transportation) from Boston. “We want to connect people to the farms,” Kaplan says, “and all of the special places that are right here.” ~NELL PORTER BROWN

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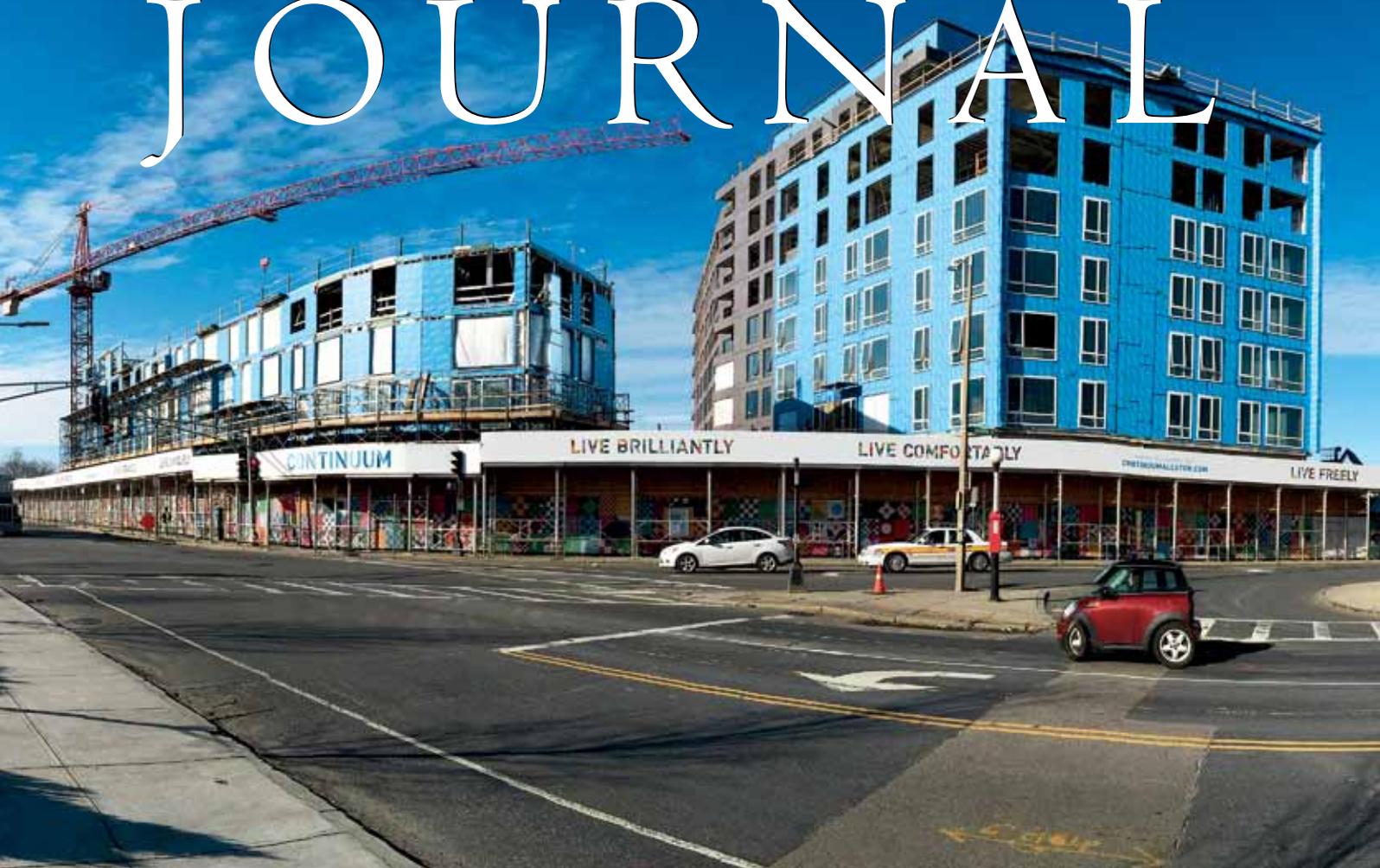
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JOURNAL



A New Era in Allston

AFTER YEARS of discussions and planning—and more than a quarter-century after the University began buying land for development in Allston—Harvard and its community and development partners are poised to effect significant change there. In coming months, new buildings will open, and new uses and residents will put down roots in the neighborhood beyond the boundaries of Harvard Business School's

IN THIS ISSUE

- 23 Harvard Portrait
- 24 Yesterday's News
- 25 Brevia
- 28 The Undergraduate
- 29 Sports

(HBS) campus and the athletics complex. In their wake, academic facilities should rise quickly. Furthermore, the long-range goal of redeveloping the vast acreage further east (beneath and beyond elevated roadways, a former rail yard, and other less visible properties), once thought far off in the future, now appears a realistic prospect. (See the map on page 22.)

● 2015. Some of the changes are immediately visible at Barry's Corner, the intersection of Western Avenue and North Harvard Street, where a mixture of academic, retail, residential, and community uses will converge. University development partner Samuels & Associates is completing Continuum: two residential buildings of six to nine stories (both step down toward nearby streets) rising atop a ground-floor base that will host retail uses; the complex will open in August.

Across North Harvard Street, the demolition of Charlesview (a low-income housing project that Harvard acquired in a deal that relocated residents to new housing on Western Avenue) will be completed by May.

● 2016. Two projects outlined in the University's late-2013 Institutional Master Plan (IMP; a regulatory document describing 10-year plans for growth in Allston) will follow closely behind. As early as next year, pending necessary approvals and barring unexpected complications, Harvard could begin construction of a new 500,000- to 600,000-square-foot complex that will house two-thirds of the faculty of the School of Engineering and Applied Sciences (SEAS), relocated from Cambridge. This structure could rise rapidly on the already completed foundation of what was to have been a four-building



Opposite: the Continuum residential and retail project at Barry's Corner (see photo position A on map). Above: demolition of the Charlesview apartments. Left: Continuum as seen from the Stadium, looking across the Harvard track

resent first steps in the development of what is to be a 36-acre commercial “innovation district”—one of the largest in the booming Greater Boston area.

As solutions to formidable challenges on the site fall into place, it is becoming possible to “think big” sooner. Ever since the late 1990s, when University planners realized Allston could be much more than a place for overflow from the increasingly space-constrained Cambridge campus (see “South by North Harvard,” September-October 1999, page 67), they have also recognized the significant hurdles to be overcome in order to build on the properties acquired there in the preceding decade. (For a condensed history, see “Building—and Buying—a Campus,” September-October 2011, page 68.) Charlesview, on a key site in the middle of Harvard’s holdings, was one such obstacle. One of Harvard’s later acquisitions, an approximately 90-acre contaminated parcel owned by CSX, had remained

science complex on Western Avenue—before construction was halted in the aftermath of the financial crisis.

Meanwhile, a 300,000-square-foot “gateway” building, made possible by the clearing of the Charlesview site, will occupy an important location fronting on Barry’s Corner. The building will anchor the new academic precinct taking shape in Allston within the mixed-use environment en-

visioned for that intersection. Originally described as administrative offices, it now seems destined for academic uses that might synergize with HBS and SEAS.

● **On the horizon.** The groundwork for future growth is being laid as land is cleared for an “enterprise research campus” along Western Avenue. An initial, small element of the plan in the IMP is to build a hotel and conference center that will rep-

encumbered with the company's rights of way as it relocated its rail/truck container-transfer facilities to Worcester. This site is also bisected by a Massachusetts Turnpike interchange, which contributes to traffic congestion where the exit ramp meets local roads at the Charles River. Now, the state plans to rebuild the intersection, enhancing local transportation—and opportunities for development of the site and land beyond.

IN A late-January conversation with this magazine, executive vice president Katherine (Katie) N. Lapp and University provost Alan M. Garber outlined the progress being made in Allston.

Lapp's first order of business when she arrived in 2009, she recalled, was to fill the empty retail buildings Harvard had acquired. "We achieved that: 97 percent of all our rentable space is filled with active and vibrant uses," including swissbäkers, Stone Hearth Pizza, and CrossFit Boston, she reported. "We also opened a new ceramics studio, at 224 Western Avenue," that is actively used by faculty members,

students, and the neighborhood community. The Ed Portal, a project that offers performances, workshops, and classes for adults, as well as scholarships, a summer-jobs program, and mentoring by Harvard student volunteers for local children, will reopen in larger quarters in the same building at a rededication February 21, she said. (President Drew Faust and Boston mayor Martin J. Walsh will officiate.) At Barry's Corner, the University has added lights and benches to a grove of trees in front of the Charlesview site. And 114 Western Avenue, a conference building that will eventually be used by administrators at SEAS (whose new building will rise next door), is home to the new Launch Lab, occupied



JONATHAN SHAW

Atop this foundation, a 500,000- to 600,000-square-foot building for the School of Engineering and Applied Sciences will likely go up (see photo position B on map).

by alumni of the i-lab (University space for entrepreneurship—for more information, see harvardmag.com/hi-lab), who have moved on to the incubation phase, and are renting the space.

Alongside the eye-catching high-rise construction, the local infrastructure is

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Thomas Lentz to Leave Harvard Art Museums

Just weeks after a gala reopening, the museums' director announces plans to step down. harvardmag.com/lentz-15



Amy Poehler Honored as Woman of the Year

Harvard's Hasty Pudding Theatricals celebrate the actress and writer. harvardmag.com/poehler-15



Inside Harvard's Home for Books

A new documentary looks at the world of the Harvard Depository. harvardmag.com/depository-15

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"Beauty," Embodied

An undergraduate reflects on "Beauty," a lecture by Howard Gardner, Hobbs professor of cognition and education. The talk, his second in a series entitled "Truth, Beauty, and Goodness Reframed"—a name shared with the book he published in 2011—investigates how these basic human concepts have changed in today's media-driven culture. harvardmag.com/beauty-15

COUNTER CLOCKWISE FROM TOP: LEFT: STEPHANIE MITCHELL/HPAC; HARVARD MAGAZINE/UB; STEPHANIE MITCHELL/HPAC; ROSE LINCOLN/HPAC

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being improved. The Continuum residential and retail project is bounded by two new roads: Smith Field Drive and Grove Street. Once Charlesview is demolished, Harvard will build Academic Way, running between Western Avenue and North Harvard Street, said Lapp, to alleviate traffic at Barry's Corner and provide access to the planned gateway building. (It will also facilitate construction of the SEAS and gateway structures.) "Public-realm improvements"—new sidewalks, lighting, and landscaping—will be installed along Western Avenue.

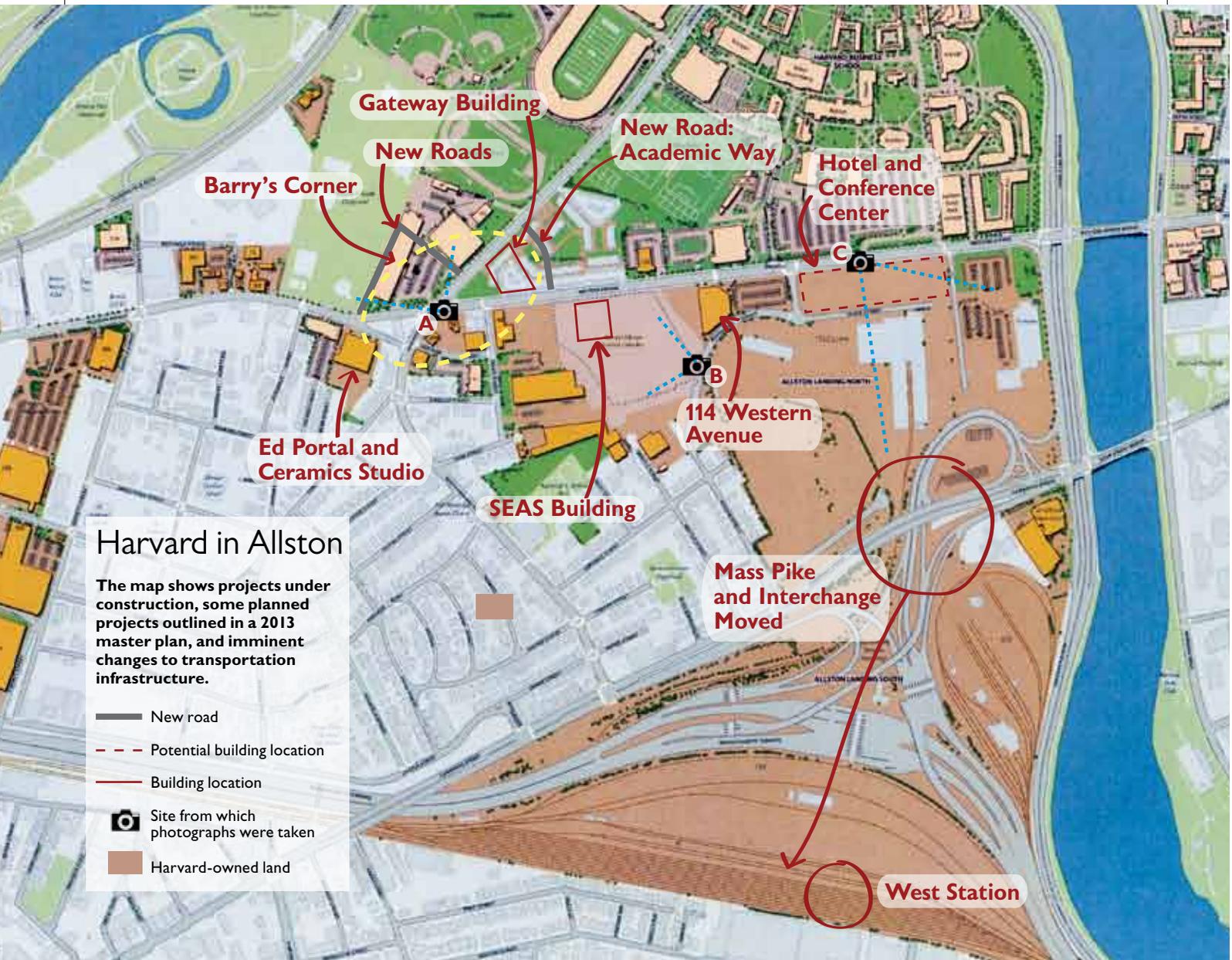
These steps set the stage for the main near-term events under the IMP. Con-

struction of the science building could begin in 2016, Lapp said, and be completed by 2019 under the current schedule.

Garber noted that the planning process for that building has led to extensive, productive discussions about the future of SEAS that have "implications for the entire University." SEAS faculty members,

working with architect Stefan Behnisch, have been thinking not only about lab and office configurations and "the kinds of services that they want to have," said Garber, "but also about how teaching spaces might accommodate their aspirations for pedagogy," whether in the classroom, the lab, or elsewhere. (For faculty perspectives on

Harvard will donate the land to move the highway; once the new roadway is operational, the state will "knock all this spaghetti of entrance and exit ramps down."



these design issues, see harvardmag.com/allston-15.) “We want to make sure the new building accommodates the needs” of current and future students, he continued.

Although the building will not house the entire SEAS faculty, Garber observed that the school will nevertheless be more integrated than it is now, with its faculty “spread out over approximately 17 different buildings. The groups going to Allston will have great space for collaboration.” (Computer science, biological engineering, and mechanical engineering will relocate; applied mathematics, applied physics, electrical engineering, and environmental science will remain in Cambridge.) He also confirmed that the foundation on which the building will rise could accommodate more construction. “Our discussions and our thinking are focused on this first building,” he said, “but we are constantly aware that we have great potential for additional construction.”

As for the gateway building, Garber confirmed that during the past year, “We reached a decision that [it] should be available for academic uses.” Which uses are still “a topic of intensive, ongoing conversations.” The committee “tasked with thinking about how best to take advantage of the opportunities” in Allston, he added, aims to engage “the entire University community” in answering that question. A component of a professional school is “not off the table”—and certainly several of them are severely space-constrained today. The units chosen will likely have intellectual and academic connections to many parts of Harvard, ideally including HBS and perhaps SEAS. Construction might follow a timetable nearly parallel to that of the SEAS building if the necessary approvals can be secured.

Lapp also addressed two other components of the 2013 master plan: a basketball arena that could accommodate larger audiences (nestled within a larger complex, including affiliate/graduate-student housing, and/or office space, with ground-floor retail uses, according to the IMP), and renovations to Harvard Stadium that would add heated luxury boxes, while reducing the total seating capacity. “The stadium is continuing to be looked at,” she said, “as is the basketball [arena], but this is a 10-year plan.”

TURNING TO the enterprise research campus, envisioned for a 36-acre parcel across



Vijay Iyer

Pianist and composer Vijay Iyer calls himself a “reluctant educator.” Whereas teachers set an example, he says, “to be an artist is to always be radically unfinished, to seek out transformation.” Iyer is Harvard’s first jazz artist-in-residence and tenured professor, a complex dual role: “What does it mean to be connected to a vernacular music that’s part of grassroots histories and movements, and then walk into the academy with tenure?” His own musical education unfolded in counterpoint to his official schooling. After starting classical violin at age three, he began to learn the piano by ear; while pursuing his Ph.D. at Berkeley, he sought the tutelage of jazz elders in Oakland. Fittingly, his new album is titled *Break Stuff*, evoking the liberated energy of playing between formal sets. Recent ventures range from an adaptation of Teju Cole’s novel *Open City* to a project with poet Mike Ladd about veterans of the War on Terror. Iyer wants to instill a collaborative spirit in his students, whom he describes as “brazen, a little crazy.” Sitting in the basement studio he calls his music department “bunker” at Harvard, he jokes, “You know, I’m constantly reminded of the fact that this place predates the rule of law in the United States.” The University’s immense resources and decentralized academic culture, he says, create “fiefdoms” that are “just straight-up gangster.” In his efforts to foster ties among aspiring artists, Iyer sees his hybrid role in Harvard’s music scene as more “community organizer” than “institutional entrepreneur.” As students return to his classroom, he believes, “We can start to build something here.” After all, “Instigators are what this place selects for.”

~SOPHIA NGUYEN

Yesterday's News

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

1920 The Faculty of Arts and Sciences accepts recommendations from the Committee on Admission that make it easier to admit well-qualified public high-school boys who might have been barred "by...merely technical defects of school and examination records."

1935 Signs of spring: "Parties unknown" remove the clapper of the Memorial Hall bell in broad daylight, using hacksaws and other tools.

1940 At the first Senior-Alumni Dinner, sponsored by the Alumni Association, Mayor Fiorello La Guardia of New York urges seniors to go into government and "be unorthodox." Said the guest of honor, "I didn't last five minutes in any party. Going into government doesn't mean going into politics. The country can't stand government by politicians. We need specialists."

1960 President Pusey appoints lecturer in government Daniel S. Cheever '39 his special research assistant to investigate the impact on Harvard of federal funding, which represented 1.5 per-

cent of the University's budget in 1941 but nearly 20 percent in 1959.

1975 In his fourth annual report, President Derek Bok implores the University's professional schools to train public leaders prepared for post-Watergate America. Bok writes, "In the wake of grave public scandals, followed by severe recession and unemployment...it is timely to consider what universities can contribute to improve the level of public service, and specifically what Harvard can do to prepare students for public careers."

1980 Plans are afoot for the men's varsity basketball team to travel to China in June for a five-game goodwill tour.

1990 Monty Python's John Cleese, in town to accept the Harvard Lampoon's Elmer Award "for lasting contribution to comedy," draws a full house in the Science Center. Asked to contrast British and American humor, he replies, "[T]he most obvious difference, of course, is the way they're spelled."

2000 As of January 1, 2001, Drew Faust will become "founding dean" of the new Radcliffe Institute.

Western Avenue from HBS and east of the SEAS site, Garber said that the "time is propitious" for such a commercial development. "Boston has an extraordinary concentration of intellectual capital and of research activity, particularly in the life sciences and technology," he pointed out. The city is also "an extremely attractive location for knowledge-intensive industries, and virtually every major pharmaceutical company has or seeks to have a research presence in the Boston area." Kendall Square, the epicenter for such tenants, near the MIT campus, totals 30 acres, he said. Elsewhere in Boston, "There are pockets of land where research-intensive businesses can be developed, but nothing quite like this [parcel] that I am aware of."

Because Harvard, Boston University, MIT, and Tufts are all near the site, he continued, "If you wanted to develop your plan for dealing with malnutrition in Africa, you have access to scientists and to students who will be passionate about solving worldwide problems. You'll have also access to a philanthropic community...committed to many of these causes. We believe that the enterprise research campus will be a very attractive location for large research-intensive companies, for commercial startups, and for social enterprises who want to tap into the wealth and talent that are available in our area."

Such activity will, in turn, "contribute to the academic environment, in part by enabling those members of our community who wish to interact with companies to do so," Garber said. What construction will appear on the enterprise campus (beyond the hotel and conference center detailed in the IMP) has not yet been decided, but Lapp indicated that the "goal is to create a 24/7-type community," implying a broad mix of uses.

That prospect is on the verge of critical enhancement as transportation improvements come into view. Gesturing to a map that shows how the Massachusetts Turnpike sprawls across and above the 90-acre Allston Landing property formerly used by CSX, Lapp explained that the state plans to straighten the road, beginning in 2017. Harvard will donate the land to move the highway and build a new interchange, she said, speeding the project and trimming its cost—and once the new roadway is operational, the

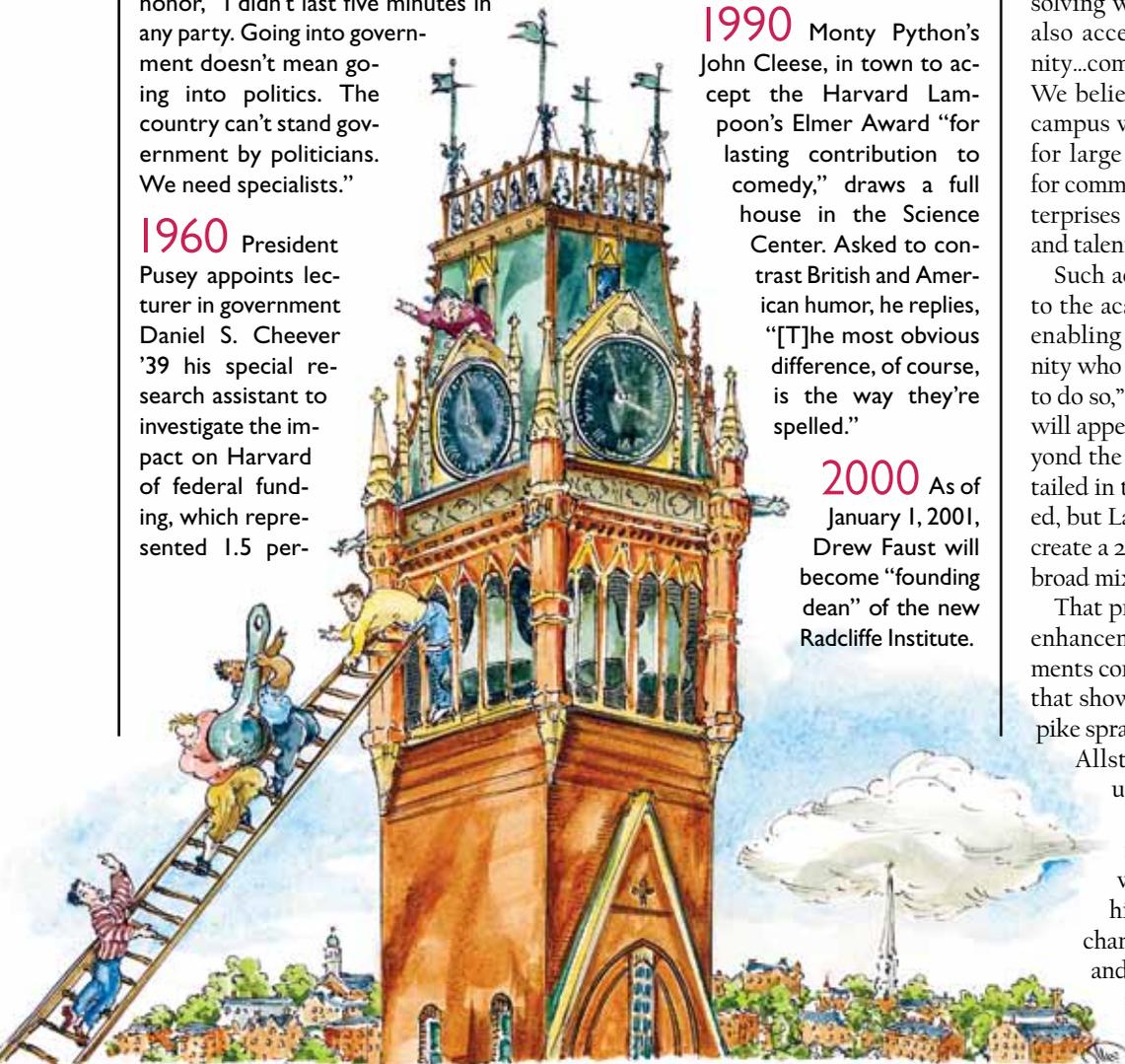


Illustration by Mark Steele

Brevia

Sexual-Assault Settlement

On December 30, the U.S. Department of Education's Office for Civil Rights (OCR) and Harvard Law School (HLS) entered into a resolution agreement, concluding the government's finding that the school's response to sexual harassment and sexual assault was in violation of Title IX of the Education Amendments of 1972. The government found that HLS's policies and procedures did not provide for prompt and equitable response to complaints, and did not appropriately respond: in one case, it took more than a year to reach a final determination and the school failed to allow the complainant to be involved in the extended appeals process. HLS has proposed revised policies and procedures, one result of which will

be compliance with the University's new sexual-assault procedures (see harvard-magazine.com/policy-15), subject to OCR-directed refinements. But HLS has established its own, separate, investigatory procedure for such cases. A University statement said the new HLS procedures "reflect the school's distinct pedagogical mission." OCR continues its investigation of Harvard College.

Dishonoring a Code

As Harvard College moves toward implementing an honor code this fall (as enacted in May 2014; see harvardmag.com/honor-15), Dartmouth, which has an honor code, has disclosed that 64 students cheated in—of all subjects—a "Sports, Ethics, and Religion" course last fall. After students were given clicker devices to respond to class questions, the professor noticed that more answers were being recorded than students appeared to be present; investigation revealed that some students skipped classes and gave their clickers to peers, who answered for them. Many will likely be suspended. In January, the school's



HER HONOR, HONORED. The Honorable Ruth Bader Ginsburg, L '59, LL.D. '11, associate justice of the U.S. Supreme Court, returns to campus to receive the Radcliffe Medal on Radcliffe Day, May 29. The ceremony will be preceded by a panel on the Roberts Supreme Court, moderated by the Honorable Margaret H. Marshall, Ed.M. '69, former chief justice of the Massachusetts Supreme Judicial Court. Ginsburg's former colleague, retired associate justice David H. Souter '61, LL.B. '66, LL.D. '10, will speak at the Radcliffe Day event; then, Kathleen M. Sullivan, J.D. '81 (a former Harvard and Stanford law professor, and Stanford law dean) will engage Ginsburg in a conversation about her career.

president, Philip J. Hanlon, unveiled Moving Dartmouth Forward, a plan that bans hard alcohol at public functions; institutes four-year sexual-assault education for students; eliminates pledging associated with Greek life; and moves toward a residential-house system for all students. Harvard Corporation member Lawrence S. Bacow, former president of Tufts, will chair an external panel reviewing implementation.

Sustainable Developments

Trumping the undisclosed but eight-figure gift by Chinese real-estate firm Evergrande Group, to found Harvard's Center for Green Buildings and Cities (see harvardmag.com/green-15), MIT in early January announced a \$118-million gift from its alumnus Samuel Tak Lee, of the Hong Kong-based Prudential Enterprise, an international developer. The funds will support a real-estate entrepreneurship laboratory; fellowships; research on sustainable real-estate development, construction materials, land-use regulations, and urbanization; a professorship; and other initiatives. Separately, Yale College and graduate students took a course in its School of Forestry and

Environmental Studies focused on evaluating and strengthening that university's sustainability plan. Harvard's own plan was unveiled last October; see harvardmag.com/sustainability-14. Meanwhile the University of Maine's investment committee has approved a plan to cease direct investments in coal companies, echoing a divestment step taken earlier by Stanford.

Crimson on Capitol Hill Update

On December 17, Martha McSally, M.P.P. '90, Republican of Arizona, a retired U.S. Air Force colonel, was declared the victor in her House race by 167 votes. Her election increases to five the number of Harvard alumnae who will be serving in the House of Representatives.



Martha McSally

UNITED STATES CONGRESS

HUB Hoopla

Harvard, Massachusetts General Hospital, and MIT will join *The Boston Globe* in a self-described "weeklong series of

world-class events [bringing] together leading thinkers and doers from diverse backgrounds to develop new solutions to global and local issues.” HUBweek (hubweek.org), scheduled for October 3-10, is envisioned as a mash-up of Aspen, Davos, South by Southwest, TED talks, and more, including “displays of emerging technologies and hackathon-type forums focused on solving major problems,” cultural performances, “interactive art experiences,” and exhibitions aimed at “the people who power the innovation and creative economies throughout our region and across the world.”

Nota Bene

MEDICAL MATH. In light of the rising importance of analytics in medical and clinical research, Harvard Medical School has created a Department of Biomedical Informatics. Henderson professor of pediatrics Isaac Kohane—co-director of the current Center for Biomedical Informatics and director of the Countway Library of Medicine (see “Gutenberg 2.0,” May-June 2010, page 36)—will be the department’s inaugural chair.

A LEG UP. As applications for early-action admission to the class of 2019 soared (5,919 during the fall 2014 season, compared to 4,692 in 2013), the College admitted 977 students (see harvardmag.com/admissions-15). Stanford admitted 743 of a record 7,297 early applicants: an extraordinary low 10.2 percent. Yale took 753 early applicants from a pool of 4,693. Including the early applicants, the Col-

lege reported receiving a record 37,305 applications, surpassing the prior peak of 35,023, recorded two years ago.

ETHICS LEADER. Political theorist Danielle S. Allen, Ph.D. ’01, has been appointed professor of government and faculty director of the Edmund J. Safra Center for Ethics (in the latter capacity, succeeding Furman professor of law Lawrence Lessig). Allen, a 2002 MacArthur Fellow who studies the history of political thought and Greek and Roman political history, has been UPS Foundation professor at the Institute for Advanced Study; she also chairs the Pulitzer Prize board.

ENTREPRENEUR EXIT. Gordon Jones, inaugural managing director of the Harvard Innovation Lab, will become founding dean of the College of Innovation and Design at Boise State University on June 1.

HONOR ROLL. Franke professor of German art and culture Jeffrey F. Hamburger has received a Maier Research Award for research in the humanities and social sciences. The €250,000 grant will fund a five-year collaboration with scholars in Germany. He will work on medieval art history and train students to work with the era’s primary sources....Clowes professor of science Robert P. Kirshner will share the \$100,000 Wolf Prize in Physics for 2015 with James Bjorken, of Stanford; the award recognizes fundamental work on supernovae and the accelerating expansion of the universe....Peabody professor of music Alexander Rehding has been awarded the Royal Music Association’s Dent Medal for



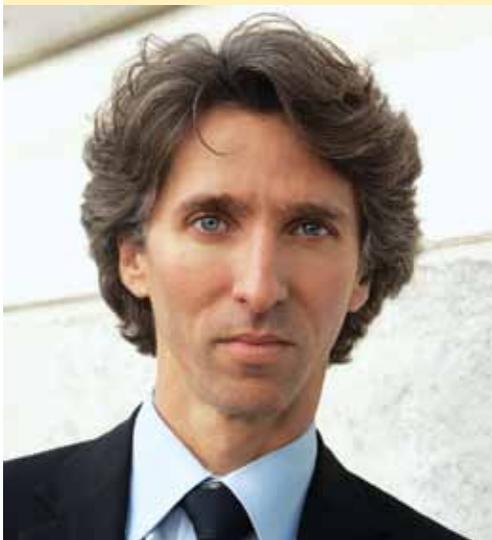
Jeffrey F. Hamburger

scholarship making an outstanding contribution to musicology.

MEDIA MOVE. Alex Jones will step down as director of the Harvard Kennedy School’s Shorenstein Center on Media, Politics, and Public Policy at the end of the academic year; his 15 years’ service coincided with upheaval in the news media wrought by online distribution. (As Jones noted in his announcement, he came to what was the Shorenstein Center on the Press). He also served as a director of Harvard Magazine Inc.

COLBY CALLS. Tim Wheaton, who came to Harvard as an assistant women’s soccer and men’s lacrosse coach in 1985, and then coached women’s soccer from 1987 through 2004, has been appointed director of athletics at Colby College, which has 32 varsity teams. Wheaton was most recently an associate director of athletics at Harvard, overseeing alumni relations, capital planning (the hockey rink has been expanded and renovated, and plans are under way to renovate the Stadium and build a new basketball arena), and supervision of varsity sports.

MISCELLANY. Harvard has gathered its Web-based learning resources at a single “gateway,” spanning free classes, paid executive-education offerings, and more: <http://online-learning.harvard.edu>....The Faculty of Arts and Sciences’ registrar’s office is moving from 20 Garden Street, across Cambridge Common from the heart of the campus, to renovated space in the Smith Campus Center (formerly Holyoke Center), on Harvard Square....A \$5-million Walton Family Foundation gift to Harvard Graduate School of Education will underwrite fellowships in the doctor of education leadership (Ed.L.D.) degree program launched in 2010 (see “Training Leaders to Transform Education,” November-December 2009, page 56)....The *Crimson* has reported that renovation of Cabot Library and the adjacent Science Center atrium (likely involving a reduction in book space, and creation of collaboration space and tools for data visualization and electronic media) is on schedule for construction in the next academic year.



COURTESY OF DAMIEN WOETZEL

FIRST ARTIST. Recognizing the essential role of the arts manager, Harvard will confer its 2015 Arts Medal on Damien Woetzel, M.P.A. ’07, on April 30, at the beginning of the annual Arts First celebration. Woetzel, a principal dancer with the New York City Ballet from 1989 to 2008, is director of the Aspen Institute Arts Program and artistic director of the Vail International Dance Festival.



An enterprise research campus (see photo position C on map) is planned for a 36-acre parcel formerly occupied by CSX. In the panoramic view above, Harvard Business School is on the left, Genzyme and the DoubleTree hotel are in the center (see inset detail directly above), and the former WGBH building is on the right. Left: CSX is remediating soil at the site, a multiyear process.

“We are constantly aware that we are thinking about the University of the future. We need to think decades into the future, not years.”

state will “knock all this spaghetti of entrance and exit ramps down.”

The new local road network, at grade level, effectively makes available an entirely new parcel of property: 40 to 50 additional developable acres, Lapp explained. The Boston Society of Architects, recognizing the opportunity, arranged pro bono charettes by two teams of local architects, who worked to devise ideal but practical schemes for pedestrian and bike access, parkland, and public transportation. These were presented at a neighborhood meeting in Allston last September, and were greeted with enthusiasm.

Harvard has also given the state sufficient land for tracks to facilitate more trips on the commuter rail line that serves communities directly west of Boston. “In exchange,” Lapp said, officials “have agreed

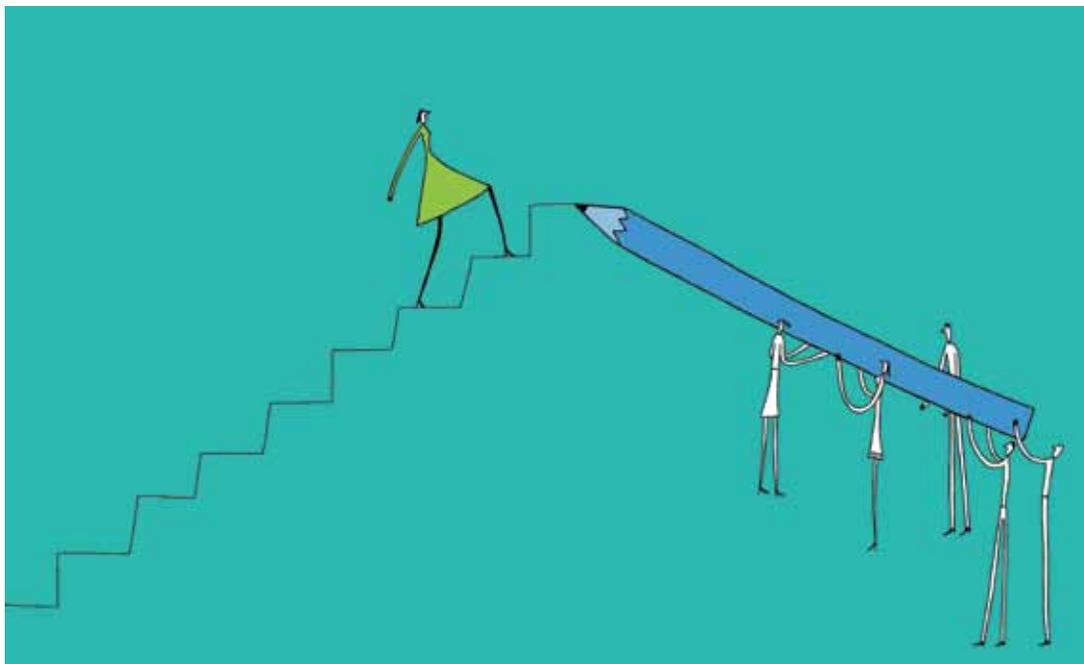
to put in a commuter rail station” (with the University reportedly paying one-third of the cost). That raises the possibility of rail connections between Allston and other parts of Boston—a huge potential benefit in a neighborhood not served by the subway system, and a further opportunity to diversify the enterprise zone.

Construction of the enterprise campus might begin in three to five years, but Garber acknowledged, “There are many potential sources of delays in a planning process of this scope and magnitude. They are not all predictable. Some can come from getting appropriate approvals from government agencies, some can come from surprises that you find out about the land or engineering challenges—the list goes on and on. Allston represents a tremendous opportunity for

the academic future of the University. But...as we plan for new academic sites in Allston, new buildings, new forms of academic space, there are many interdependencies that we need to take into account. If you free up space in Cambridge, what is the best use? And in fact, you don’t start by thinking about filling space in Allston, you start by thinking about what are our needs in the University, what challenge to our growth can we overcome by taking advantage of the opportunity to build space in Allston. So that is an inherently complex question to answer. And it is critically important for us to get it right, because we are constantly aware that we are thinking about the University of the future. We need to think decades into the future, not years.”

Those are indeed appropriate caveats. Even so, Harvard’s future in Allston, and Allston’s future with Harvard, seem considerably clearer than they were a few years ago.

—JONATHAN SHAW



THE UNDERGRADUATE

To Give and Take Care

by MELANIE WANG '15

THE THING ABOUT COLLEGE that brochures can't mention is that there are the good days and bad days, and you've got to figure out what to do about them both. You've got to find a place to go when you're in crisis, and a person to celebrate with when the storm clears, because both crises and celebrations are guaranteed. To build yourself a support network is a survival skill, and for many of us, undergraduate life is the first testing ground.

Brochures can't explain what it is to be uprooted and chucked into a sea of fellow transplants, everybody grasping. You can't know until you're there—at the wheel inside a parking garage with 1,599 other vehicles, each driver profoundly excited, confused, and desperate for a place to park. I call this the Annenberg Effect. It is the dizzying prospect that any given stranger sitting at any given table in that massive dining hall could be your...well, whatever it is you're here to look for.

There is plenty of fear there, but the be-

lief can also make optimists of the best of us. You emerge from the server, confronting a parade of social options that mirrors the cafeteria offerings. You'll sit down with anyone. You're open to chance. This is, I'd argue, the spirit of freshman year. Everything is possible, anything is probable. It's a lot of pressure, especially for those of us with poor small-talk skills.

I, for example, used to have a bad habit of commenting on other people's mealtime choices. A brief inventory of what I've noticed: Athletes can be identified based on the number of hardboiled eggs they eat at breakfast. There are three types of cereal consumers—those who go dry, those who add milk, and those who add yogurt. (You may also categorize based on *when* they consume cereal.) Sriracha can accompany almost anything, and the same goes for ketchup.

That said, eating habits can reveal more than spice tolerance. I know someone who gets by fine with one meal a day. I know someone who eats in one very specific

fashion when she's doing well, and in an entirely different one when she's not. I know someone who doesn't eat much, but if you know how, you can prod her, and that helps. If you're in the right company, the food on your tray may show your hand.

As for me, when the going gets rough, I won't be found at lunch, dinner, or breakfast. My undergraduate years have been shaped by my struggle with anxiety and depressive behavior. On the worst days, and I've had plenty of those, it is impossible even to consider entering the dining hall. To do that, I might have to say hello to someone, or insist things are going well when that's a blatant lie. It can be paralyzing to ask for help, though it's deeply needed. It can

also be paralyzing to consider that someone might be paying close enough attention to offer it. Where I've grown most in the past four years is in my willingness to confront that paralysis, to see and take and thank that outreaching hand.

LAST NOVEMBER, University Health Services announced that the centrally located Stillman Infirmary would be closing its doors. Even though UHS director Paul J. Barreira insisted the decision was based on Stillman's underutilization, undergraduates cried foul. Stillman offers 24-hour urgent care. The idea that someone faced with a critical situation might have to trek to Mount Auburn Hospital at three in the morning stirred heated debate.

Student reactions ultimately prompted open town-hall meetings with Barreira, and the organization of a student working group focused on the issue. (At press time, the discussion continued.) I'm willing to speak for my peers when I say the possibility of losing Stillman shook us up because we all know what the bad days can be like, and where stress and isolation and fear can lead you. I think we want to know that, in that moment, there will be one more nearby place we can go.

To care for others takes both practice and persistence. To care for yourself can take even more. I like that I know other people's eating habits, weird as that may be, because it's a body of knowledge I've

worked for. All the observations I've filed away have been made in service of a kind of learning. They are stitches in the networks of support and friendship we have built out of sheer necessity. They are, for me, a way of explaining the intimacy that emerges from trying to like and love and care for people who once were strangers.

I have seven blockmates. We live together in eight interconnected rooms, with a spare ninth that is a mess of futons and pillows and rugs. One night, during reading period last fall, we ignored our deadlines, stayed up late, and refused to sleep. We sat in our pajamas, on the linoleum floor in the tiny hallway linking our bedrooms, backs to one wall and feet up against the other.

I think it started with two people talking, and then another joined. Then four,

then five, and in the end we all got stuck. We piled up against each other to confess and rant and explain, and I, emerging from a haze of stress and frustration, felt overtaken by gratitude for the spontaneous moment of solidarity. I am proud of what we've given each other, what we've learned, and what we've built.

I am now a second-semester senior, and graduation talk bores me. More accurately, it's the questions that bore me: what I'll do after, how I'll feel about it. The answers wouldn't be boring, but I don't have them. What I do have is the confidence that practice provides. Everything is possible, anything is probable. We've been here before. ▢

*Berta Greenwald Ledecy Undergraduate Fellow
Melanie Wang '15 is hard at work on her thesis, and is thankful to her many partners in procrastination.*

SPORTS

Championship Complications

Men's basketball is challenged to sustain success.

ON A SUNDAY MORNING in late January 2009, the Harvard men's basketball team gathered at Lavietes Pavilion, anxious about what awaited them. After toppling Boston College earlier that month—the program's first victory over a ranked opponent—the Crimson had lost the previous evening in overtime to a frail Dartmouth squad that had arrived in Cambridge with a 2-13 record. "We're better than we played tonight," lamented head coach Tommy Amaker, who added a warning for his players: "It will inspire us to have a good week in practice."

Sure enough, in what one former team affiliate later characterized as the "toughest practice" of the year, the coach had his players—who had given up myriad easy baskets against Dartmouth—run extensively so they'd remember, the man recalled, the

kind of painful feeling they should have after giving up uncontested layups.

But Amaker complemented this punishment with what the onlooker called "his best motivational speech of the season." He reiterated his vision of growing Harvard's program, which had never won an Ivy League title; he also told his team that he had gone so far as to price out its first conference championship banner.

Since finishing that season 14-14, the Harvard men have reeled off five straight 20-win seasons and earned their first four championship banners.

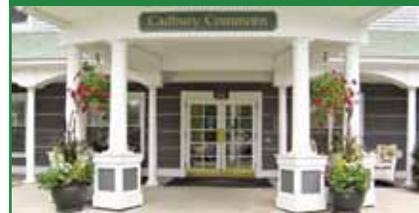
This year, however, the coach and his players are discovering that the fifth banner will be the most difficult. After beginning the season in the Associated Press Top 25, the first time an Ivy League squad had received such recognition since 1974,

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Head coach Tommy Amaker says that to win Harvard's fifth straight conference title, his players must "rely on each other."

Harvard suffered several disappointing losses in non-conference play and an early Ivy setback against Dartmouth. Thus, as Ivy play began, Amaker and his squad faced the challenges of finding, quickly, the synergy lacking during much of their pre-Ivy schedule—and of contending with a league that has more competitive, confident players than any Amaker-led Crimson squad has encountered.

High Expectations—and Deflation

TALK OF THE 2014-2015 campaign began before last season had concluded, and at first it had a contentious tinge. In a press conference at the onset of the 2014 NCAA tournament, Amaker addressed questions not about Cincinnati, Harvard's first-round opponent, but rumors that he was leaving to become Boston College's coach. "I'll only comment on the job that I have," he said, "and I'm very proud to have the one representing Harvard."

Yet after the Crimson nearly knocked off Michigan State in the Round of 32 and Amaker then announced in late March that he was staying in Cambridge (a reworked contract reportedly sweetened the deal), discussion of the 2014-2015 campaign became positively ebullient. Despite the graduation of stars Kyle Casey '13 (14),

Brandyn Curry '13 ('14), and Laurent Rivard '14, analysts raved about the returning core of Wesley Saunders '15, the reigning Ivy League Player of the Year; point guard Siyani Chambers '16, whom ESPN ranked the thirty-fourth best player in the nation in November; and a front court that boasted all-Ivy forward Steve Moundou-Missi '15 and Kenyatta Smith '15, a six-foot-eight center who had anchored the Crimson in the post during the second half of the 2012-2013 season, including its victory over New Mexico during the NCAA tournament.

It was therefore unsurprising that Harvard was a unanimous pick to win the Ivy League in the pre-season media poll. Shortly after the Associated Press anointment, Mike James '06, *The Crimson's* former basketball beat writer, encapsulated popular sentiment by posting on his popular Twitter feed, @Ivybball: "Take a bow, Mr. Amaker."

It took but two games for the plaudits to dissipate. Following a season-opening victory over MIT, a Division III opponent, the Crimson lost to Holy Cross 58-57, causing the squad to plummet from the national rankings and raising multiple

concerns about its prospects.

One was turnovers. Harvard had 24 giveaways against the Crusaders; Chambers, whom Amaker has repeatedly labeled Harvard's "most important player," had nine.

Making matters worse, the offense depended too heavily on Saunders. The senior guard accounted for 24 of Harvard's 57 points, and Amaker's offense, which prizes frequent passing and extensive movement off the ball, often stagnated when Saunders operated in isolation. Still, the team had a chance to win when Saunders held the ball with the clock winding down and Harvard behind by one. When his shot rimmed out, the Crimson learned the hard way that, talented as Saunders is, he cannot carry them.

Apart from plays and schemes, the biggest problem was that neither Saunders nor his teammates exhibited enough energy and passion. "I think that they [Holy Cross] came out with a level of intensity that was higher than ours and we never matched it," Saunders said after the game.

Regroup and Respond...

FOLLOWING THE LOSS to Holy Cross, the basketball program tweeted a message, previewing its matchup with Florida Atlantic, accompanied by the hashtag "#RegroupandRespond." The Crimson did exactly that, exacting revenge on the Owls (a squad that had snake-bitten them the previous year in Boca Raton) with a 22-point blowout win at La Vietes Pavilion. The victory ignited a six-game

winning streak during which Harvard dispatched five of its opponents by 12 or more points.

The most impressive game in this stretch was a 75-73 victory over the University of Massachusetts—the "best team" Harvard had faced, according to Amaker. Played

the Saturday after Thanksgiving, the game attracted a decidedly pro-UMass crowd to Harvard's gym. Despite enduring UMass chants throughout the game, the Crimson secured a come-from-behind victory: Saunders hit a game-winning shot with just under a minute left, the "perfect ending," he said, to a game like that.

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The team's performance during the streak suggested that Harvard had corrected many of its miscues from the Holy Cross debacle. The Crimson averaged fewer than 11 turnovers per game; Chambers had only 15—less than three per game. Shooting guard Corbin Miller '15 (17), who had missed the last two seasons on a Mormon mission, lessened the offensive burden on Saunders by hitting three or more three-pointers on three occasions. Most impressively, Harvard pulled out a double-overtime victory against Vermont in Burlington, leading Amaker to laud his players for their “concentration,” “composure,” and “confidence.”

The Crimson again looked formidable.

...Only to Revert

THEN THE WHEELS CAME OFF. In late December, after a two-week hiatus for exams, the squad traveled to Charlottesville to face the University of Virginia, then the country's fifth-ranked team. The Cavaliers embarrassed the Crimson: Harvard trailed 39-8 and sank just one basket before halftime, Chambers and Saunders did not hit a single field goal the entire game, and the 49-point margin of defeat was the worst since Amaker's first game at Harvard (when the Crimson fell to Stanford by 55 points). Afterward, the coach said, “You never expect your team to come out like that.”

The squad's struggles continued after Christmas when it crossed the country to face another prominent opponent, Arizona State. The Crimson trailed by only four points at halftime, largely because Saunders had tallied 13 points on an array of jumpers, driving layups, and a step-back three. Unfortunately, he scored just two points the rest of the way, and the Crimson lost 56-46, absorbing a reminder of the dangers of relying so heavily on one player.

Harvard closed out its western trip, and 2014, with a 72-59 win over Grand Canyon University, but the listless effort against Virginia and the setback against Arizona State meant that the matchup with the Antelopes, who are in their second year in Division I athletics, was what Saunders called a “must win.”

The victory was cause for relief, not celebration, and as 2015 began, the Crimson continued to perform inconsistently. On a positive note, they thrashed Saint Rose, a Division II opponent, by 46 points; earned an 11-point conference victory against Dartmouth in Hanover; and narrowly escaped



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Wesley Saunders '15, in action against Arizona State, is Harvard's leading scorer and best playmaker.

Bryant with a nine-point win. But they suffered an overtime loss to Boston College, their first setback against the Eagles in seven tries, primarily because they dug themselves a 25-10 hole less than 12 minutes into the contest. As Amaker said afterward, "I thought we deserved the second half, and I thought they deserved the game."

But the game encapsulating the 2014-2015 season to date was Dartmouth's visit to Cambridge on January 24. After a back-and-forth first half, Harvard began the second half on a 15-4 run to take a 43-29 lead. It appeared the Crimson was on its way to dominating the Big Green, as in their previous 11 meetings. That's what made the next 10 minutes of play so shocking: Dartmouth reeled off 26 of the next 28 points to take a double-digit lead—and won, 70-61, when point guard Alex Mitola made 10 consecutive free throws down the stretch.

The loss was significant not just because it dropped Harvard to 1-1 in league play, but because it suggested that the team had not, in fact, rectified the weaknesses revealed in the Holy Cross game. The team had 18 turnovers, six by Saunders. That he co-led the team in scoring with 13 points despite his many miscues underscored the

squad's dangerous dependence on him. Most alarmingly, his post-game lamentation about the team's lack of fight echoed his comments after the early-season loss to Holy Cross: "They definitely wanted to win way more than us."

Bouncing Back

BUT THEN the Crimson responded emphatically on the road the following weekend, defeating Princeton 75-72 on Friday and throttling Pennsylvania 63-38 on Saturday. Against the Tigers, five Harvard players scored 10 or more points, and Saunders, who had 14 points and eight assists, scored *and* distributed. In Philadelphia, the team won with defense: in the first half, the Crimson held the Quakers to just six field goals in 20 attempts (a meager 30 percent rate), en route to a 36-15 lead. Had Amaker not begun emptying his bench with roughly 10 minutes left in the contest, based on what was then a 30-point advantage, Harvard's margin of victory could have ballooned further. Together the victories suggested that the Crimson had sharpened their focus. The question, as had been the case all year, remained whether they could sustain it.

Although it's tempting to malign the Crimson for inconsistency, it is not entirely justified. No matter how much talent was returning, it was excessively optimistic for the media to herald (and rank in the Top 25) a program that had graduated three players who together scored more than 3,400 career points. As Matt Brown '14 ('15), the lone remaining player from Harvard's first Ivy League championship squad, recently observed, "Last year all those guys graduating was like a generation leaving, so this is a new time for Harvard basketball."

What's more, the pushback by other Ivy teams indicates that the conference as a whole is improving. Entering the second weekend of back-to-back conference games, four teams had

According to Tommy Amaker, Siyani Chambers '16, shown here against Houston, is Harvard's "most important" player.

records of .500 or better. The biggest threat to the Crimson is Yale, a squad that defeated Harvard last year in Cambridge, reached the final of last year's CollegeInsider.com Postseason Tournament, and upended defending national champion UConn earlier this year. As Dartmouth coach Paul Cormier has observed, the increased Ivy parity means "Everybody [has] to come ready to play every night, because if you don't, you're going to get whooped."

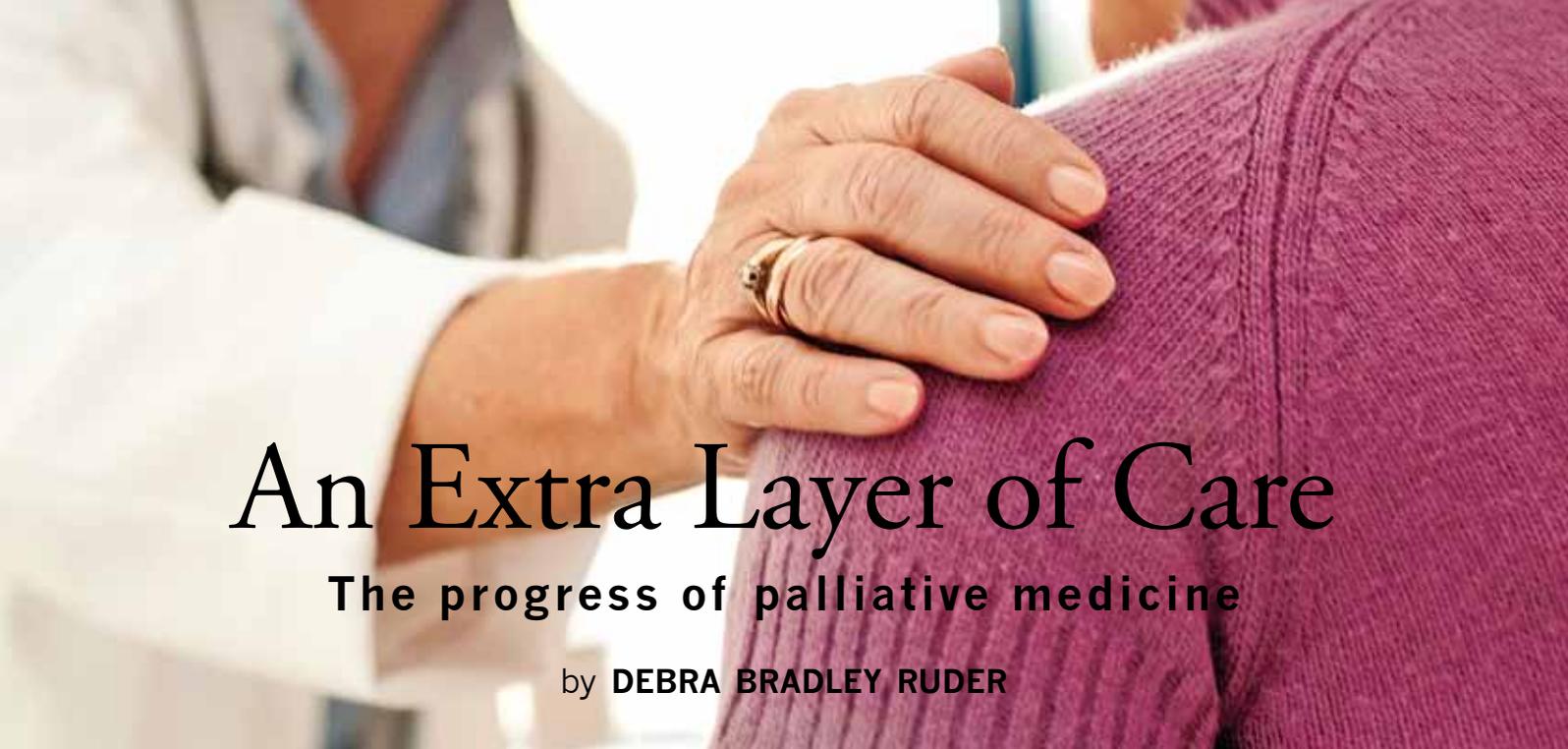
Given a Crimson squad afflicted by so much turnover, so many turnovers, and sharper opposition, what will a fifth championship banner require? According to Amaker, this squad must turn inward and, in particular, "rely on each other" in a way that past Harvard squads did not. Those teams thrived in part through excellent synergy and had more than one player—such as Keith Wright '12, Kyle Casey, and Laurent Rivard—who could impose his will on a game. On this year's squad, only Saunders can do that consistently; and as the losses to Holy Cross and Arizona State showed, depending on him is not a championship-caliber strategy.

Thus, if the team wins the conference, it will not be because of Saunders or Chambers or even Amaker, but instead because of the collective ability of the 18 players and their coaches to bind together offensively, defensively, and emotionally.

Simply put, the price of a fifth banner is teamwork. ~DAVID L. TANNENWALD

David L. Tannenwald '08 is a Cambridge-based writer focused on the intersection of sports and society.





An Extra Layer of Care

The progress of palliative medicine

by **DEBRA BRADLEY RUDER**

ERIC BUCK'S LIFE turned upside down in the spring of 2014, after doctors diagnosed the lump in his right buttock as a fast-growing sarcoma. Five weeks of chemotherapy and radiation preceded surgery that left a 15-inch incision and significant muscle loss. Though his tumor was gone, Buck experienced nerve pain, insomnia, anxiety, and spiritual distress. He remembers hitting a low point in the fall, "a period of time when life just was rotten." The 48-year-old Somerville, Massachusetts, resident was back teaching philosophy at several local colleges, and recalls, "I was coming home almost cross-eyed with

exhaustion, not being able to get any good sleep at night, and I was crying at the drop of a hat. I needed somebody who could take my pain and suffering in hand and make that the focus of my treatment."

That somebody was physician Vicki Jackson, assistant professor of medicine and chief of palliative care at Massachusetts General Hospital (MGH). Buck had started working with Jackson before surgery, on the advice of his oncologist, and continued for several months until he felt better. Jackson tried various combinations of medications to ease his symptoms and adjusted them when Buck—who is sensitive to the effects of drugs—had nightmares, jitters, or other bad reactions. She referred him to specialists to address his emotional and spiritual struggles, like his fear about the cancer coming back. The two communicated by phone, e-mail, and in person.

Throughout his ordeal, Buck had a strong network of family and friends, including his wife, Betti. "But Vicki, she's the real knowledgeable friend," he says. "She becomes an advocate and tells you things like, 'You don't need to suffer. We can moderate your pain.'

I'm still grateful for Vicki's help, and for what the whole world of palliative care does."

"Palliative" means "soothing" or "relieving," and palliative-care teams—which may include specially trained physicians, nurses, social workers, chaplains, and others—provide an added layer of support for people facing serious health problems and for their families. Working with the primary medical providers, the teams' goal is to improve patients' quality of life and well-being. As a palliative-care clinician, "My job is to try to help people with serious illness live as well as they can, for as long as they can," says Jackson, who also teaches and conducts research on palliative medicine, a relatively new specialty (see "From Specialty to Shortage," page 36).

Palliative care is often confused with hospice. That's understandable, because it's an important component of hospice care. But while hospice offers comfort during the last months of life, palliative care can be given at any point in a serious illness—and alongside curative treatment. It is appropriate for any age or diagnosis, from cancer to dementia to heart, kidney, or liver



Pediatric palliative-care specialist Joanne Wolfe hangs pictures of patients in her office. (Below) Tim Stevens, a longtime patient, fishes with his stepfather.

end-of-life care nationally. In a report released in September, the institute said everyone should have access to high-quality, affordable palliative and hospice care when and where they need it.

Palliative care can be delivered in hospitals, homes, clinics, and nursing facilities, and health insurance typically covers some services. It usually requires a referral, so patients who want to try palliation should discuss it with their primary doctor, advises professor of medicine Janet Abraham, a palliative-medicine physician with Dana-Farber/Brigham and Women's Cancer Center. "Patients shouldn't worry that asking

for palliative care will mean to the physician that they're 'giving up,'" says Abraham, author of *A Physician's Guide to Pain and Symptom Management in Cancer Patients*. "Palliative care is an extra layer of care, in addition to what they're getting from their primary team."

A BEGINNING

IT'S A SNOWY December evening, and 22-year-old Tim Stevens is lying comfortably in bed, smiling broadly and turning his head toward his mom's voice. "Hey, bud. That was a good dinner, huh?" Ellen Waddill says after giving him a meal of canned formula and various medications through a feeding tube. Stevens has cerebral palsy from a lack of oxygen during birth. He doesn't speak and has limited movement and vision, but he expresses himself with his bright eyes, smile, and occasional vocal sounds.

"He's such a great kid. His personality shines through even though he doesn't talk," Waddill remarks as she strokes his hands, which are folded up against his chest from tight muscles. Stevens's neurological disorder hasn't kept him from typical 20-something activities, like hanging out with friends, listening to the radio, and rooting for sports teams. With assistance from his stepfather, he even goes fishing. The family moved his bed and medical equipment—machines, monitors, wheelchair, and the like—to the dining room a few years ago so Stevens could be at the heart of their home in Tewksbury, Massachusetts. "He has touched so many people's lives," his mother says. "He's the light of my life. He's amazing."

Stevens is healthy on this winter night, but Waddill remembers when he was 16 and in and out of Boston Children's Hospital for various respiratory infections. "He had a really bad year," she recalls. One of his doctors suggested bringing in pediatric palliative care to address the family's worries and plan for Stevens's future. Waddill hesitated for months but finally agreed. "I didn't really



COURTESY OF ELLEN WADDILL

disease. Interdisciplinary by nature, palliative-care teams focus on managing symptoms and stresses and helping patients and families make informed decisions that reflect what's most important to them. At Beth Israel Deaconess Medical Center (BIDMC) in Boston, palliative care also includes a staff harpist who plays relaxing and therapeutic music around the hospital, and a cluster of volunteers who spend time at the bedside of sick patients who don't have visitors. "Most people who are seriously ill are afraid of being alone," says Annie Banks, senior social worker with the BIDMC palliative-care service. In palliative care, the emphasis is on the person's needs, not the disease.

Abundant evidence suggests that palliative care enhances quality of life, reduces healthcare costs, and even helps people live longer. Recognizing these benefits, the Institute of Medicine has called for sweeping changes to strengthen both palliative and

know what it was about,” she recalls. “I thought it might have meant we’re giving up, this is the end. But really it was the beginning. It was the beginning of some great conversations and a great relationship with the PACT team.”

The Pediatric Advanced Care Team (PACT), a joint program of Children’s and Dana-Farber Cancer Institute, began that relationship with a home visit by team founder and director Joanne Wolfe, associate professor of pediatrics, and other colleagues. PACT clinicians—including doctors, nurses, and social workers—help promote healing, comfort, and quality of life for children with life-threatening health problems. Pediatric palliative care resembles its adult counterpart but places special emphasis on the family and community, “because there’s a ripple effect whenever there’s a child with a serious illness,” says Wolfe, who leads pediatric palliative care services at both institutions.

Wolfe became interested in palliative medicine during her training in pediatric hematology and oncology at Harvard, when she began to study the experiences of bereaved parents whose children had died from cancer. She discovered that many children had suffered substantially, and she knew it didn’t have to be that way. Wolfe and a handful of Dana-Farber clinicians then spent a year consulting with national leaders in palliative and end-of-life care, and PACT emerged in 1997 as one of the country’s first pediatric palliative-care programs. The field was so new that when PACT members walked onto a floor at Children’s, some suspicious staffers dubbed them the “grim reapers.”

Now a model for similar efforts, PACT cares for about 750 patients annually, ranging from babies with heart disease, neurological conditions, or cancer to adult survivors of childhood illnesses such as cystic fibrosis. Many of its patients live for a relatively long time, but the team also provides bereavement support for families who’ve lost a child. One of its key roles is to advocate with other clinicians when a family wishes to try—or to avoid—certain drugs or procedures. Says Wolfe, “We help the family push the envelope of what’s most important to them.”

Keeping her son at home is a priority for Waddill, who works at a center that serves children with special needs. During the past six years, PACT has been especially valuable in helping Waddill and Tim’s father, Lee Stevens, agree on what to do if the

Bill Jenkins (above), enjoying the beach with his grandchildren last June, joined a clinical study exploring the value of early palliative care after his cancer diagnosis in 2011. Palliative-care physician Vicki Jackson treated Eric Buck during and after his cancer therapy and considers him a “graduate” as a survivor on the path to healing and strength.

young man’s health deteriorates. “We’ve talked about what we would want for Tim. We never want him to suffer,” Waddill says. Knowing the family has a plan in place for the future “gives me a peace of mind and really helps me concentrate on Tim.”

HELPING PATIENTS COPE

LIKE MANY AMERICANS, Bill and Judy Jenkins of Canton, Massachusetts, had associated palliative care with the end of life. But shortly after Bill was diagnosed with pancreatic cancer in the fall of 2011, he was invited to join a clinical study at MGH exploring the value of giving patients palliative care early on—to complement their regular treatment for advanced lung and gastrointestinal cancers. “We said sure,” recalls Bill, 72.

They began talking regularly with Vicki Jackson, often during Bill’s long chemotherapy sessions, and have laughed together, cried



From Specialty to Shortage

WHEN SUSAN BLOCK, a professor of psychiatry and medicine, started practicing medicine more than three decades ago, there was no formal field of palliative care. Today, it is an established specialty with a growing presence in the U.S. healthcare system. The number of hospital-based programs nearly tripled between 2000 and 2010, and most large hospitals now have palliative-care teams, according to the Center to Advance Palliative Care, a national organization aimed at expanding these services. Still, Americans living in certain geographic regions (for example, where small hospitals are the norm) have limited access to this comfort-centered approach to serious illness.

Palliative care emerged with the hospice movement of the 1960s, but it wasn't until 2006, after a strategic campaign led by Block and other advocates, that hospice and palliative medicine became a defined medical specialty. The move marked "a critical step in achieving legitimacy and a seat at the table in American medicine," says Block, chair of the psychosocial oncology and palliative care department at Dana-Farber Cancer Institute and Brigham and Women's Hospital. "It has raised the stature of the field."

The specialty now attracts clinicians from many disciplines (one can be a radiologist who goes into palliative care, for instance) and offers trainees another career option, "so it's had a huge impact on our ability to recruit spectacular young people," Block adds. There are now nearly 100 hospice and palliative-medicine fellowship programs around the country; Harvard's fellowships in palliative care educate about a dozen doctors, nurse practitioners, and social workers annually.

Palliative care is associated with higher quality of life and lower costs through fewer and shorter hospital stays, less intensive treatments, and more hospice use, so it's an attractive option in the context of healthcare reform. But experts worry about the future. There's already a serious national shortage of hospice and palliative-medicine physicians (one study estimates a gap of at least 6,000), and demand will likely grow as baby boomers age, the number of Americans with chronic conditions (such as heart disease, diabetes, cancer, and dementia) soars, and more providers in community settings, like outpatient clinics, aim to offer palliative care as well. The global demand is rising, too; according to the World Health Organization and Worldwide Palliative Care Alliance, only one in 10 people who need these specialized services receives them—and most palliative care is provided in high-income countries.

Addressing the U.S. shortage will require raising awareness and developing palliative-care skills among professionals and medical and nursing students, observers say. Among the strategies are:

- Training leaders through programs like Harvard Medical School's Center for Palliative Care, co-founded by Block and J. Andrew Billings about 15 years ago to expand palliative-care education nationally and internationally.

- Ensuring that every clinician who sees seriously ill patients learns basic palliative-care skills, such as effective doctor-patient communication and pain management, while referring the more complex cases to specialists.

- Reminding physicians that palliative care aims to ease symptoms and suffering throughout a serious illness, not just at life's end, and complements the care patients are already receiving. It's not about dashing hopes.

Medical schools have traditionally given short shrift to palliative and end-of-life issues, but students today have more exposure than in the past, according to the Institute of Medicine. Virtually all teaching hospitals affiliated with medical schools now have palliative-care teams, notes physician Diane Meier, director of the Center to Advance Palliative Care, and data show that younger doctors are more familiar and comfortable with palliative care.

Areej El-Jawahri, an oncologist on the bone marrow transplant unit at Massachusetts General Hospital, agrees. "I think the culture is changing. We're the generation who has been exposed to palliative care; it's a consult service in the hospital that we call for. That is very different than medicine was 10 years ago." Now an instructor in medicine, she is studying whether adding palliative-care services will make the transplant experience less physically and emotionally burdensome for patients and families, and hoping as well to "demystify" the approach for her colleagues.

At Harvard Medical School today, there is no required clinical training in the specialty itself, but palliative and end-of-life care principles are woven into various required and elective courses. These include sessions in which students interview gravely ill patients or evaluate their own ability to break bad news to a simulated patient, and a clinical elective on how to diagnose and treat different types of pain.

Looking to "raise the bar" in medical education on palliative care nationally, an HMS team co-led by instructor in medicine Kristen Schaefer recently defined 18 "essential" palliative-care competencies they believe medical students and internal and family-medicine residents should acquire—with communication and pain management skills topping the list. (That list reflects the results of a national survey they conducted among palliative-care educators.) In a paper published in *Academic Medicine* last July, Schaefer and her co-authors argue that providing this kind of basic palliative-care training is critical to delivering high-quality, cost-effective care to the growing ranks of sick and aging Americans.

Schaefer co-directs an elective on psychosocial oncology and palliative medicine at HMS and says the course's faculty members value the opportunity to support students "as they grapple with issues of suffering and mortality in ways they often have not before. We remind them that there is so much we can do as doctors to comfort patients, alleviate suffering, and guide patients and families through serious illness and the dying process."

“Our main procedure in palliative care is difficult communication,” says professor of psychiatry and medicine Susan Block.

together, and discussed how to lessen side effects from his disease and treatment. Jackson has prescribed medications, for example, to boost his energy, prevent pain, and help with digestion. Although their primary team at MGH is excellent, “Vicki’s the one we call when we don’t know what to do, when we have symptoms we don’t know how to handle,” Judy says. “She is completely attuned to how we’re feeling. She has been an incredible comfort. Because a lot of the time you feel very alone.”

The couple has faced moments of fear and despair during Bill’s 65-plus chemotherapy and radiation sessions and two major surgeries, according to Judy. They both know he will not recover, and Bill has chosen what color shirt he will wear at his funeral. But aided by Jackson’s realistic yet uplifting approach, the Jenkinsons have been living with cancer as fully as possible. Since his diagnosis more than three years ago, Bill, a semi-retired real-estate developer, has been able to travel and spend time with family and friends, including a November trip to California to see two of their grandchildren perform in *The Sound of Music*. As Bill puts it, “Vicki has been very good about helping us live for today and enjoy each day that we have. She’s been a tremendous help to us on this journey.”

The clinical trial Bill joined is a larger follow-up to the landmark study MGH investigators conducted several years ago that revealed multiple benefits of early palliative care. That research, led by oncologist Jennifer Temel, associate professor of medicine, involved 151 patients with metastatic lung cancer. Half received standard treatment, while half also saw a palliative-care clinician at least monthly. “The meetings weren’t scripted,” Temel explains. “If the patient said, ‘I’m in so much pain,’ they talked about pain. If patient said, ‘Am I dying?’ they went there.”

According to findings published in the *New England Journal of Medicine* in 2010, patients in the palliative-care group had better quality of life, less depression, and less aggressive end-of-life care. Not only that, they lived almost three months longer, on average, than the lung-cancer patients who received standard care only. That last finding went viral. Looking back, Temel says, “The survival benefit certainly got a lot of attention, but to me the salient part of the results is that we made people feel better. Because this population is really suffering.”

THE CONVERSATION

AT THE CORE of palliative medicine is a conversation, or series of conversations, about a patient’s hopes, values, and preferences for care. “Our main procedure in palliative care is difficult communication,” notes Susan Block, a professor of psychiatry



and medicine based at Dana-Farber. Palliative specialists help patients and families weigh the benefits and drawbacks of various treatments, navigating a high-tech medical culture geared toward procedures and therapies that may hold the promise of saving and extending lives. Some patients want the “full-court press,” while others may prefer comfort-focused care, or something in between.

Block and other colleagues believe every doctor who sees seriously ill patients should possess the skills to lead these conversations—especially when a patient’s life expectancy is short. But research led by Dana-Farber investigators in recent years shows that between one-quarter and two-thirds of patients with advanced cancer don’t have such talks with their physicians, and when they do occur, the discussions often take place in the hospital just a month before death. “By a month before you die, you’re pretty sick [and] the family is overwhelmed,” says Block. “This is a terrible way to do things.”

Atul Gawande, a surgeon at Brigham and Women’s Hospital (BWH), realized some time ago that he wasn’t effective in communicating with patients facing unfixable problems, and that medical school had taught very little about aging and dying. So Gawande, who is also a staff writer for *The New Yorker* (see “The Unlikely Writer,” September-October 2009, page 30), started gathering answers for an article and eventual book. Among the more than 200 patients, family members, and practitioners he interviewed was Block, an internationally known expert in palliative care, who shared her mental checklist of questions for terminally ill patients, including: What is your understanding of your condition? What are your fears and worries about what lies ahead? How do you want to spend your time if your health worsens? What kinds of tradeoffs are you willing to make in the course of care? Who do you want to make decisions for you if you can’t?

“I ended up carrying the *New Yorker* piece into my conversations with patients so I could use that little (please turn to page 79)



Good Design

A public interest movement redefines architecture.

by Stephanie Garlock

IN JUNE 1968, the American Institute of Architects (AIA) invited civil-rights leader Whitney Young Jr. to speak at its national convention. Just two months earlier, riots had devastated dozens of American downtowns in the wake of Martin Luther King Jr.'s assassination. AIA members wanted to know what had happened, and how they could help. But Young, then the president of the National Urban League, offered far more condemnation than comfort. "You are not a profession that has distinguished itself by your social and civic contributions to the cause of civil rights, and I'm sure this has not come to you as any shock," he observed. "You are most distinguished by your thunderous silence and your complete irrelevance."

Two and a half decades later, another upheaval—the 1992 Rodney King riots in Los Angeles—jolted architect Michael Maltzan, M.Arch. '88, into action. After earning his degree from the Harvard Graduate School of Design (GSD), he had moved to that city

to work for Frank Gehry, drawn to the intense urbanism of the sprawling metropolis. When the riots broke out, he reflects, it was difficult to see L.A. become a place "that, all of a sudden, you had to understand in a very different way—a much more complex way, a much more real way." Maltzan had helped build the city that was being torn apart, and he wouldn't settle for complete irrelevance.

Soon, he won his first solo commission: to build a campus for Inner-City Arts, a nonprofit arts-education organization based in the downtown Skid Row neighborhood. It was a perfect launching pad for his new practice, Michael Maltzan Architecture (MMA), offering the rare opportunity for an early-career architect to design an institutional building. Even more appealing, he adds, were the "fundamental questions" about social, political, and community issues that the project forced him to answer.

Twenty years later, MMA's buildings dot the Los Angeles land-



Michael Maltzan Architecture's New Carver Apartments, a much-lauded architectural landmark in Los Angeles, offers 97 units of permanent housing for the formerly homeless.

full time as a “community architect,” a hybrid (and self-designated) title that she thinks best describes what she does each day: talk to affected communities, understand their needs, and translate those ideas into the language of architecture.

Hwang's initial disillusionment with architecture's social impact is an old, common problem. But the career she's created

for herself less than 10 years out of the GSD offers a relatively new solution, part of a growing movement within the design fields that proponents have named humanitarian, socially conscious, or, most often, public interest architecture. A simple idea motivates public interest designers, Hwang explains: “It's important for beauty to be equally distributed to all communities.”

THE PRINCIPLES of public interest design are embedded deeply in the history of architecture. Bauhaus founder Walter Gropius, who served as the first chair of the GSD's department of architecture, once called design “neither an intellectual nor a material affair, but simply an integral part of the stuff of life, necessary for everyone in a civilized society.” But the cultural touchstone for an architect has at times been far closer to Ayn Rand's Howard Roark—arrogant, individualistic, and committed to the genius of artistic vision above all.

Whitney Young's thunderous condemnation planted the early seeds to change the conversation. The AIA formalized its fledgling volunteer community-design programs, begun a year earlier, and in 1972 created an annual award for public service, named in Young's honor. Individual architects founded a small number of untraditional, grassroots community-design centers.

And at Harvard, the GSD saw 1968 as a moment of reckoning. The capital campaign launched that year struck a dire tone, with a booklet outlining the school's role in solving the titular *Crisis!* in American cities. In response, campaign chair John L. Loeb '24, LL.D. '71, donated funds for a mid-career fellowship for architects, planners, and other design professionals—those whom Jim Stockard, the curator of the fellowship from 1997 to 2014, describes as “people who love cities but are unsatisfied with them.” For the last 45 years, the Loeb Fellowship program has served as something of an incubator for many leaders of the public interest design movement, giving designers with a strong aesthetic

scape. In the neighborhoods surrounding Inner-City Arts, he's worked with the Skid Row Housing Trust, a nonprofit community-development corporation (CDC), to construct three apartment buildings that offer permanent housing to formerly homeless residents. The New Carver Apartments, the second of the three, rises next to the Santa Monica Freeway like a cylindrical drum, the unique shape designed to insulate residents from the noise of passing cars. But, as a review in *Architect Magazine* put it, the project makes a bigger statement as well: that “affordable housing is not a blight that needs to be hidden away.”

These kinds of design-based solutions to social problems similarly attracted Theresa Hwang, M.Arch. '07, to work with the trust. Hwang had left Cambridge convinced that a career in architecture would never let her work on real social issues. “When I finished school,” she says, “I basically thought, ‘Design is nice and wonderful, but it's not for me.’” But in 2009, after two years as a community organizer, she entered the Enterprise Rose Architectural Fellowship, a program that pairs early-career architects with CDCs. For three years, she split her time between MMA and Skid Row Housing as she worked on the Star Apartments, Maltzan's third project for the nonprofit. In 2012, she joined the trust's staff



background the business and organizing skills necessary to get the movement off the ground.

These core Loeb Fellows (LF), joined by a number of GSD alumni dissatisfied with traditional architecture careers, have had diverse experiences as public interest proponents—working in big corporate firms and small nonprofits, on projects in downtown Los Angeles and rural Senegal. And they face significant challenges in creating new models of design and practice. They have had to convince their peers that taking on these projects, sometimes even on a pro bono basis, is a central obligation of architects and a chance for innovative work. Beyond the profession, architects have needed to convince potential clients in the social sector, from hospitals in rural Africa to community centers in the United States, that design offers something tangible. The result has been a movement, small but growing, whose aspirations could help redefine the very definition of what an architect does.

Beyond “Design For Design’s Sake”

EARLY IN HIS CAREER, John Peterson, LF ’06, admits that he was a traditional, “purist” architect, focused on residential projects and “design for design’s sake.” But as his practice grew, and the scale of his projects began to encompass entire blocks and neighborhoods, he began to worry about what his designs failed to consider. “I became very interested in the opportunities that the design of the built environment had for achieving social outcomes,” he explains. “And as I looked around in the world to see who was doing that sort of work, I was frustrated.” He set out to change that.

When he founded his nonprofit, Public Architecture, in 2002, few firms offered a model for how to take on social projects or clients who might not be able to pay for design services. Architects in the community-design movement, born from the turmoil of the 1960s, were still quietly at work. But even today, Peterson’s San Francisco-based nonprofit remains one of the “grandfather” organizations of the larger public interest design field. Other early organizations, founded in the 1990s, include the Auburn Rural Studio, a design-build program at that Alabama university, and nonprofits like Architecture for Humanity, which began with the motto “Design like you give a damn” (the organization filed for bankruptcy earlier this year).

Peterson began taking on individual pro bono projects under Public Architecture’s auspices. He worked on plans to maintain open spaces in San Francisco’s South of Market neighborhood, and designed ScrapHouse, a demonstration project, built entirely

(Above) Communal spaces and amenities in the New Carver Apartments. (Opposite) Current Skid Row Housing Trust residents participate in design workshops for future projects.

of salvaged materials, erected on the city’s Civic Center Plaza. But his ambitions soon outgrew what one man could do in his free time, and the projects he wanted to tackle required convening design and planning professionals with diverse expertise. What if *all* architects helped out? he wondered. His solution was the One Percent Project, a pro bono

commitment program he launched in 2005, that asks architects at participating firms to dedicate, on average, at least 20 hours a year to working on pro bono projects.

The reaction to this call to service was mixed. Some firms already engaged with nonprofit clients signed on, understanding how pro bono work fit their mission, served as good public relations, and could ultimately open their practices to new, paying, clients. But pro bono wasn’t embedded in the ethos of architecture; the AIA added an explicit encouragement for engaging in this kind of free professional work to its code of ethics only in 2007. (And, unlike the American Bar Association, which encourages 50 hours of annual pro bono work for lawyers, the AIA does little to define that commitment.) Some critics thought working for free would degrade a profession that wasn’t particularly well paid to begin with. Another barrier, Peterson says, is that many of his peers see social value in *all* their work. Getting architects



to think critically about how their projects could do more for the wider community, and encouraging them to take on clients who could not pay market rate, became major challenges.

In the fall of 2005, Peterson came to Harvard as a Loeb Fellow, eager to gain some of the business skills that might expand his vision. Ten years later, Public Architecture has gained traction, with more than 1,300 firms agreeing to the pro bono commitment, including half of the country's 20 largest. One of the most progressive participants has been Perkins+Will, a global firm with a staff of 1,500 that joined the program in 2010. This work has formalized a commitment to the firm's founding motto—"Ideas and buildings that honor the broader goals of society"—says CEO Phil Harrison '86, M.Arch. '93, who now serves as a co-chair for the GSD's current capital campaign. Today, Perkins+Will's pro bono work adds up to the equivalent of a 15-person firm working full time, year round.

From the Studio to Senegal

LIKE THEIR corporate counterparts, smaller, boutique architecture firms have similarly discerned the potential appeal—in freedom to choose and execute more interesting projects—that the occasional pro bono client presents. Consider Toshiko Mori, Hubbard professor in the practice of architecture, who has used a pro bono project in rural Senegal to connect her work in the classroom to the work of her firm, Toshiko Mori Architect (TMA).

Mori's work with Le Kinkeliba, a medical nongovernmental organization in eastern Senegal, began in 2009, when she took a group of students in her third-year studio to meet its local clinic leaders. The Josef and Anni Albers Foundation—a Connecticut-based nonprofit that honors the legacy of two prominent members of the Bauhaus faculty—had begun working with these clinics years earlier, and wanted the GSD students to help develop land-use plans for newly acquired acreage along the Gambia River. At first, Mori resisted what she saw as "voluntourism"—and even considered donating her travel-grant money directly to the clinic. But the site visits for the two studio courses she eventually organized (the second focused on plans for a community cul-

tural center) convinced her of their value. As her students held midterm reviews in front of an audience of local residents, Mori says, "They figured out that there's something we have to rethink about architects. We don't want to be bringing Western notions as an imposition. There's something about give and take, and respecting the way they live, and working with local materials."

After two studios, Mori decided to turn designs from her second studio into a reality, assigning her former student Jordan MacTavish, M.Arch. '12—by then at work in her New York office—to direct pro bono designs for a community arts center in the village of Sinthian. He has since helped turn the cultural center into a reality, par-

ing down his original design and figuring out how to integrate local materials and building techniques in ways that are both innovative and replicable. The result, scheduled to open in March, features a sweeping, undulating roof, curved around two large open spaces for performances and events. At either end are two artists' residences, where brickwork vents—meant to evoke the patterns of Bauhaus tapestries—are functional as well, letting air in and keeping dust out. The constraints of the Sinthian project have forced the architects to be highly innovative, uniting form and function so that each ele-

ment can serve multiple purposes. The roof's complex geometries—achieved using simple, local materials like bamboo and thatch—are designed to catch 30 percent of the community's water needs.

Projects like these help break down the traditional idea that the "architect as artist" is entirely separate from the "architect as social actor." For John Cary, Public Architecture's executive director from 2003 to 2010, the pro bono model "doesn't position design 'for the public good' outside of, or separate from, the rest of architectural excellence," as he wrote in his 2010 book, *The Power of Pro Bono*. "We hold up really a fairly narrow view of what great architecture is," Peterson agrees, adding that these creative pro bono projects can serve as a necessary corrective to the constraints of "starchitecture" culture.

A major moment of arrival for many public interest designers was the conferral of the 2014 Pritzker Prize, the most prestigious award in the field, on Shigeru Ban. The Japanese architect is best known for his innovative, often temporary design solutions in societies recovering from natural disasters. GSD dean Mohsen Mo-

Public interest projects help break down the idea that the "architect as artist" is separate from the "architect as social actor."



stafavi told *ArchDaily* at the time, “Socially conscious architecture rarely gets any praise for its contribution to the field. Shigeru’s work does that with an economy of means, lightness of touch, and great sense of beauty.” (The choice has not been without criticism. Tod Williams, an architect and former teacher of Ban’s, told *The New Yorker* that, though the choice offered a “good, clear message,” Ban’s work was “barely architecture.”)

Not “Servants of a Luxury Product”

THE PUBLIC INTEREST DESIGN MOVEMENT has grown out of crises: from the riots of the 1960s to the humanitarian devastation following natural disasters such as those in New Orleans, Haiti, and Japan. Another moment of reckoning came in 2008, as the global financial crisis brought the U.S. building industry to a halt. Michael Murphy, M.Arch. ’11, was then halfway through his GSD master’s program; when he looked around, he saw what he calls a “value-proposition problem,” as seemingly expendable architects were the first to lose their jobs. “When it only becomes about sculpture, it loses the key asset of architecture, which is that it can add tremendous value to people’s lives,” Murphy says. The challenge was convincing the rest of the world that architects could be not mere “servants of a luxury product” but “providers of a social good.”

Murphy had already faced this problem of “value proposition” two years before the crash, in December of his first semester at the GSD. On World AIDS Day, he sneaked out of the studio—near-sacrilege in the round-the-clock work mentality of architecture school—to hear Kolokotronis University Professor Paul Farmer speak about his nonprofit, Partners In Health (PIH). As Farmer described PIH hospital projects, Murphy realized, “They were building buildings, building housing, building *architecture*, but calling it healthcare.” Yet when Murphy asked which architects had worked on these projects, Farmer replied, simply, none.

That summer, Murphy received a grant to visit PIH clinics in

Rwanda. Meeting with local builders, he began to understand some of the design and construction considerations that went into creating a rural hospital. When he returned to school that fall, just as the rest of the architecture economy began to falter, he and a group of his GSD friends began working on a plan for a new PIH hospital in Rwanda’s rural Butaro region. But the plans conceived in the comfort of a GSD studio never responded well to local conditions, the environment of the site, or the real needs of the doctors and patients in Rwanda: the results looked, Murphy recalls, “like a military barracks.” So he took a year off, moved to Rwanda, and a new business was born—MASS Design Group (for “Model of Architecture Serving Society”).

As near poster-children for the growing movement of humanitarian architecture, Murphy and his MASS Design Group co-founder Alan Ricks, M.Arch. ’10, have told the story of that initial meeting with Paul Farmer thousands of times. Their first project, Butaro Hospital, was done pro bono, as what Ricks—now COO of the firm—calls a “proof of concept” for the value of design: “By building a hospital that could deliver better health outcomes, that could keep staff there, that could make patients happier, that could have the community invested in the process to sustain it,” they’ve proven what architecture can offer. Their continued partnerships confirm that; PIH has hired MASS Design for other work in Rwanda, and they’ve received funding from the Rwandan government as well. Only five years after founding their firm, they have worked on projects and consulted in Liberia, the Democratic Republic of the Congo, Haiti, and the United States.

SEEDing Value

FOR ARCHITECT Bryan Bell, LF ’11, the key question that public interest designers must face is: how can one put a value, quan-



seen what I was trying to do written down in such clear fashion,” Bell reflects. In the fall of 2010, Bell himself arrived in Cambridge for his fellowship year, eager to work on developing SEED from a set of principles into a functional business that could foster action.

To measure the value of design, Bell and other leaders of the initiative launched the SEED Evaluator, to help guide projects through the steps of community participation, feedback, and inclusive planning that are necessary to create truly socially engaged designs. (Last fall, the Evaluator marked a major milestone when the U.S. Green Building Council announced that participa-

Jordan MacTavish, M.Arch. '12, worked with local leaders on plans for the Sinthian Cultural Center in Senegal. (His original student rendering is at top.) The undulating roof, constructed of local bamboo and thatch, is designed to catch rainwater for community use.

tion in the first steps of the SEED process would count toward a project’s LEED certification.) The evaluator focuses more on participatory process than checklists, and requires architects to think about their work’s long-term impact. “Architects are used to handing over the keys to a building, taking a photograph, and walking away,” Bell says. “We kind of feel that’s the *beginning* of the story.”

MASS Design has begun the SEED Evaluation process for the Butaro Hospital, and Murphy and Ricks have focused on tracing concrete metrics like rates of disease transmission and doctor turnover. More difficult will be accounting for the less quantifiable but no less real benefits architecture can offer. MASS Design board member Jay Wickersham—a lawyer, architect, and associate professor in practice of architecture—points to “comfort, and beauty, and clarity, and the embodying

tifiable or qualitative, on design’s return on investment? During the past two decades, under the auspices of his chameleonic non-profit Design Corps, Bell has been at the forefront of the movement. He has developed housing for migrant workers, created fellowship programs for young, socially conscious designers, and run major outreach operations: his annual Structures for Inclusion Conference. (The first conference, in 2000, had the prescient theme “Designing for the 98 percent without architects.”) For the last five years, Bell has led efforts among architects to address this question of “value” explicitly.

In 2005, a group of Loeb alumni met at the GSD in the months following Bell’s annual conference (that year themed “Going to Scale”) to discuss creating measurable standards for public interest designs. Their answer came in the form of a proposal that architecture student Kimberly Dowdell—then an undergraduate at Cornell, now a Johnson Leadership Fellow at the Harvard Kennedy School—had made during an internship at the federal government’s Office of the Chief Architect. What she wanted was a social-consciousness metric similar to LEED (Leadership in Energy & Environmental Design), the U.S. Green Building Council’s successful rating system for sustainability. And so, with the Loeb group’s approval, SEED (Social Economic Environmental Design) was born.

Today, the network of professionals interested in these SEED techniques has grown from the initial meeting of about 30 Loeb alumni and friends to more than 2,300 members. In 2008, the network set down a number of principles of community engagement to guide its work. “I’d been practicing 20 years, and I had never



of the culture and the history and the ecosystems of a place. There are intangibles that are hard to quantify and yet are, I think, central to making a good society.”

Jim Stockard, the former Loeb curator, points to the success of MASS Design as part of an emerging model for architecture businesses. “They’re making their way toward a practice that lots of other people would die to have. And they’re doing it not by courting high-end condominium builders or owners, not by courting the big job with the library or the concert hall, but by doing social-justice projects all over the world,” Stockard reflects. “They’re developing a new mode of practice that I think will become more and more real, going forward.”

Can a Redefined Architecture Take Root?

BUT THAT’S STILL the big issue for movement leaders like Bryan Bell: how *can* more people break out of the traditional mode of corporate architecture, and figure out a way to follow in MASS Design’s footsteps?

In 2011, the AIA awarded Bell and a group of three other archi-

Rwanda’s Butaro Hospital, MASS Design’s first project, was what chief operating officer Alan Ricks calls a “proof of concept” for the value of design—for example, in reducing airborne-disease transmission rates.

itects, including fellow Loeb alumnus David Perkes, the head of Mississippi State University’s Gulf Coast Community Design Studio, a \$100,000 grant to study this question. Their 2013 report, built on survey work that Bell had begun during his Loeb year, showed a strong desire to make public interest work easier to accomplish. Of the nearly 400 AIA members surveyed, 30 percent named “improving quality of life in communities” or “putting creative abilities to practical use” as one of their top two reasons for pursuing architec-

ture. But the challenges were clear—more than half named lack of necessary education as a barrier to doing this kind of work.

To fill that gap, Bell’s Design Corps has launched a series of continuing-education courses, called Public Interest Design Institutes. Bell and Lisa Abendroth, a professor in communication design at Metropolitan State University of Denver, have compiled the lessons into a book, *The Public Interest Design Practice Guidebook*, to be published next fall. These outreach efforts, for Bell, present the same opportunity for impact-at-scale that motivated John Peter-



son's One Percent pledge: the idea that all architects, right now, can fit such design work into their normal practice model. It's why Bell says he's shifted much of his focus to training already registered architects: "That's where the immediate capacity is."

And among those coming through the ranks now, interest is growing. Jim Stockard witnessed strong growth in the interactions among students and Loeb Fellows during his years as curator. "In all honesty and fairness, if this is happening at Harvard," he reflects, "it's happening in spades in lots of other places." Schools like Portland State University have long been known for their strengths in this area, and last fall the University of Minnesota began offering a certificate in public interest design for its students.

Such efforts, Bell hopes, will normalize public interest design work by treating it as a fully independent profession, with permanent pathways for those aspiring to make a difference. With public interest law or public health as his model, he holds on strongly to his identity as a "public interest architect"—the kind of title, he hopes, that signals more than just a passing professional fad.

But others who engage in these socially conscious projects, including Murphy and Ricks of MASS Design, don't think this delineation should exist. "All architecture should be public minded, humanitarian," Toshiko Mori reflects. "In a sense, to make it something special just shows you how warped our society is."

Whether they embrace the title of "public interest architect" or not, those who engage in such projects say they've often been pushed against the boundaries of what most people expect an architect to do. And indeed "public interest design" has broken down barriers, embracing architects, planners, landscape architects, and other professionals.

Some practitioners have found even the broad boundaries of design to be limiting. A decade after coining the phrase *SEED* during a college internship, Kimberly Dowdell has enrolled at the Kenne-

dy School to take classes in real-estate finance and development, hoping to gain the skills needed to join conversations about city-scale change *before* the design process begins. "If you can be at the decision-making table, at the very beginning, then that's where

you'll have the most impact," she explains. "I think that I can bring my architectural sensibilities to the beginning part of the process." Maurice Cox, LF '06, whose wide-ranging career has spanned practice, academia, and government, has brought his architectural sensibility to the policy arena. Cox began his career in Italy—a country where architects "could be instigators, could be opinion

shapers." He was frustrated when, after returning to teach at the University of Virginia, he found his opinions held little sway. He soon ran for city council, on what he calls an "architectural agenda," and later served as mayor. After his stint at the GSD, Cox served as director of design for the National Endowment for the Arts, and in 2012 moved to New Orleans to lead Tulane City Center, that university's community-engagement center. There, Cox says, he works to make known the "secret" that architecture is about far more than shelter. "If you can find what the aspirations of a community

are, and you can use the design process to bring that forward," he says, "then you can do extraordinary things with your discipline."

Public interest professionals, working as designers, policy-makers, developers, and planners, have surmounted some of the definitions that hem in architecture's potential impact. What they've found, in common with all architects affiliated with the public interest design movement, is this: All buildings will interact with their environment, bring in new residents or kick out old ones, and create further ripple effects in the community and beyond. The question, then, is how to build great architecture, to great effect. ▽

"All architecture should be public minded....To make it something special just shows you how warped our society is."

Staff writer Stephanie Garlock '13 formerly wrote for The Atlantic's CityLab.

Lafayette

Brief life of an American champion: 1757-1834

by LAURA AURICCHIO

MARIE JOSEPH Paul Yves Roch Gilbert du Motier, marquis de Lafayette, was the wealthy French nobleman who volunteered at 19 to fight in George Washington's army, was wounded at the Battle of Brandywine, and became a living symbol of the Franco-American alliance that defeated Great Britain in the War of Independence. Though best remembered as the triumphant youth Washington considered an adopted son, the marquis experienced many bitter disappointments in his 76 years. Soon after the Bastille fell on July 14, 1789, he was placed at the helm of the National Guard by Parisians who hoped he would lead their nation to a new era of freedom. Instead, as events grew increasingly polarized, Lafayette—who believed the monarchy should be reformed, not abolished—lost the support of republicans and royalists alike. In 1792, with the Jacobins seeking his arrest as an enemy of the revolution, he fled to the Austrian Netherlands (now Belgium), where he was imprisoned as an enemy of the king.

He never fully regained his French popularity, but Lafayette ensured that his American fame would endure. Having established himself as the new nation's foremost French ally during the war, he petitioned in 1782 for a role in the peace negotiations, lobbied his government for favorable trade relations with the United States in 1783, and commissioned a gold-engraved copy of the Declaration of Independence to hang in his study. To the American secretary of foreign affairs, Robert R. Livingston, he wrote, "I Have a Great Value for My American Popularity, and I Want the people at large to know My Affection to them, and My zeal for their Service."

A classical education based on texts such as *Plutarch's Lives* and Livy's *History of Rome* had made him keenly aware of the power of the historian's pen to shape the memory of an era. Despite a failed early effort to influence the narrative of the American Revolution as related by the notoriously cantankerous Massachusetts parson William Gordon in a four-volume history published in 1788, Lafayette never relinquished his dream of crafting his own legacy.

Writing history became one of his chief occupations when he returned to France in 1799 after seven years of prison and exile. Barred from public activity by Napoleon, he spent much of the next 15 years in his library at the chateau of La Grange, outside Paris, surrounded by portraits, including those of Washington, Benjamin Franklin, and six allies executed during the French Revolution. There he crafted memoirs recounting his tumultuous life, and communicated (as much as Napoleon's censors allowed) with liberal-minded thinkers throughout Europe and Americans of all political stripes. Elected to the Chamber of Deputies after Waterloo, he became a tireless advocate on behalf of liberty throughout the world.

An unparalleled opportunity to solidify his place in American

memory arose when President James Monroe and Congress invited him to visit as "The Nation's Guest." As Lafayette toured every state in the Union between August 1824 and September 1825, grateful citizens preparing to celebrate the fiftieth anniversary of independence fêted him at banquets, balls, dinners, and parades; municipalities renamed streets, schools, and parks in his honor; and entrepreneurs sold trinkets bearing his name and face at every price point.

His first excursion, after landing in New York, was to Boston. He visited John Adams in Quincy; attended Commencement at Harvard (which had made him a doctor of laws in 1784, and now granted a master's to his son, George Washington Lafayette, who'd studied there during his father's exile); and toured battlefields. Everywhere, he spoke about the War of Independence. Inadvertently, he also helped ignite the "Battle After the Battle"—a debate about where the Revolution began—when, during an 1825 stop in Kennebunk, Maine, he dismayed the residents of Concord, Massachusetts, by proclaiming that "the first shot was fired at Lexington."

As death claimed Adams, Monroe, and their peers, Lafayette was increasingly sought out as one of the last surviving links to the nation's founding. One admirer was Jared Sparks, A.B. 1815, A.M. '18, the future Harvard president, who published a 12-volume *Diplomatic Correspondence of the American Revolution*, a 10-volume *Works of Benjamin Franklin*, and four volumes of Washington's correspondence. In an 1826 letter (now in Houghton Library), Sparks explained that he was "collecting materials illustrative of the History of the American Revolution" and ventured that the marquis might "not be unwilling to contribute to such an object."

Lafayette replied with characteristic enthusiasm: "What more gratifying sacred employment can I have than to be instrumental... in increasing your stack of materials for the monument you are writing?" He provided copies of his correspondence with Washington and invited Sparks to visit La Grange, where "I have a very good American Library, some papers, and a memory not yet decayed, all at your service." Sparks did so in November 1828, taking more than 100 pages of notes based on anecdotes Lafayette recounted. The marquis also used his influence to enable a researcher engaged by Sparks to consult documents that an official archivist had been disinclined to share with the American.

In 1839, thanking George Washington Lafayette for his father's posthumously published memoirs, Sparks called the volumes "a noble monument of one whose name and character are stamped on the age in which he lived." Lafayette had aimed for nothing less. ▽

Laura Auricchio '90, dean of the School of Undergraduate Studies at The New School, is the author of *The Marquis: Lafayette Reconsidered* (Knopf).

COURTESY OF THE COLLECTION OF THE PUBLIC DESIGN COMMISSION OF THE CITY OF NEW YORK. PHOTOGRAPH BY GLENN CASTELLANO.



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Computing in the Classroom



From the “Teaching Machine” to the promise of twenty-first-century learning technology

by Sophia Nguyen

ON NOVEMBER 11, 1953, psychology professor B.F. Skinner sat in a fourth-grade math class, perturbed. It was Parents Day at his daughter Deborah’s school. The lesson seemed grossly inefficient: students proceeded through the material in lock-stop, at the same pace; their graded assignments were returned to them sluggishly.

A leading proponent of what he called “radical behaviorism,” Skinner had devoted his career to studying feedback. He denied the existence of free will and dismissed inner mental states as explanations for outward action. Instead, he focused on the environment and the organism’s response. He had trained rats to push levers and pigeons to play Ping-Pong. A signed photo of Ivan Pavlov presided over his study in Cambridge. Turning his attention to a particular subset of the human animal—the schoolchild—Skinner invented his Teaching Machine.

Roughly the size and shape of a typewriter, the machine allowed a student to progress independently through a curriculum, answering test items and getting instant feedback with a few pulls of a lever. “The student quickly learns to be right. His work is pleasurable. He does not have to force himself to study,” Skinner

claimed. “A classroom in which machines are being used is usually the scene of intense concentration.” With hardly any hindrance from peers or teachers, thousands of students could receive knowledge directly from a single textbook writer. He told *The Harvard Crimson*, “There is no reason why

the school room should be any less mechanized than the kitchen.”

Sixty years later, Skinner’s reductionist ideas about teaching and learning continue to haunt public education—especially as it’s once again being called upon to embrace technology. In December 2014, as part of a nationwide event promoting computer-science education called Hour of Code, Barack Obama hunched over a laptop alongside a group of New Jersey middle-schoolers, becoming the first president to write a line of code. The public-policy world frames computer science in K-12 education as a matter of economic urgency. Digital fluency is often called a twenty-first-century skill, equally necessary for personal workplace success and for the maintenance of America’s competitive edge.

Teaching machines with capabilities beyond Skinner’s imagining have proliferated in this century. The barest twitch of curiosity can be satisfied with swift thumbs and a pocket-sized interface. The possibilities seem endless: virtual realities that immerse

students in remote habitats or historical eras; learners mastering skills and content through digital games; kids everywhere achieving basic fluency in code, as their forebears once had to learn cursive. Even as researchers invent new ways to use machines for learning, they realize that the culture of the classroom may itself need to advance, in tandem with technology—a difficult proposition, when bandwidth is already taken up by battles over high-stakes testing, budgets, and teacher tenure.

Rich Halverson, education professor and associate director of the University of Wisconsin's Games Learning Society, diagnoses the problem this way: "When you manage an education system that's as rich in potential as ours with a sense of crisis, all crisis does is shut down possibility. We try to reach for the proven, for the stuff that works. Practices on the edge get ignored."

Our needs have changed, and our capabilities have grown—but we still speak like latter-day Skinners. The education writer Audrey Watters, guest lecturing last semester for the Harvard Graduate School of Education (HGSE) class "The Future of Learning at Scale," traced the behaviorist echoes in the current chatter surrounding tech-culture innovations like "gamification." As Skinner once used food pellets to induce pigeons to roll a ball back and forth with their beaks, corporate and education leaders alike have embraced the idea of dispensing nuggets of fun to shape desired behavior in humans. For businesses, gamification-based training promises to maximize profits and employee productivity; for schools, it seems like a way to motivate students to perform rote memorization—and to do so cost-effectively. The education system continues to pursue Skinner's goal of efficiency and automation.

"The current system is outmoded," declares Paul Reville, Koppel professor of practice of educational policy and administration, who spoke at a September HGSE event. "We have a batch-processing, mass-production model of education that served us very well if we wanted to achieve a society in which we were sending a lot of people into low-skill, low-knowledge jobs," he says. "But for high-skill, high-knowledge jobs in a postindustrial information age, we need a very different system."

The digital society and economy, saturated by screens, require rethinking what school can and should do for today's schoolchildren.

Beyond Playing at Games

MEANINGFUL CHOICES—and the open-ended, experimental spirit of play—are essential to a deep game experience, says Jes-



Graduate School of Education professors Tina Groetzer and Christopher Dede have designed virtual realities, such as the pond opposite, for students to explore as scientists: for example, by collecting data along the shoreline or underwater, via submarine.

sica Hammer '99, a Carnegie Mellon professor who teaches game design. "Or else you're making what I like to call 'kick the puppy' games," she says. "Would you like to kick this puppy, yes or no? That's not much of a game." Games have more richness than is dreamt of in gamification's philosophy.

In the foundational studies of computer games conducted in the 1980s, education researchers asked what made the repetitive tasks of feeding quarters into a machine and controlling a joystick more appealing than the repetitive tasks of schoolwork. They wanted to apply the mechanics of games' reward systems to make educational software just as engrossing. Some titles became classics, many of them simulations like Sid Meier's *Civilization*, or *Oregon*

Trail, created by three student teachers at Carleton College. Many others flopped. Their use of a drill-and-practice mechanic to teach content made them look an awful lot like multiple-choice tests, except that they used a cartoon monster to gobble up the right answer. This brittle sort of fun became known as “chocolate-covered broccoli”—the Teaching Machine, with shinier levers.

“Learning by doing has more conditions for success than teaching by telling,” says Wirth professor in learning technologies Christopher Dede. This tenet has guided his decades of work in developing virtual and augmented realities for science students. His recent collaborator, associate professor of education Tina Grotzer, took more time to warm to simulations. With her background in cognitive science, Grotzer eventually came to appreciate the pedagogical value of virtual worlds, due to her particular interest in how learners reason about complex causality.

Environmental science poses a particular challenge for science teachers, she explains. Demonstrating a chemical reaction or physics principle right before students’ eyes is eminently doable: a beaker fizzes; a catapult flings a tennis ball. Cause and effect occur within a graspable timeframe. Students can complete a hands-on lab activity from start to finish within a single class period.

Not so in environmental science, in which developments unfold on a much longer scale, exacerbating the mind’s natural tendency to focus on events rather than processes. It’s hard for students to track complex causality when it’s “bottom-up, and distributed,”

says Grotzer. Nonobvious variables further frustrate the efforts of children (and many adults) to understand systems such as food webs and global weather patterns.

“A lot of students have been taught to see science as facts rather than a process of making meaning,” explains Dede. He and Grotzer designed EcoMUVE (Multi-User Virtual Environment) as a simulation with a mystery at its heart. Students explore the environment around a pond at many different time points. They use a virtual net to trawl for organisms in the water, and other tools to record data about oxygen levels and temperature. They can plot changes over time on a graph, and use their avatar to speak with the characters strolling in the area. One day in late summer, pixelated carcasses turn up on the shore: a fish kill. The students must investigate what went wrong, proposing hypotheses and gathering evidence.

Called upon to put their knowledge to use, learners enter a different mindset than is usual in the classroom. Unlike in an exam, says Grotzer, “They don’t know what information to bring to bear to the experience. They’re not cued.”

“For me, it’s about getting them to wear the shoes of a scientist to see how they fit,” says Dede. “The primary barrier is that they don’t think they can do it.”

He doesn’t characterize his virtual environments as games, though they bear a family resemblance. They often have objectives (find out why the whale has washed up on the beach; trace an

“Coding for All”

WITH SCHOOLS MORE EAGER to welcome coding in the classroom, some advocates now push to make it a public-education priority. In her 2014 book *Connected Code: Why Children Need to Learn Programming*, Yasmin Kafai, Ed.D. ’93, of the University of Pennsylvania, urges schools add on to the traditional “3 Rs” of reading, writing, and arithmetic: the aRTs and pROgramming. That the public perceives computers as both essential, and essentially opaque, is a form of illiteracy. Jane Margolis, Ed.D. ’90, senior researcher at UCLA’s Graduate School of Education and Information Studies, argues that this “learned helplessness” has larger implications for equality.

Margolis’s book *Stuck in the Shallow End* continues to be one of the few lengthy examinations of how an early section of the pipeline—public K-12 education—creates racial disparities in the field of computer science. Skeptics have dismissed the “coding for all” movement as a faddish boutique reform, myopically market-driven even as it claims to advance children’s problem-solving skills. But as technological innovations drive virtually every industry and shape social spaces online, advocates like Margolis view computational participation as central to the health of democracy. “Computer science can help interrupt the cycle of inequality that has determined who has access to this type of high-status knowledge in our schools,” Margolis and Kafai wrote in *The Washington Post* last October. “Students who have this knowledge have a jump-start in access to these careers, and they have insight into the nature of innovation that is changing how we communicate, learn, recreate, and conduct democracy.”

Despite the free programming resources available online for learners who know where to look, cultural barriers remain. Perceptions abetted by the hagiography of figures like Mark Zuckerberg ’06 and Bill Gates ’77, LL.D. ’07, inhibit wider participation: that the path to prowess swerves away from institutions like school, and that some individuals naturally gravitate to computer science because they are innately talented and freakishly autodidactic. In reality, the typical boy genius has a great deal of what Margolis calls “preparatory privilege”—if not tech-savvy parents and summer-camp enrichment, then usually a peer group logging on together after school.

Noel Kuriakos, a member of the online educators’ community ScratchEd, is a math and science teaching fellow at the tuition-free Mother Caroline Academy, a majority black and Latina girls’ school in Boston. His experience in a community where many households still don’t have Internet access has taught him that extracurricular outlets won’t suffice: “This is where schools can play a huge, huge role, and make a big difference—in saying, ‘Well, maybe not in your home, and maybe not in your social circle, but *in school* you can have access. You can do this.”

Meanwhile, atop the structural issues that, in less affluent districts, impede learning in all subjects—underfunding, overcrowding, teacher attrition—computer-science education suffers from a special neglect affecting public schools across income ranges. Historically, it has been lumped in with home-economics class—“which, as you can imagine, makes it an attractive proposition to many computer scientists,” Kafai observes wryly. Most states lack curricular standards or a teacher-certification pathway in the subject. As a result, Margolis says, schools end up “tech-rich, but curriculum-poor.”

epidemic through a nineteenth-century town), but because that objective is discovery, the activities have a noncompetitive, exploratory bent. Calling it a “simulation” rather than a “game” also lowers schools’ resistance to trying out the new activity. After three decades of experience, Dede firmly believes that “psychological and cultural barriers seem to slow education down more than every other field.”

Even so, “We’ve loosened up about games,” says Eric Klopfer, director of MIT’s Education Arcade, who has also worked with Dede on augmented realities. Klopfer recalls a time when teachers would tell him, “Just don’t use the word *game* in my school, because the principal will kick it right out.’ And now, in fact, there are people who are saying just the opposite: ‘Ooh, is that a game? I’d love to try that out in my school.’”

With the founding of hubs like Wisconsin’s Games Learning Society (GLS) and MIT’s Games to Teach Initiative (the forerunner to the Education Arcade) in the early 2000s, the ventures of the more risk-tolerant academic world have fed the larger industry new pedagogical models, game projects, and the occasional young talent. In turn, without investing in the educational market themselves, the biggest companies support the diversity of the larger habitat. Zynga (behind *FarmVille* and *Words with Friends*) op-

Margolis has helped write a high-school curriculum, “Exploring Computer Science” (ECS), that intends to expose students to a broad range of topics, including HTML website design, data analysis, robotics, and programming through Scratch. This will be paired with a professional-development course for teachers, who will learn inquiry-based pedagogy along with the content itself. ECS has received the backing of Code.org (the nonprofit behind the nationwide awareness event, Hour of Code), and has been adopted by districts in Los Angeles, Spokane, Chicago, and New York City, among others.

Now, Kafai is collaborating with Margolis to create an electronic textiles unit for ECS. By bringing together the crafts of circuitry design and sewing, they aim to appeal to girls by casting code as malleable, and engineering as an aesthetic pursuit. Because curriculum design in computer science remains largely uncharted territory, Kafai believes that researchers should keep the options open. “For computation, you need different materials and activities—it can’t all be robotics, it can’t all be game design. We need a whole array, to tease out what activities are good for which concepts, and which age levels. Because honestly, we don’t really have anything right now.”

Assistant professor of education Karen Brennan proposes that integrating computational thinking into classes could follow the language arts model, in which a class is devoted to the craft of manipulating words, but text, of course, is used in the service of other subject areas as well. With code too, “there’s specialization, but there’s also a role for it in everything you’re trying to do,” she explains. Though Brennan cautions that “Scratch doesn’t solve every problem,” she also adds, “If you start with the learning, you will not be led astray.”

One day in late summer, pixelated carcasses turn up on the shore: a fish kill. Students investigate what went wrong.

erates co.lab, offering office space, tools, and mentoring to young ed-tech companies, including some that germinated as university projects. Electronic Arts (*SimCity*, *Madden NFL*) funds the nonprofit GlassLab, which develops its own games and aspires to be a resource for commercial developers who need assessment metrics and data to make their projects more educationally sound.

“Have you been on iTunes lately?” says Rich Halverson. “Good God, the world of games and games for learning is at an unprecedented glut!” But, he notes, demand has lagged. Education games remain marginal in schools: a special treat for kids who finish their work, or a remedial intervention for those who can’t. Halverson believes that this underuse of a powerful resource further widens the digital divide already disadvantaging poor and minority students. Families who know of and can afford these enrichment channels will seek them out.

Halverson cites the linguist James Paul Gee, whose 2003 book *What Video Games Have to Teach Us About Learning and Literacy* claimed that *Pokemon* could be considered “perhaps the best literacy curriculum ever conceived.” Its trading cards enabled millions of kids to master a complex taxonomy of imaginary creatures, all with specialized traits. Compare the average middle-school classroom to what Halverson calls the “learning space” within games themselves, and in the culture surrounding games—for example, the online game *Minecraft* and its array of blueprints, discussion boards, and how-to videos. Which provides a more authentic model for how to pursue work and personal interests in the twenty-first century?

“Think about how you do your work,” Halverson instructs. “You’re probably sitting in front of a computer right now. You’ve got a big project you’re trying to come up with. You’re on the phone talking to some dude from Wisconsin, taking notes. You probably have something on your wall with all the sources you’re going to put together for the article. There are online resources and how-to guides for how to write. You’re putting all of this stuff together. You’ve created your own learning environment.”

From Playing to Programming

“GAMES are perhaps the first designed interactive systems our species invented,” writes Eric Zimmerman, a games designer and professor at New York University. “Games like Chess, Go, and Parcheesi are much like digital computers, machines for creating and storing numerical states. In this sense, computers didn’t create games; games created computers.” In his essay “Manifesto for the Ludic Century,” Zimmerman argues that the rise of computers parallels the resurgent cultural interest in games. Future generations will understand their world in terms of games and systems, and will respond to it as players and designers—navigating, manipulating, and improving upon them.

Yasmin Kafai, Ed.D. ’93, an education professor at University of Pennsylvania, first explored how game creation and computer programming could be brought together in the classroom while



With Scratch (opposite), students can code interactive stories, games, and animations. With ScratchEd, HGSE professor Karen Brennan and Michelle Chung, Ed.M. '10, are building a community of educators who support each other's efforts to bring programming into more classrooms.

a Harvard graduate student working in the MIT lab of Seymour Papert. As early as the 1960s, when salesmen still hawked versions of the Teaching Machine from door to door, Papert pioneered the idea of computers in the classroom, paired with a radically different philosophy: “constructionism.” This theory proposed that learners do not passively receive knowledge but actively build it—and that they do this best when they get to manipulate materials in a way that feels meaningful.

For “Project Headlight,” a program beginning in 1985 that brought hundreds of computers into a public elementary school

in Boston, Papert’s team developed activities that immersed students in the programming language he had invented, LOGO. Following his pedagogical ideals, the researchers didn’t want the computer lab to seem like a locked room at the end of a long hallway, essentially removed from daily life and learning. They wanted to know what students were naturally interested in. “These were the days of *Sonic the Hedgehog*, *Super-Mario*,” recalls Kafai. “Kids told me that they really wanted to program their own games.”

For a brief period in the early 1980s, it was relatively commonplace for avid gamers to dabble in programming; a range of books taught users how to make or modify games using languages like BASIC and Pascal. Kafai designed a curriculum in which older students would design software for children in the lower grades, in subjects ranging from fractions to marine habitats. The kids quickly realized that creating Nintendo-style games was beyond their skill set, but in art class Kafai had them think like professionals, designing boxes and creating advertisements of the kind that they might find in stores.

Ironically, the advent of multimedia CD-ROMs and software packages—and soon after, Internet browsers—made the personal computer feel so friendly that programming seemed irrelevant to its operation. Now that computers came pre-loaded and densely written with default systems and applications, they did everything the average user required. This technological wizardry deterred people from peeking behind the curtain. Creation and design were once again thought of as the province of experts; schools restricted themselves to teaching PowerPoint and touch-typing.

As programming was exiled from the classroom, researchers like MIT’s Mitchel Resnick and Natalie Rusk, Ed.M. ’89, gave it safe haven in the extracurricular context, through a program called the Computer Clubhouse. In true constructionist style, Resnick and Rusk envisioned members learning through design activities: controlling robots, digitally composing music, editing an animation. With the support of adult mentors and teachers, Clubhouse youth would build computational confidence. Within 15 years, the network of Clubhouses had spread to more than 100 sites, with a focus on low-income communities.

Starting in 2003, Resnick collaborated with Kafai and others to develop the programming tool Scratch, imagining that it would be used in Clubhouse-style settings. In some ways, Scratch was the inheritor of LOGO’s legacy, but with a few key differences. Where LOGO had been designed with mathematics in mind, Scratch was intended to be media-centric, a tool for self-expression: kids loved the idea of making their own interactive stories, animations, and games, hardly realizing that the projects made use of algebra and algorithms. Additionally, the Scratch “grammar” would be composed of command “blocks” that could snap together, like Lego bricks, to achieve different effects. This liberated learners from the frustration of typos, or the flummoxing syntax of traditional programming languages. For a finishing

touch, the interface would have a prominent “Share” icon—and along with it, an online community where users could display, comment on, and peer into the backend of projects. The research team built social values like collaboration, tinkering, and remixing into the culture of coding itself.

Since Scratch launched in 2007, it has been translated into more than 40 languages and used by millions worldwide—including people well outside the target age group (eight to 16), like the hundreds enrolled in Harvard’s most popular class, CS 50: “Introduction to Computer Science.” It’s even used in primary school classrooms. In 2009, the online community hosted by MIT spun off the forum ScratchEd under the leadership of Karen Brennan (now an assistant professor of education at HGSE). There, educators can show off sample lessons and offer troubleshooting and other advice. Though their local administrations may not be able to mandate computation in the classroom, in this virtual space they can show one another what’s possible.

Teaching the Teachers

AS OTHERS WORK toward systemic change on the policy level, urging states to create certification pathways for computer-science teachers and establish standards in the subject, Karen Brennan and the ScratchEd research team exert their efforts from the opposite end. They want to empower educators to integrate coding into the classroom independently, absent official guidance and mandates. Last fall, Brennan published a free Creative Computing Curriculum Guide that she created with former student Christian Balch, Ed.M. ’14, and ScratchEd research program manager Michelle Chung, Ed.M. ’10. Its 150 colorfully designed pages are divided into manageable units and sessions, under cheerful section headings that suggest “Possible Paths” and “Things to Try,” and offer space for “Notes to Self” and “Feeling stuck? That’s ok!” Chung says that they wanted to actively promote a “choose your own adventure” ethos, so teachers will feel emboldened to adapt the lesson plans freely. If Skinner once compared teachers to line cooks, Brennan and her team imagine them as chefs.

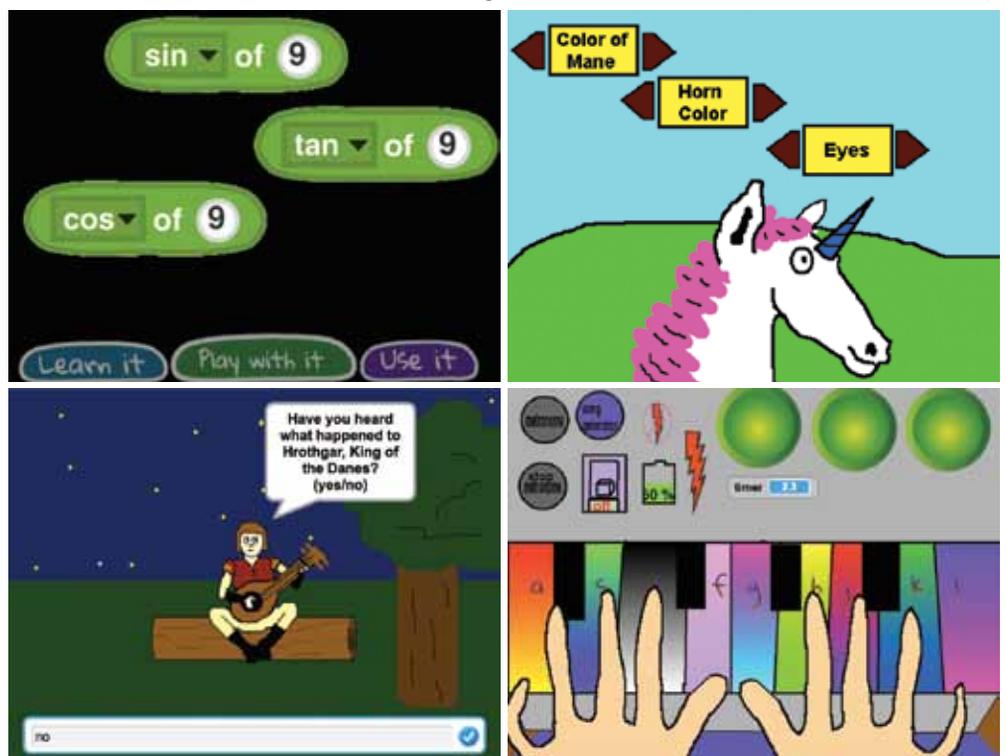
A growing component of their work is to convene educators in person as well as online. After the first few tutorials they ran, Brennan remembers, “We had this puzzle.” Participants kept returning to introductory workshops long after they’d stopped needing what she calls “our song-and-dance ‘Introduction to Scratch’ piece.” The program leaders soon realized that the attendees were attracted less to the workshop’s content than to the opportunity to interact with colleagues. So ScratchEd began to host monthly meetups at the MIT Media Lab, welcoming participants at all levels to gather, collectively set an agenda, and share

their frustrations, success stories, and expertise.

Soon the sessions attracted teachers from as far away as New York and Philadelphia—and once, a woman who’d taken a red-eye flight from San Diego to make the Saturday morning meeting. The team realized that they had hit upon an unexpected vein of potential energy. “What is that ephemeral quality? Can we package that, can we communicate it? Because it’s very different from many types of professional learning that teachers are encountering,” says Brennan.

In the fall of 2014, a trio of local educators took the reins of the original meetup group. They now host the gatherings at Kennedy Longfellow School in Cambridge, in a computer lab recently remodeled to accommodate round tables surrounded by carts of robotics kits, laptops, and tablets. For the November meeting, held on the cusp of the nationwide Computer Science Education Week and the Hour of Code, participants included teachers, parents, and library and technology specialists, from public and private schools. Some wanted to learn strategies for running an after-school club; others wondered how to convince other teachers to allocate already scarce time to the uncertain prospect of grappling with computers. Empathy, and experience within the system, cooled their natural evangelism; none wanted to pile onto the pressures most teachers already feel. Talk of individual projects—using Scratch to build a hurricane simulator, or to animate verbs as a study aid for Spanish and French classes—led to deeper discussions of classroom dynamics: colleagues’ general reluctance to take risks, or how a coding activity often goes more smoothly when the kids take charge.

Heather French, Ed.M. ’13, who has worked as an instructional technology specialist in the Cambridge public-school district since her graduation, attests that teaching “digital confidence is often the most challenging part of my job.” When frustrated by the technology they use—whether a misformatted Google Application or a tangled snarl of code—children and adults reflexively



ask her to intervene. A self-taught programmer herself, French believes that part of her job is to teach them how to find the answers themselves: “They just need the courage to try.”

Students are accustomed to feeling this uncertainty; teachers, less so. Implicitly, many regard expertise as their source of legitimacy: a store of knowledge, in the form of facts, to be transmitted to the children. They want all the solutions to all possible problems before they feel comfortable leading a lesson—and because computers are only beginning to return in the classroom in these new ways, few have that expertise.

In a talk called “Getting Unstuck” for an HGSE-wide event last September, Brennan addressed teachers’ fears of encountering an intractable technical issue that causes the day’s lesson to break down. During her research, she reported, young independent Scratch learners had suggested some strategies for when a project malfunctions: reread the code with a critical eye, to check for mistakes; enlist the help of a collaborator, to see the project with fresh eyes; find successful examples to analyze and emulate. These were helpful, Brennan said, but also suggestive of a broader lesson—that teachers could model problem-solving for their students even if they didn’t have all the solutions. Indeed, a small degree of uncertainty might be preferable: making room for more spontaneous discovery, and more authentic and rewarding classroom interactions.

With its collaborative spirit, the meetup is a mode of professional development that matches this pedagogy. Recently, Brennan and Michelle Chung released a Meetup Kit in the style of their curriculum guide, so that the model can be replicated and remixed elsewhere.

Rebooting School

AT THE CAMBRIDGE GATHERING last fall, there was a general sense that the rising profile of events like Hour of Code could make real inroads into schools’ uncertainty about investing more energy in tech. Still, a persistent worry encroached on the excitement: that the enthusiasm would come up against calcified classroom culture and dissipate. How could they prevent digital media from becoming a faddish one-off, forgotten amid competing demands on educators? “My fear,” confessed Ingrid Gustafson, one of the meetup’s core leaders and one of French’s technology colleagues in the Cambridge schools, “is that we’re building a path to nowhere.”

When she’s not bothered by such doubts, Gustafson speaks glowingly about projects that, to her, seem like signs of a way forward. Last year, she helped develop an activity for sixth-graders who had recently played with Grotzer and Dede’s EcoMUVE forest simulation and were then assigned to present what they hypothesized about the virtual world they’d explored. After a visiting artist taught them about scientific illustration and painting techniques, the students drew food webs as accurately and aesthetically as possible. Then they used MakeyMakeys—circuitry toolkits that make ordinary objects into touchpads—to hook the paper models up to Scratch simulations that they coded themselves, practicing the new computational concepts they had learned, like loops, conditionals, and sequencing. When a student

In Skinner’s ideal school, every learner is an island, in front of a glowing screen; teachers are reduced to technicians.

touched a deer on the food web, it would appear in the virtual ecosystem and interact with other organisms. Beyond the lessons in art, biology, and computer science, the sixth-graders learned something deeper and possibly more enduring: that the digital realm is not just a received environment, with expertly designed features beyond their control; it’s a world in which they can communicate and create. Gustafson recently received a \$15,000 state grant to bring the EcoMUVE activity to all sixth-graders in the district. She and her colleagues hope that this new introduction to Scratch programming will work in tandem with the existing robotics unit for the seventh-graders. The faculty will build upon their collective knowledge, institutionalizing computational creativity one year at a time.

As the digital realm has permeated almost every aspect of modern life, institutions like schools remain vital levelers. They promote more democratic and equitable participation in society’s virtual marketplaces and town halls. A public with staggeringly uneven rates of digital illiteracy creates ravines between the creators and the users; those who design the system and those at its mercy. As media theorist Douglas Rushkoff warns, “Program or be programmed.”

B.F. Skinner’s machine was rudimentary, its interface only the narrowest of windows through which students squinted at curricula printed on cylinders of paper. The windows are so much larger now, offering portals to seemingly infinite information. The advanced features of the new Teaching Machines could be used to realize Skinner’s ideal school: every learner an island, in front of a glowing screen; all students proceeding at different paces through the same exact motions; teachers reduced to technicians.

Indeed, when computers first entered classrooms on a mass scale, it was as banks of monitors installed to speed up rote learning, under a “one size fits all” philosophy. Seymour Papert criticized this transformation as “the shift from a radically subversive instrument in the classroom to a blunted conservative instrument in the computer lab.” He proposed an alternative to the concept of the computer programming the child: “In my vision, the child programs the computer.” He imagined another way for machines to revolutionize classrooms.

The call to reexamine *what* teachers teach can bring renewed discussions of *how*. With tools like augmented reality, games, and coding, it’s possible to imagine a model of schooling that departs from its behaviorist past—creating a Ludic Education for a Ludic Age, promoting inquiry, collaboration, experimentation, and play. In this vision, teachers and students are partners in a joint venture. They open up the Teaching Machine to peer into its guts and gears—tinkering, failing, and trying again, to see what they can make of it together. The machines can return education to what it’s always been: a project that’s intrinsically human. ▢

Sophia Nguyen is a staff writer at the magazine.

Montage

Art, books, diverse creations



- 62 Open Book
- 63 Speak, Memory
- 64 Off the Shelf
- 66 Chapter & Verse

Sara Jobin conducts a rehearsal of *Purchase of Manhattan*, which premiered at the Marble Collegiate Church in November.

music program, but soon found herself distracted by the chance to watch the Boston Symphony Orchestra rehearse, especially under the guidance of Leonard Bernstein '39, D.Mus. '67. It taught her the power of good conducting: "He had music running through his veins," she remembers. "When Bernstein was up there, it was like they were playing their souls for him."

She entered Harvard at 16, originally to study Russian—a skill that later earned Jobin her first opera job: helping Opera San Jose singers pronounce their lines for Tchaikovsky's *Eugene Onegin*. After a year off, she returned to concentrate in women's studies, with a minor in music. She wrote a senior thesis about five women conductors, in effect "studying what my life would be like if I chose this as a profession." By the time Jobin arrived at the Pierre Monteux School in Maine to study conducting, those reading her application "said it looked like I'd bathed in music."

The techniques Jobin picked up there are simple and traditional, she says: "to try to be clear, and sing the music from inside." To prepare for a performance, she

Orchestrating Opera's Emotions

Conductor Sara Jobin highlights the intimate stories within grand productions.

by STEPHANIE GARLOCK

IT WAS Francis Poulenc's *La Voix Humaine*—fittingly, "the human voice"—that convinced conductor Sara Jobin '92 to make her career in opera. As she took the podium to conduct her first full dress rehearsal as an assistant at Opera San Jose, she was overcome by how the emotions—of depression, and lost love—were conveyed by the

timbre of the soprano's voice alone. "For me, it was like the voice was riding on this velvet cushion of sound," she says. "I knew I was hooked for life."

Though Jobin calls opera something she "fell into," her résumé reads as if built for this rich musical form. As a teenager, she studied piano at Tanglewood's summer

spends most of her time at the piano, getting to know the music well enough to earn musicians' trust. Conducting also requires what she calls an "x factor"—an ability "to communicate the music physically" that can't be taught.

She learned to translate these symphonic-conducting skills to opera through apprentice-style tutelage at Opera San Jose and the San Francisco Opera. Given opera's many moving parts, Jobin reflects, "There's a lot more that can go wrong." She must manage soloists, several dozen chorus members, and an orchestra of 50 to 75 instrumentalists, often with little or no rehearsal. The action on stage means the audience won't be looking her way—but neither will the singers. When everything goes well, especially in big operas by Wagner or Strauss, she feels like "the captain, at the helm of a huge ship." Despite the massive scale of such productions, she says the connections she creates with the orchestra and singers are intense. "What we're doing actually is very intimate, to create the sound that's going to touch someone."

The emotions of those big, Wagnerian productions are what attracted Jobin to opera, but she's had trouble with their plots, full of weak female characters, tragic homosexuality, and racist portrayals of minorities. "I love all this old music," she reflects. "But the stories about the damsel in distress? We're so over that."

In response, she champions contemporary opera. Since 2011, she's served as the chief conductor for the Center for Contemporary Opera in New York, helping develop younger composers and using music to tell stories that feel relevant to today's opera audiences. In 2008, Jobin founded the Different Voices Opera Project with psychologist Carol Gilligan, Ph.D. '64, RI '83 (formerly Graham professor of gender studies at Harvard), and together they have worked to develop *Pearl*, a version of *The Scarlet Letter* told from the perspective of Hester Prynne's daughter, and *A Thousand Splendid Suns*, based on Khaled Hosseini's novel about the lives of two Afghan women.

Issues of gender and performance have been major touchstones for Jobin's own life and career. In 2004, she became the first woman to conduct a main-stage, subscription performance at the San Francisco Opera, leading Puccini's *Tosca*. Offstage, she has excelled in judo, which she began

studying during her year off from Harvard. In 1998 and 2006, she won national championships for Ju-no-Kata, the arm of the sport in which pairs perform choreographed kata—sets of forms. In kata, the partners are "throwing the energy back and forth, just like you do in music," Jobin says, "and you're expressing it through your body."

More recently, she's found an outlet in her commitment to climate justice as well. Though she lives in the rural Berkshires, Jobin owns no car, preferring to get around, even through the long winter, on a well-outfitted bicycle. Her connections to the environment have played out professionally in the world premiere of *Purchase of Manhattan*, an opera by Mohican composer Brent Michael Davids about the first encounter between Dutch settlers and the Lenape Indians. The work incorporates a group of native singers and a native flute, and Jobin conducted the first performance this past November.

One of her favorite moments comes near the beginning, as Peter Minuit, the tenor, arrives on the island singing a waltz, gleeful about the land's potential value. Below him in the duet, the steady, drum-like Lenape



Sara Jobin

baritone sings about his love for the land's maternal bounty. As Jobin conducted, she felt the power of opera to help "access emotions that there aren't necessarily words for. That story is so deep, you can't even articulate it." Even without words, opera, and the music of emotion, let you try.

His Own "Decisive Moment"

Photographer Tim Carlson focuses on athletes in nature.

by STEVE POTTER

As a newly minted *Harvard Crimson* photographer, Timothy G. Carlson '71 made his way into University Hall on April 9, 1969, during its occupation by student protesters. Four of his almost elegiac black-and-white photographs from that day, of the protesters meeting in a sunlit hall and of the violent nighttime police bust that ended the occupation, appeared in *Life* magazine, a pair of them as two-page spreads.

That portfolio gained Carlson admission to Harvard's visual and environmental studies department, where his senior thesis was



Student occupiers in University Hall, 1969

a photo essay on his hometown, Daytona Beach, Florida. The work of legendary photojournalists like Henri Cartier-Bresson,

Robert Frank, Margaret Bourke-White, and Walker Evans helped shape his photographic vision: Frank's irony and Cartier-Bresson's geometric compositions in particular informed Carlson's early images.

Eventually he reached his own understanding of "the decisive moment"—a phrase popularized as the English title of Cartier-Bresson's classic 1952 book of photographs, *Images à la Sauvette* ("images

on the run" or "stolen images"). "There is a creative fraction of a second when you are taking a picture," Cartier-Bresson told *The Washington Post* in 1957. "Your eye must see a composition or an expression that life itself offers you, and you must know with intuition when to click the camera. That is the moment the photographer is creative. 'Oop! The Moment!' Once you miss it, it is gone forever." For Carlson, though, the "decisive moment" has not been something to take literally. "It was something surprising or wonderful or alive," he says, "in which you placed a person or object in the middle of life or a culture, in a balanced arrangement of forms that created its own logic."

Carlson traveled and photographed ex-

O P E N B O O K

Discerning a Blink

and through her mother's terminal illness. It begins with this exquisitely detailed narration of an ending, perhaps echoing readers' experience of *A Death in the Family*, by James Agee '32. From the prologue:

She left us at night. It had felt like night for a long time, the days at once short and ceaselessly long. November-dark. She'd been lifting her hand to signal for relief, a code we'd concocted once it became too much effort for her to speak and too difficult for us to understand her when she did. When it became clear that it was taking everything out of her just to lift the arm, we told her to blink, a movement that, when you're watching for it, becomes impossibly hard to discern. "Was that a blink?" we'd ask when her eyelids just seemed to ripple or twitch. "Are you blinking, Mom? Was that a blink?" until finally, she'd heave the lids up and let them thud back down to say, *Yes, the pain weighs that much, and I am lying here, pinned beneath it. Do something.*

Did we recognize the day when it arrived? A day with so much pain, a day when her patience had dissolved and she wanted nothing but to be outside of it. Pain. The word itself doesn't hurt enough, doesn't know how to tell us what it stands for. We gave her morphine. Each time she asked for

Tracy K. Smith '94—winner of the 2012 Pulitzer Prize for *Life on Mars*, her third poetry collection, and professor of creative writing at Princeton—has now crafted a book of prose, *Ordinary Light: A Memoir* (Knopf, \$25.95). It travels from the comfort of the California suburbs back to the cotton culture of Alabama,

and through her mother's terminal illness. It begins with this exquisitely detailed narration of an ending, perhaps echoing readers' experience of *A Death in the Family*, by James Agee '32. From the prologue:

it, we asked her if she was sure, and she found a way to tell us that she was, and so we were sure—weren't we?—that this was the end, this was when and how she would go...

There was a moment when I found myself alone with her in the room. Had I crept back down to steal a last look, or had we all agreed to give one another that much? It's been twenty years now. I've forgotten so much that I once forbade myself to forget, but I do remember this: snipping five or seven strands of her hair with a pair of nail scissors from her bureau. Just a few short hairs from the nape of her neck. Suddenly, those few strands, things I'd have once thought nothing of brushing off her shoulders or discarding from among the tines of a hairbrush, were consecrated, a host. For a moment, I contemplated eating them, but then they'd be gone and I'd have been left with nothing, so I placed them in a small plastic bag, the kind of bag in which spare threads or extra buttons are provided when you purchase a sweater or coat, and tucked that into the flap of my address book.



Tracy K. Smith

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Athlete Eney Jones in unexpected repose (above) and a shot from the Eilat Triathlon

tensively in the United States after graduation, before going to Lebanon in 1974 to document a group of Palestinians living there. But his plan to photograph the civil war in nearby Cyprus collapsed, and a severe gastrointestinal disorder finished off his career as an itinerant photographer. Since then, he has made his living primarily as a writer for mainstream and specialty publications, including the *Los Angeles Herald* and *TV Guide*. But he has never put down his camera, and his photographic style has evolved across the decades.

For the past 20 years, Carlson has fo-

cused on triathlons and the extraordinary athletes who compete in them, publishing many photographs in the specialized magazines and online media that cover the sport (see <https://www.flickr.com/photos/timothycarlsonphotography/sets>). Many of his images embed the human subjects in an almost overpowering natural setting. For example, a 2012 portrait of retired professional triathlete Eney Jones poses her in a white evening dress, standing with precarious grace on a rock amid a rushing river, setting up a riveting dynamic tension. A 2014 photograph from Israel's Eilat triathlon shows a string of Lilliputian cyclists racing on a paved road that turns and twists through hilly desert.

Though he traces his photographic roots to the days of darkrooms and silver salts, Carlson has enthusiastically embraced modern photographic technology. "I'm grateful for the mature digital age," he says of the modern high-end digital cameras that produce brilliant color and razor-sharp resolution. He has also taken to artificially lighting his subjects, or combining natural and artificial light sources



in the same photograph. "I was seduced by, and fell in love with, the diffuse light of light boxes," and began using it for portraits of certain people, he explains, citing the influence of Annie Leibovitz. Carlson's 2012 portrait of a swimmer emerging from the water is arresting. The spray of water droplets—frozen in time against an impossibly blue sky by the strobe in the light box—gives the image an instantaneous quality, while a modest tilt of the horizon

A triathlete in action

creates a degree of compositional tension.

Carlson still returns periodically to Daytona Beach to photograph and has no plans to put down his camera. He regrets never having done the depth of photo-journalistic reportage that characterizes some of the photographers who inspired him. But when pressed, he admits that he finds some of his own individual images "worthy."

Speak, Memory

Dissecting her diary, a writer weaponizes solipsism.

by SOPHIA NGUYEN

ONGOINGNESS: *The End of a Diary* is a memoir that makes only one confession. In it, Sarah Manguso '96, a poet and contributor to *Harper's*, *The New York Review of Books*, and *The Paris Review*, reflects on her oldest project and vice: the journal she kept meticulously for 25 years. The volume that results is slender and often elusive. It's a commentary on a much longer text that reproduces none of those 800,000 words. It's also an autobiography unweighted by personal detail or even proper nouns—those specifics that lend texture, trigger electric jolts of recognition, or provide footholds in a stranger's life. She has audited her archives in order to understand her need for them.

Manguso has produced an essay in the oldest sense, a scrupulous and ruthless weighing of a subject. *Ongoingness* traces her obsession with documentation back to its

source, and then forward to its eventual dissolution. The diary began when, at the age of nine, she was given a journal she used at first only out of duty; it lapsed when her son was born. During the decades between, she added to and revised the text several times each day. In a world that has invented the selfie stick, such recordkeeping seems so endemic as to be unremarkable. Yet as Manguso maps her compulsion, it proves wider and deeper. The prevailing sociable and networked narcissism imagines an audience. Her diary was a project so purely private it remained inviolable. "I wrote it to stand for me utterly," she says, explaining her indifference to concealing it from prying eyes: "I might as well have hidden myself from view."

The book shifts focus when she relates the life events—marriage, births, deaths—that, by defying discrete containment, forced her to accept memory as capricious,

and history as continuous. Motherhood especially altered her powers of perception. During pregnancy, Manguso suffered from amnesiac spells. Later, tending to an infant's constant needs exhausted her capacity to meditate on her day, or even to recall words. Her child's life summoned her to a fuller participation in their shared present. Eventually, the daily entries became more sporadic.

The memoir interrogates the diary at every angle, particularly as a means of mastering time. Through the diary, Manguso tells us, she thought she could preserve the present even as it elapsed. She could guard against her disappearance after death—or worse, a forgetting so total that the past might never have existed at all. Her work is full of such precise, philosophical parsings. Rigor brings vitality and wit to her work. At one point, she romantically likens her method of memory to "listening to a broken tape by hand-feeding it one last time through the tape player," an idea that she says captivated

Sarah Manguso, *Ongoingness: The End of a Diary* (Graywolf Press, \$20)

her generation. Then she admits, “I never did it. Maybe everyone was lying. No matter. It’s still a decent metaphor.”

ONGOINGNESS appears after a year in which autobiography has driven the literary conversation. In fiction came Karl Ove Knausgaard’s latest installment to *My Struggle*, Ben Lerner’s *10:04*, Rachel Cusk’s *Outline*, and Jenny Offill’s *Department of Speculation*. Jacqueline Woodson’s memoir in verse, *Brown Girl Dreaming*, won the National Book Award in young adult literature. Most proximate to Manguso’s project were the releases of highly personal nonfiction collections by Megan Daum, Roxane Gay, and Lena Dunham, as well as the more journalistic essays of Eula Biss and Leslie Jamison. It would be a mistake to ghettoize this cohort into a demographic subgenre of “women essayists,” yet they undeniably respond to a shared cultural moment, and register the same societal pressures. As a result, their

work has evolved some common features.

The contemporary personal essay habitually makes a certain swerve: when the author feels compelled to announce that she fully expects to be disliked or dismissed. Then she renews her commitment to authenticity, warts and all; the act of writing is framed as a bold transgression. Whether defensive disclaimer or preemptive strike, the subtext is always the same—“I am watching you watch me”—and wrapped up in the bravado is a gambit to gain the reader’s sympathy and respect. This reflex appears as often in print as it does in online outlets: Daum’s *The Unspeakable*, Gay’s *Bad Feminist*, and Dunham’s *Not That Kind of Girl* all have prefaces working overtime to justify their very existence. That they take pains to be taken seriously is understandable, but disheartening: imagine if, in the run-up to the vault, Olympic gymnasts first had to argue the point value of each twist and tuck.

Manguso dispenses with such gestures. “For better or worse, I write about myself,” she said in an interview with *Guernica*. In a roundtable of nonfiction writers for *Gulf Coast Magazine*, she shrugged off the eagerness of publishers and critics to define generic boundaries: “That taxonomy conversation, with its obsessive ranking and sorting, to me just reeks of fear.” *Ongoingness* begins with a coolly straightforward assertion: “I started keeping a diary twenty-five years ago. It’s eight hundred thousand words long.” She doesn’t fuss about courting the reader. Her position in the literary landscape is evidenced by her resolute focus, manifest in her two prior memoirs.

The Two Kinds of Decay documented Manguso’s long siege by a rare degenerative illness that destroyed the protective myelin sheaths of her nerve cells, causing paralysis. Her treatments began in her junior year of college. She waited for

Off the Shelf

Recent books with Harvard connections

Sometimes an Art: Nine Essays on History, by Bernard Bailyn, Adams University Professor emeritus (Knopf, \$28). A superb argument for anthologizing essays, here by the preeminent historian of early America, on two themes: history itself, and the peripheries of the early British empire. Readers will be grateful to have “Three Trends in Modern History,” an illuminating dissection of the rise of and uses of quantification, spatial relationships (from the center, say London, to the margins of empire), and the links between “interior, subjective experiences” and “the course of external events.”

Frank, by Barney Frank ’61, J.D. ’77 (Farrar, Straus and Giroux, \$27), and **A Very Private Public Citizen: The Life of Grenville Clark**, by Nancy Peterson Hill (University of Missouri Press, \$40). Two very different lives, but both Harvardian and public-spirited. Frank’s autobiography covers his life as a colorful, and for a long time closeted, U.S. congressman. Noting

a change in the newspaper’s style, he observes, “I believe I am the last man in history to be described as ‘homosexual’ in *The New York Times* as a matter of editorial policy.” Clark, A.B. 1903, LL.B. ’06, LL.D.

’51, a mandarin at the pinnacle of New York lawyering, friend and counselor to presidents, served on the Corporation from 1931 to 1950, delivering timely, crucial defenses of academic freedom against the loyalty-oath challenges of the day.

The Birth of a Nation, by Dick Lehr ’76 (PublicAffairs, \$26.99). The hitherto unreported confrontation between the Hollywood director D.W. Griffith and Monroe Trotter, A.B. 1895, A.M. ’96, Boston newspaper editor and African-American activist, who led focused protests against the depiction of slaves and Klansmen in Griffith’s blockbuster movie (its title is the book’s) about the Civil War and Reconstruction.

Reynard the Fox, a new translation by James Simpson, Loker professor of English (Liveright, \$24.95). In perhaps the most

famous extended animal fable, the wily Reynard—unconstrained by mere morals—tricks, outwits, or eats overbearing others. Grounded in medieval scholarship, but lively satirical fun; illustrated.

Atheist Mind, Humanist Heart, by Lex Bayer and John Figdor, M.Div. ’10 (Rowman & Littlefield, \$32). Bayer, an entrepreneur, and Figdor, humanist chaplain at Stanford, join in “rewriting the Ten Commandments for the twenty-first century.” They even launched a crowd-sourced project to select the top 10 beliefs to live by.

Essays After Eighty, by Donald Hall ’51 (Houghton Mifflin Harcourt, \$22), and **The Devil’s Tub**, by Edward Hoagland ’54 (Arcade,

\$24.95). Two original literary lions in winter, still roaring. Hall, a poet laureate of the United States and National Medal of Arts honorand, writes frankly, from age: on a New Hampshire winter’s day, “I teeter when I walk, I no longer drive, I look out the window” at accumulating snow. Hoagland, who has crafted reportage, essays, and fiction from difficult places (geographically and psychologically), here collects 10 short stories.



Donald Hall

LINDA KUNIHART

hours as a machine cleaned and replaced her blood, and endured tests that applied electric shocks directly to her nervous system. Clinically recounting these experiences, Manguso declines to reach for the easy metaphor—and yet it's difficult not to understand them as a template for her almost frightening discipline as writer. Her persistent themes start to take shape: her sense that time seems too "full"; her need to measure it in writing, even as she knows the activity "is designed to distract me from what's really happening."

Her second memoir was occasioned by a friend's suicide. *The Guardians: An Elegy*, its narrative untidy as grief, contemplates his suffering. Chronology explains nothing; Manguso reconstructs events as nonlinear ruptures and ripples, shifting between different tenses. We are unmoored in her memory, as she narrates a scene:

One more day at the beach, just the five of us from Chambers Street.

Harris drives us in his car...I'm smiling now, remembering. Still smiling. Harris is just a shimmer, a null set. He reflects my grief, and it's so bright I can't see much behind it, but behind the brightness is a human shape. I look at him, then look away. I was so lucky.

The triumph of *The Two Kinds of Decay* lies in defiant control; the gift of *The Guardians* is in the complexity of acceptance. Where the first establishes a method for *Ongoingness*, which it most closely resembles in style, the second offers an emotional approach.

Leaner than its predecessors, Manguso's third memoir is also composed of fragmentary sections, never more than a few paragraphs long, and sometimes as short as a few sentences. In *Ongoingness*, however, each page brings a fresh thought or recollection, untitled. This form doesn't seem driven by a conscious attempt to defy

The title piece appropriately begins with a character who is a "daredevil."

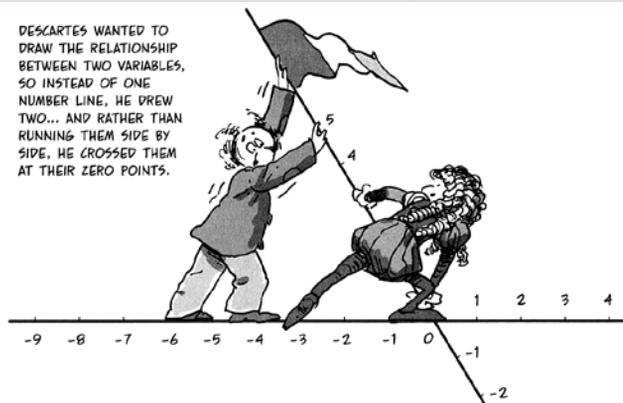
Banned: A History of Pesticides and the Science of Toxicology, by Frederick Rowe Davis '88 (Yale, \$40). An environmental historian and historian of science at Florida State analyzes the poster-child of pesticides, DDT, in the wake of Rachel Carson's *Silent Spring*; the evolution of toxicology; and the subsequent development of new compounds—some implicated in causing collateral harm to bees, birds, and possibly other species today.

Ultimatum from Paradise, by Jacqueline Osherow '78 (Louisiana State University Press, \$18.95 paper). A seventh collection of poems—many anchored in places (the rose dusk of Salt Lake City in January, the "...cabal / of trees—poincianas, / oleanders, jacarandas..." in Tel Aviv) and place-makers (Charles Rennie Mackintosh, Antoni Gaudí). The author is Distinguished Professor of English and creative writing at the University of Utah.

Making Money: Coin, Currency, and the Coming of Capitalism, by Christine Desan, Gottlieb professor of law

LARRY GONICK

DESCARTES WANTED TO DRAW THE RELATIONSHIP BETWEEN TWO VARIABLES, SO INSTEAD OF ONE NUMBER LINE, HE DREW TWO... AND RATHER THAN RUNNING THEM SIDE BY SIDE, HE CROSSED THEM AT THEIR ZERO POINTS.



(Oxford, \$85). A constitutional historian dives deep into the political economy of money in England—from royal monopoly to joint creation with private investors—to illuminate how the means of exchange is in fact a form of governance and of social order. In a different vein, Amy Reynolds '99, assistant professor of sociology at Wheaton College, writes in **Free Trade and Faithful Globalization** (Cambridge, \$90) about various religiously based reactions (often quite critical) toward free trade and globalization, which are commonly seen as value-neutral in economic discourse; opposition, therefore, is commonly underestimated.

He Wanted the Moon, by Mimi Baird with Eve Claxton (Crown, \$25). Perry Baird, M.D. '28, disappeared from his daughter's life when she was six. Fifty years later, in 1994, his diary/manuscript on his

manic-depression and institutionalization came into her hands, and now forms the basis of her memoir wrapped around that text—a painful and revealing portrait of severe mental illness in an earlier era.

To improve your STEM (look it up) self: **The Cartoon Guide to Algebra**, by Larry Gonick '67, A.M. '70 (Morrow, \$18.99 paper), the latest in the series, begins with Chapter 0 (you have to know arithmetic) and gently leads you through and beyond the terrors of high-school math. Dinah L. Moché '58, professor of astronomy at Queensborough Community College/CUNY, tilts your sights higher in the eighth edition of **Astronomy: A Self-Teaching Guide** (Wiley, \$21.95 paper). And in a collaborative first, computer scientist Ellie Baker, Ph.D. '99, and Susan Goldstine, Ph.D. '98, chair of mathematics and computer science at St. Mary's College, have con-

ducted **Crafting Conundrums: Puzzles and Patterns for the Bead Crochet Artist** (CRC Press, \$39.95), a mathematically grounded guide to torus knots, planar mapping, your own Escher bracelets, and more.

Algebra, a high-wire act for math phobics, is here rendered clearly, amusingly, and memorably.

HM Explore More

For more online-only articles on the arts and creativity, see:

Kara Walker "Sweet Talks" Harvard

At the Radcliffe Institute, the artist unraveled some of the mysteries of her installation, *A Subtlety*.

harvardmag.com/walker-15



Lives in Television

MTV's president of programming and the executive producer of *Masters of Sex* on their craft. harvardmag.com/livesintv-15



Sarah Manguso

convention. Rather, it feels structured by necessity. Through these stanza-like passages, Manguso commands attention. She builds a corridor of interconnected chambers, which invite readers to linger, to pass through quickly, to return and dwell.

It's tempting to describe her style in negative terms—unsparing, uncompromising. A typical passage might read, "One afternoon I declined a ride from one city to another with a friend who didn't survive

his twenties. I didn't think I'd survive the afternoon without spending four hours on the bus back to college thinking and writing about what had happened during my trip." In its way, her prose is as finicky as poetry; it lives and dies by the way it's arranged on the page. (Manguso's poetry, though equally cerebral, is less astringent.)

Ongoingness seems like the product of absolute reduction. Specifics have been seared away: where the narrator went to college and where she now teaches, her favorite band and the painting she fell in love with, the elderly writer she corresponded with before his death, and the names of her friends, husband, and son—all are a curious blank. She leaves plenty of white space, which toward the end of the book is interrupted by bursts of color, as the vibrancy of the present demands her attention, or summons an infant memory. A blue stuffed animal makes an appearance, as does the brightness of her boy's hair, or the rainbows of her husband's youth. Stripped of excess, the sentences are so stark as to seem opaque.

THE ONE POINT when Manguso seems to falter is after *Ongoingness* ends. In an afterword, she explains her choice not to include the original diary, and details her process of rereading the 23 files, selecting excerpts, and then dispensing with this strategy al-

together. This is the first time that she goes out of her way to explain herself; her coda, like those prefaces by fellow authors, betrays the apparent confidence of the rest of the book. The sentences grow longer and more prosaic. It's perhaps best to consider these final pages akin to a director's commentary: some may find this insight illuminating; others may find that this postscript dilutes the work itself.

In his 1972 book *Ways of Seeing*, the art critic John Berger draws a distinction between naked and nude female subjects, a metric since applied to writerly self-portraiture. Readers expect memoirs to orient themselves around a set of polar axes: growing pains versus progress gained, exposure versus disguise, confession versus composure. Manguso's work defies these dichotomies; its closest relative among schools of painting might be Abstract Expressionism. She weaponizes solipsism to dive into the bedrock of human experience: memory faltering in the face of mortality; the humility commanded by time; the impossibility of taking the full measure of one's life. The question that pervades all of Manguso's work, and forms the heart and vascular system of *Ongoingness*, is: Why write? That question's obverse reveals itself as: How to live? ▽

Sophia Nguyen is a staff writer at the magazine.

David Azzolina writes: "Psychotherapist Alfred Adler is quoted as having said, 'The only normal people are people you don't know well enough yet,' or words to that effect. I have

not been able to verify that quote with a legitimate source. I even wrote [Adler's granddaughter] Margot Adler when she was alive and she only knew it by hearsay. Any suggestions?"

John Simbeck hopes someone can source a comment "by Nietzsche (or Goethe? Kierkegaard perhaps?)" that he paraphrases as "'Steal a loaf of bread (or larger goods) and the weight of the Law comes down mercilessly; steal a fortune and you're deemed daring; steal a country and you become a hero. The amount of blame falls in inverse proportion to the magnitude of the crime.' That last

Chapter & Verse

Correspondence on not-so-famous lost words

phrase is the key part I remember the closest," and differentiates the quotation from other versions of the same idea, such as that delivered by Brutus Jones in the opening scene of *The Emperor Jones*: "For de little stealin' dey gits you in jail soon or late. For de big stealin' dey makes you Emperor and puts you in de Hall o' Fame when you croaks."

Josh Mittendorf seeks the name of a short animated Canadian film (circa 1972) "told from the perspective of a homunculus inside a man's head, who sketches on an easel dangerous things he sees that he wants to remember and avoid in the

future. Soon there are so many, the outer man becomes jittery and visits a psychologist. The psychologist (German accent) fits him with glasses that make everything look smaller. He is no

longer afraid of his boss or barking dogs, but in the last scene, he is crushed by a steamroller that appeared, through his glasses, to be too small to worry about."

Sonnet written to someone old (January-February). Hank Hudepohl identified the work requested as "To My Mother on Her Seventy-third Birthday," by Arthur Davison Ficke, A.B. 1904. It appears in his book *The Secret and Other Poems* (1936).

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



ALUMNI

“No Hoof, No Horse”

How a farrier spends her days

by NELL PORTER BROWN

CROUCHED beside Sunny’s dappled belly, Hilary Cloos ’96 holds his hoof in her lap, digging out the dirt and nipping down the hoof wall, as any good pedicurist would. “Come on, good boy,” she murmurs as the teenage palomino shifts uncomfortably. “You are fine, fine. Yes, you are a fine specimen.” The patter calms the horse, which has stood patiently in the barn at the Weatogue Stables, in Salisbury, Connecticut, for more than an hour letting Cloos do her job. Horses generally compete well into their twenties, but Sunny has weak tendons and was retired from dressage work in 2013. “Now we have him in therapeutic shoes only in the front, so he can keep going outside and ambling around comfortably,” Cloos explains while walking out to her truck, a portable blacksmith shop. She grabs a new aluminum shoe, a ham-

mer, and nails, and heads back inside, patting Sunny’s neck, then runs her strong, square hands through his coat: “We’re almost done, good boy.” Taking up the hoof, Cloos nails on the shoe, mindful of the “white line,” an eighth of an inch of keratin protein separating the insensitive hoof wall and live sole tissue. “It took years,” she says, “to get the feel of where that is.” Released, Sunny saunters back to the rolling pastures along the Housatonic River that are his home.

Equal parts vet, mechanic, and blacksmith—and *all* horse-whisperer—Cloos is based in New Paltz, New York, and cares for about 180 horses throughout western Connecticut and the Hudson Valley. Weatogue was a dilapidated former breeding farm for Arabian horses when Roxanne and Scott Bok (a Park Avenue investment

Jade nuzzles Cloos en route to getting his new shoes.

banker), who also own the farm across the road, bought the 60-acre property to prevent the land from being developed. They overhauled the facilities and opened Weatogue as a training barn for dressage and eventing that now draws a mix of hobbyists and competitors among regional riders and weekenders from Manhattan.

“A horse’s hoof, as you probably know from hanging around Hilary, is super-complicated,” says Roxanne Bok, author of *Horsekeeping*. “It’s true, that saying: ‘No hoof, no horse.’ Hilary has a huge position of responsibility, it’s very hard work—and you need brains.”

Bok and Cloos, like many horse-lovers, are energized by the sensory nature of equine life. Barn work is earthy work: full of hay dust, flies, and the smells of

sweat, manure, grain bins, saddle soaps, and oils, the sounds of running water, and, Cloos notes, “lots of rope and leather”: bridles, halters, lariats, and girths. “It’s all so tactile,” she adds. “I also like just touching the horses and their feet and hammering the metal. I love being outside and moving from barn to barn. And the physical contact; I’m pushed up against these warm, powerful creatures all day.”

GROWING UP on Cape Cod, she mounted a horse for the first time at age seven. Lessons were a gift from her mother, Nancy Cloos Babin, and stepfather, David Babin ’56 (her sister is Putney Cloos ’98). She rode for several years, then stopped and didn’t pick up the sport again until freshman year at Harvard, when she began riding for the club team, grateful that the Intercollegiate Horse Show Association does not require competitors to own a horse. “We would arrive and everyone would draw a horse’s name out of a hat and you got on that one, and jumped the course,” she says, laughing. “Everybody was at the same disadvantage of having no idea what they were sitting on.”

She focused on women’s studies’ courses until realizing “my papers were on viewpoints and analysis.” Physics gratified a preference for “more concrete an-

swers: either you understand how something works, or you don't." The advanced math was always a struggle, but worth it for courses like "Widely Applied Physics," where "we took apart everything," she says, "from how high insects can jump to how a nuclear reactor works." She never discussed horses with her adviser, Mallinckrodt professor of physics Howard Georgi, until her senior year, when he asked about post-graduation plans. "I sort of shamefacedly said I was hoping to be a working student for an event rider—train under a rider and do their barn chores," she recalls. "Georgi brightened up and said, 'Oh! My wife has a horse she doesn't have time to ride.'" Cloos was soon exercising Ann Georgi's Selle Français, Max, on Boston's North Shore, and after she graduated, the Georgis sent Max out to her for caretaking once she'd settled in the Hudson Valley.

By then Cloos was riding regularly, but would soon cycle through two "extremely boring" barn jobs. She had long ago nixed a veterinary career "because I didn't have the stomach for it: during a college internship at an equine clinic," she explains, "a horse came in with a stick in its eye, and I just wanted to leave." A mentor suggested shoeing, so in the spring of 1997 Cloos started the highly regarded, four-month farrier program affiliated with Cornell's College of Veterinary Medicine.

Farriers in Britain are licensed professionals, but in the United States the field is unregulated, even though many programs, like Cornell's, award certificates. The American Farriers' Association has about 2,000 members, says executive director Beth Daniels, but cannot track how many more farriers there are around the country. She does know that "women farriers are still pretty darn unique," despite the fact that most horse owners, trainers, riders, and vets—except in the racing industry—are women. "It's tough, physical work. You have to be very strong," she points out. "Farriers get right in underneath horses and when horses get spooked or fall down, which they sometimes do, it's dangerous."

Six years after completing the Cornell

program—four spent apprenticing with farriers in the Hudson Valley and another two building a practice from word-of-mouth referrals—Cloos became an independent farrier. The job requires skills in "art and craft," but also science. Horses' legs and feet, it turns out, epitomize classical mechanics, her favorite school of physics. "They are all levers (the bones) and pulleys (the tendons) and pendulums," she explains. "My job is finding the weaknesses of a horse—how those affect the whole system—and figuring out what's interfering in what way, and how I can change the ground-to-foot-surface interaction and weight on the foot to improve that horse's performance, protect its legs, and make it comfortable."



Hammering the orange-hot shoe requires less brawn, and more finesse, than many imagine. With her mobile blacksmith shop (left) parked at the barn door, Cloos grinds a bevel onto Willoughby's shoe as he stands by.



Horses essentially walk on tiptoes; as they evolved they lost most of their digits, and the middle one became today's tough, keratin-packed hoof. Each year, a horse typically grows an entire new hoof capsule, from the hairline to the toe, Cloos says, like a "tubular version of a human toenail." That capsule must be trimmed and filed every four to six weeks to prevent it from interfering with walking, trotting, and cantering, much less with the rigors of dressage, jumping, and hunting.

Farriers focus on the distal limb: the part of the leg below the knee and hock that contains nine bones and virtually no muscle. Pivotal are two tendons, the extensor and the deep digital flexor, that run down and attach to the top and bottom of the coffin bone, respectively. "The coffin bone sits in the front of the hoof capsule," just above the sole, Cloos explains, in front of the tender V-shaped tissue called the "frog." The aim is to keep the toe of the hoof from extending too far beyond the tip of the coffin bone, because that can cause excess pressure on the tendon, resulting in tears, falls, or other injuries.

The laminae are the "coolest" part of the foot, she thinks: "interdigitating folds of tissue in the hoof wall" that create a surface area strong enough to carry a horse's weight when the perimeter of a hoof alone is insufficient. Emergencies occur when the live tissue of the laminae starts sliding through the insensitive tissue and the coffin bone rotates, or the whole mass pushes through the sole of the foot, she says, "That's when you have blood and pain."

Injuries do happen, which is why Cloos favors shoeing long-term-performance horses like her "clients."

Farriers get heated over topics like letting horses run barefoot, she reports: “It’s akin to people who think human runners should run without sneakers. Some can, and there are those who can’t. We haven’t genetically selected for good feet with domesticated horses: we’ve selected for good breeding, we’ve chosen for pretty, fast, or jumps high, and those are not necessarily paired with good feet. In the wild, horses *are* selected for good feet: the fleet-footed stallions catch the babes and the good-footed mares can carry the babies to term.”

Cloos aims to work with clients throughout their lives; some have been with her for more than 12 years. Horse-racing is more short-term. “The horses are treated as more expendable,” she says. “It may not be fair for me to say that, because I have not spent time on a track,” but in apprenticing at breeding farms, she found the priority was “just about bringing them to sale.” Cloos, on the other hand, spends a significant part of every day nurturing



The burn marks on Willoughby’s hoof show where further filing is needed; Cloos double-checks the final fit before nailing on the shoe.

relationships with horses. “Like any animal,” she adds, “they are really responsive to your moods.” The “spooky or flighty” ones make her more nervous, so “I talk to them more, just to remind myself to keep breathing—because if you stop breathing and stiffen up, then they think there is really a problem,” she adds. “They can sense fear, and if you are in a rush with the work, you are really doomed.”

Occasionally, even her sure hands and patient patter don’t work. She has been kicked a few times, though never hurt—“Usually you are so close to the horse that, if they do kick you, it’s more of a shove out of the way; at the end of the blow is when they have the momentum on it.” There are horses that “for whatever reason, don’t like me, or I don’t like them,” she

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says. “It’s like with any person you have to work with: you acknowledge that there is a certain level of discomfort and you try to adapt.” Recently, a horse that had just been brought in from a nearby farm was skittish in the new barn; he “got so upset when I was working on him that he finally just tore away from the person holding him and ran back to the field he had come from,” she says. “That was a bad day.”

But for most horses, shoeing is like going to the dentist, she says: “It’s not how you would choose to spend your time, but you put up with it because you need to.” Sunny is cold-shod, which means his shoes are hammered into shape and attached without being heated (because aluminum melts too easily). His stable-mate Jade is hot-shod, which requires more training, time, and skill, and therefore can be more expensive. Horseshoes range widely in size, materials, and weight; farriers custom-fit each horse depending on its needs, by widening and narrowing the shoe, and by using pads and other add-ons that protect weak points and fill in the gaps to improve how fluidly the foot moves. For teenage riders who might “go hooliganing” around a trail, Cloos screws “caulks,” akin to cleats, onto their horses’ shoes to enhance traction. For Jade, Cloos adds “pour pads” as protection under the shoe because his soles are thin and his coffin bone is easily bruised.



“The goal is to fit them so well it’s like they are wearing nothing,” she says, turning on the propane-fired forge in her truck and using tongs to hold a steel shoe in the flames until it is “orange-hot.” Then she applies it to Jade’s hoof for about five seconds. The billowing smoke smells like burning hair, but her client doesn’t blink because Cloos has trimmed the foot to leave a layer of insensitive tissue. The burns show where she needs to further file down the hoof wall. Then Cloos reheats the shoe to pound it into shape on the anvil.

Brawn doesn’t count much in the process, but Cloos is compact and athletic. “Our instructor at Cornell used to say that

farriers went to hell for two reasons: one was not charging enough for their work, and the other was for striking cold metal,” she says. “You just make so much more work for yourself that way. Certainly it’s a strong surface and you are working with iron, but you’re supposed to use the forge to *shape* the metal—to strike while the iron is hot.” She cuts the pads to fit over the horse’s sole, and then, once the new shoe is shaped and cooled, sets the pads and nails the shoe against them onto Jade’s hoof. Nipping off any sharp edges and using a “clincher” to tuck remaining metal into the hoof wall, she then refiles the hoof and the shoe for a final smooth finish.

Max, for whom Cloos found a Kentucky retirement home in 1999, was the last horse she owned and rode. “I spend most days, all day, with horses,” she says. On the weekends now she’d rather practice the French horn, or hike, bike, or run with her husband, whom she married last April. “I have come to love being a part of the support team, the pit crew,” she says. “I get enough satisfaction—maybe more—out of having my horses compete without having to ride them myself. As kids, I think, we are all drawn to them because they are so powerful and beautiful, and yet we can harness that power because they are generous with their spirit. That’s what keeps me going. As corny as that sounds, I think they really are generous creatures.”

Overseer and HAA Director Candidates

THIS SPRING, alumni can vote for five new Harvard Overseers and six new elected directors of the Harvard Alumni Association (HAA).

Ballots, mailed out by April 1, must be received back in Cambridge by noon on May 22 to be counted. Election results will be announced at HAA’s annual meeting on May 28, on the afternoon of Commencement day. All holders of Harvard degrees, except Corporation members and officers of instruction and government, are entitled to vote for Overseer candidates. The election for HAA directors is open to all Harvard degree-holders.

Candidates for Overseer may also be nominated by petition by obtaining a pre-

scribed number of signatures from eligible degree-holders. (The deadline for all petitions was February 2.)

For Overseer (six-year term):

R. Martin Chavez ’85, S.M. ’85, New York City. CIO and partner, The Goldman Sachs Group, Inc.

Fernande R.V. Duffly, J.D. ’78, Boston. Associate Justice, Massachusetts Supreme Judicial Court.

Sandra Edgerley ’84, M.B.A. ’89, Brookline, Massachusetts. Nonprofit strategist and community volunteer.

Brian Greene ’84, New York City. Professor of physics and mathematics, Columbia University.

Beth Y. Karlan ’78, M.D. ’82, Los Angeles. Director, Women’s Cancer Program, Samuel Oschin Comprehensive Cancer

Institute; director, division of gynecologic oncology, department of obstetrics and gynecology, Cedars-Sinai Medical Center; and professor of obstetrics and gynecology, David Geffen School of Medicine at UCLA.

Carl F. Muller ’73, J.D.-M.B.A. ’76, Greenville, South Carolina. Attorney.

David B. Weinberg ’74, Chicago. Chairman and CEO, Judd Enterprises, Inc.

John Silvanus Wilson Jr., M.T.S. ’81, Ed.D. ’82, Ed.D. ’85. Atlanta. President, Morehouse College.

For elected director (three-year term):

Krzysztof Daniewski, M.B.A. ’99, Warsaw. President, Ivy Poland Foundation.

Paige Ennis, M.P.A. ’10, Washington, D.C. Vice president, office of external relations, Atlantic Council.

Ellen M. Guidera, M.B.A. '86, Santiago, Chile. Investor and director, Portillo Ski Resort and Tierra Hotels.

Andrew Herwitz '83, J.D. '90, New York City. President, The Film Sales Company.

Sharon E. Jones '77, J.D. '82, Chicago. President and CEO, OH Community Partners.

William R. Koehler '87, Shaker Heights, Ohio. Senior financial services executive.

Tracy "Ty" Moore II '06, Oakland, California. Co-founder, MindBlown Labs.

Anders Yang, J.D. '94, Irvine, California. Assistant dean, office of external relations, The Paul Merage School of Business, University of California, Irvine.

Ariel Zwang '85, M.B.A. '90, New York City. CEO, Safe Horizon.

HAA Clubs and SIGs Awards

The HAA Clubs and SIGs Committee Awards honor both individuals who provide exemplary service to those groups, and groups that have themselves organized exceptional programming. This year's awards were presented to the following recipients at the HAA board of directors' winter meeting on February 5.

Peter Mazareas '73, of Nahant, Massachusetts. Starting in 2009, Mazareas became president of the Harvard Club of the North Shore and established a leadership team that developed a plan that has revitalized it. Activities that explore New England's attractions and local landmarks, along with events featuring congressional leaders, have consistently drawn new members. Mazareas also created "Making the Curriculum Real," a program that links alumni with children in local schools. As an HAA director for northern New England, Mazareas has also convened regional club events to foster a stronger alumni community.

Giulia Stellari '03, of Port Jefferson, New York, and Nicole Buckley '08, of Omaha. The alumnae founded the Harvard Alumni for Agriculture SIG in 2011; it has since grown to more than 300 members across 39 states and a dozen countries. Through a dedicated group of board members, the club has focused on investment, mentorship channels, networking, communications, fundraising, and philanthropy. Their efforts have led to a robust website; a webinar series featuring U.S. secretaries of agriculture and executives in the bioenergy and bioengineering fields;

and involvement in the AgInvest Conference in New York. Students, faculty, alumni, and corporate mentors can now network and collaborate on agriculture-related projects, bolstering their own professional bonds along with their connection to the University.

Since its inception in 1977, the Harvard University Club of Houston has grown to include than 4,500 alumni, 450 of whom are recent graduates. Events cater to the diverse interests and fields represented and have recently included Global Networking Nights, an event with Jeremy Lin '10 (now of the Los Angeles Lakers), tours of the Houston Federal Reserve Building, and "Back to School" picnics for members and new students, and their families. The club hosts Young Alumni Happy Hours and partnered with the Houston Yale Club for a celebratory event around The Game. Last October, the club also drew crowds for "Your Harvard: Texas," a gala

featuring alumni musicians and faculty panels on the arts, healthcare, energy policy, and the future of cities.

In the last three years, the Harvard Club of Hungary has become a vibrant organization offering unique events such as a reception at the U.S. Embassy in Budapest featuring Mallinckrodt professor of physics emeritus and Nobel laureate Roy J. Glauber. The club also focuses on strengthening relationships with alumni in neighboring European countries. Members helped organize the first Central European Harvard Club meeting in Belgrade, Serbia, and plan a Central European Harvard Ball. Moreover, it has joined with other Central European alumni in annual interactive video conferences with Harvard faculty members. A new initiative, "Back to Your School," enables Hungarian club members to return to their secondary schools to discuss their experiences and the importance of higher education.

A Special Notice Regarding Commencement Day

Thursday, May 28, 2015

Morning Exercises

TO ACCOMMODATE the increasing number of people wishing to attend Harvard's Commencement Exercises, the following guidelines are provided to facilitate admission into Tercentenary Theatre on Commencement Morning:

- Degree candidates will receive a limited number of tickets to Commencement. Their parents and guests must have tickets, which must be shown at the gates in order to enter Tercentenary Theatre. Seating capacity is limited; there is standing room on the Widener steps and at the rear and sides of the Theatre. For details, visit the Commencement office website (<http://commencement.harvard.edu>).

Note: A ticket allows admission, but does not guarantee a seat. Seats are on a first-come basis and can not be reserved. The sale of Commencement tickets is prohibited.

- A very limited supply of tickets is available to alumni and alumnae on a first-come, first-served basis through the Harvard Alumni Association (<http://alumni.harvard.edu/annualmeeting>). Alumni/ae and guests may view the Morning Exercises over large-screen televisions in the Science Center and at most of the undergraduate Houses and graduate and professional schools. These locations provide ample seating, and tickets are *not* required.

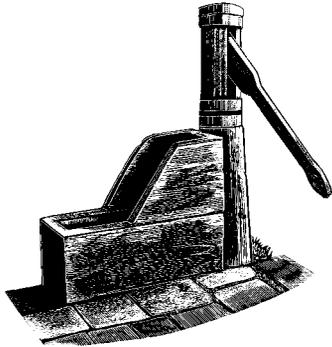
- College Alumni/ae attending their twenty-fifth, thirty-fifth, and fiftieth reunions will receive tickets at their reunions.

Afternoon Program

THE HARVARD Alumni Association's Annual Meeting, which includes remarks by its president, Overseer and HAA election results, the presentation of the Harvard Medals, and remarks by President Drew Gilpin Faust and the Commencement Speaker, convenes in Tercentenary Theatre on Commencement afternoon. For tickets (which are required, but free) visit the HAA website or call 617-496-7001.

~The Commencement Office

Youthful Ardors



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

HERE’S a post-Valentine’s Day gift for us all: a revelation about *Love Story*. Both the novel by the late Erich Segal ’58, Ph.D. ’65, and the film based on it came out in 1970, and so it’s past time we got to the bottom of every jot and tittle of the thing. (The film remains staple fare in Harvard precincts and is shown every year during freshman-orientation week to set newcomers on the right path. The last line, “Love means never having to say you’re sorry,” always draws groans and cheers.) The drama features Oliver Barrett IV, Harvard undergraduate, hockey player, and patrician, and Jennifer Cavilleri, a quick-witted working-class Radcliffe College student. They fall in love and later marry—against the wishes of Oliver’s father, who cuts off funding—and Jenny dies of an incurable disease. Early on, Oliver takes Jenny to meet his parents, who live in Dover House, in bucolic luxury north of Boston. Oliver recounts their approach:

“I drove slowly once we were on Barrett soil. It’s at least a half mile in from Groton Street to Dover House proper. En route you pass other...well, buildings. I guess it’s fairly impressive when you see it for the first time.

“Holy [expletive],” Jenny said.

“What’s the matter, Jen?”

“Pull over, Oliver. No kidding. Stop the car.”

I stopped the car. She was clutching,

“Hey, I didn’t think it would be like this.”

“Like what?”

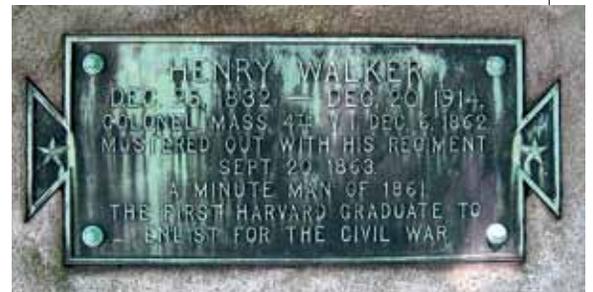
“Like this rich. I mean, I bet you have serfs living here.”

The meeting wasn’t fun. Now for the revelation. John Winthrop ’58, who lives in Charleston, South Carolina, and describes himself in his fiftieth-reunion report as “timber farmer, trustee, money manager, bon vivant,” had a letter from his friend and classmate Segal in which the author testified: “I’ll freely admit to you now that much of the terrain in *Love Story* is Winthrop property. It never occurred to me that you might be related to the inhabitants of Groton House [an actual, vast, horsey place in Hamilton, Massachusetts, sometimes open to the public but long lived in by Winthrops], which of course is ‘Dover House,’ home of the mythical Barretts....I hope the Winthrops don’t mind my appropriating their land—in fiction—and I assume there was nothing in my tale to offend. In fact, I hope they’re a bit flattered!”



PANTING TO SERVE: This spring is the sesquicentennial of the end of the Civil War. Carol LaFleur, of Quincy, Massachusetts, took the occasion to send Primus photographs of the grave of Henry Walker, class of 1855, who is buried in the Mount Wollaston Cemetery across the street from where she and her husband live. She retired last June after 46 years spent working at the School of Public Health, most recently as administrative assistant to the dean of students, and so she naturally took note of a plaque on Walker’s tombstone that iden-

tifies him as the first Harvard alumnus to enlist to fight in the war. Of the 1,662 men with Harvard ties who fought on one side or the other, 246 died; overall, at least 620,000 soldiers and sailors died in combat or from war-related diseases. Of course, no



Here lies an eager patriot.

one knew at its start that the war would turn out to be a maximally bloody and otherwise horrible conflict. Historian and Harvard president Drew Faust has called it “a military adventure undertaken as an occasion for heroics and glory....” Indeed, his friends said that when Walker went to the Massachusetts State House to enlist, he arrived out of breath from running.



DOUBTER: From the second class report of the class of 1920, put together by class secretary Fifield Workum and issued in 1925, the entry of Lawrence Bluford Merchant: “Two love affairs. First girl married last year and second will marry next week, but not me. Future indefinite. Can’t make money without work and don’t like work. Beginning to doubt value of college. Have to work as hard as anyone. Thought college grads could live on knowledge.”

~PRIMUS V

AN EXTRA LAYER OF CARE

(continued from page 37)

paragraph [with the five questions],” recalls Gawande, now Thier professor of surgery at Harvard Medical School and professor in the department of health policy and management at Harvard T.H. Chan School of Public Health (HSPH). “I found out that other physicians were doing the same thing.” The original essay is folded into *Being Mortal: Medicine and What Matters in the End*, a bestseller published last October that makes a compelling case for improving the treatment of elderly and dying individuals. “Palliative care and geriatric doctors treat the [end of life] conversation as something that takes art and skill and practice,” Gawande says. “It boils down to this basic set of precepts: People have priorities in their lives besides just living longer. We don’t know what they are. The most reliable way to find

out is to ask—and we don’t ask. We do not reward clinicians for taking the time to have conversations. I get paid well to do the operation and little to have these kinds of conversations and to do them well.”

Gawande and Block are now collaborating to scale up the checklist. Their initiative, the Serious Illness Care Program (a project of Ariadne Labs, a joint center at BWH and HSPH that Gawande launched to discover and spread scalable solutions for improving healthcare), is developing training, educational materials, and processes to increase meaningful end-of-life discussions. For example, the training gives physicians practice with key skills such as discussing a patient’s prognosis, allowing silence, and refraining from speaking more than half the time. Says Block, “The usual serious illness conversation in the hospital goes something like, ‘We have to talk to you about resuscitation. If your heart stops, do you want us to restart it?’ This is a different approach.”

Block and colleagues are evaluating the communication tools in several medical settings, including a randomized trial at Dana-Farber, and have plans to expand them nationally. Early results are promising, with patients’ anxiety levels falling after these exchanges, and most clinicians finding them helpful.

Across town, MGH hospitalist Angelo Volandes, assistant professor of medicine, is waging his own campaign to encour-

age frank, open discussions between doctors and their gravely ill patients. In his new book, *The Conversation: A Revolutionary Plan for End-of-Life Care*, he argues that too many Americans suffer needlessly at the end, tethered to machines and in pain, because their doctors haven’t accurately described various procedures or asked how they want to live their remaining time. To give patients a more clear-eyed picture and spur these conversations, Volandes and colleagues began developing a library of short medical videos, starting with cardiopulmonary resuscitation, that are available through his nonprofit Advance Care Planning Decisions.

Volandes’s passion for these issues began unexpectedly when he was an under-

“Some of the younger nurses were like, ‘Why are you crying?’ For me, if I didn’t cry, then I should leave the profession.”

graduate and took a job cooking meals for a retired professor and his wife, who was dying from emphysema. One afternoon at their home, as he recounts in the book, Volandes and the professor watched helplessly as the woman gasped for air and began turning blue. She eventually stopped choking, but the scene haunted Volandes and propelled him to medical school, hoping, he writes, “to understand what it meant for patients to be sick and dying, and to prepare them for their journey.”

A CHILD’S NAME ON EVERY STONE

FOUR TALL GLASS VASES stand in a corner of Joanne Wolfe’s office at Dana-Farber, each holding dozens of earth-colored stones bearing a first name: Jacob, Veronica, Xavier, Brenya, Joey. The tribute stones are part of an annual ritual by the PACT team. “We get together and write on a stone the name of each patient we cared for who died that year,” says Wolfe. “We reflect on that child and family and share an anecdote that helps us celebrate the life of that child.”

Delivering palliative care requires skill, compassion, a good listening ear, and a level of comfort with topics most people would rather avoid. “This work is not a piece of cake,” says Banks, the social worker at BIDMC. Palliative-care specialists support families through daunting

health challenges. They witness vulnerability and sadness, along with remarkable tenderness, resilience, and healing.

“You get to know people at a very intimate time,” attests Connie Dahlin ’82, who spent many years after college providing hospice and palliative care in Boston and now focuses on palliative-care education and program development for nursing and other disciplines, both locally and nationally. She also cares for patients at North Shore Medical Center in Salem, Massachusetts, and describes a young truck driver who was hospitalized with late-stage lung cancer. “The moment that will stay with me forever is holding this wonderful young man on one side, and his mother holding him on the other, as he died in our arms,” Dahlin says.

“Being a mother myself, it was heartbreaking. We held him for a while. Then I walked out of the room and started crying. Some of the younger nurses were like, ‘Why are

you crying? You do this all the time.’ Yes, I do this all the time, but these are poignant moments. For me, if I didn’t cry, then I should leave the profession. Because how could it be more poignant than that?”

Palliative caregivers say this work puts their personal priorities, like spending time with children and spouses, into sharper focus. Susan Block knows this well, as she has been supporting her husband and long-time collaborator, J. Andrew Billings, through his grueling treatment for lymphoma. (Billings, an associate professor of medicine, founded MGH’s palliative-care program.) “My top priority is to have as much time as possible to be with my husband,” Block said last autumn. Down the road, “I don’t want to feel like I wish I had made a different set of choices about my time.”

Says Vicki Jackson, “This work can be very grounding, because the life lessons we learn are fairly simple: Tell people you love them. Try to be good to other humans. And try to keep things in perspective. I love the field. I love my job. I love our division. Delivering palliative care is hard work, but it is extremely rewarding.”

Debra Bradley Ruder is a Boston-based freelance writer who specializes in healthcare and education issues. Her feature “Life Lessons,” about Harvard medical students learning to care for patients with life-threatening illnesses, appeared in the January-February 2006 issue.

Early BMOCs

Harvard's seventeenth-century American art

FOR THE CASUAL ART LOVER, early American painting begins with John Singleton Copley's portrait of Paul Revere. But as Theodore E. Stebbins Jr.—curator of American art emeritus at the Harvard Art Museums—points out, the colonies' "rich visual culture" was more than a century old by the time Copley came on the scene.

A Copley graces the cover of *American Paintings at Harvard: Volume One*, a new book by Stebbins and former senior curatorial research associate Melissa Renn. Covering works of artists born before 1826, the

volume also offers a complete record of Harvard's holdings from this earlier visual culture: at least four of the 40-odd known surviving seventeenth-century American paintings, all portraits of early luminaries. (Harvard's total might be as high as six or seven, but dating works from that era of rough recordkeeping is an imprecise art.)

The oldest American painting on campus is a portrait of Dr. John Clark. Its artist inscribed a date, 1664—though not, inconveniently, his name. On permanent loan from the Boston Medical Library, the painting hangs in the Medical School's

Countway Library. It shows Clark in much the same pose that Copley used for Paul Revere a century later: thoughtfully holding instruments of his trade. In his right hand is a trephine, a special tool designed to cut out pieces of skull.

Harvard owns outright several significant seventeenth-century works. They include an oval portrait of John Winthrop that art historians have dated to between 1660 and 1690, and a painting (above) by the colonies' first artist who is known by name, Thomas Smith, dated from the same period.

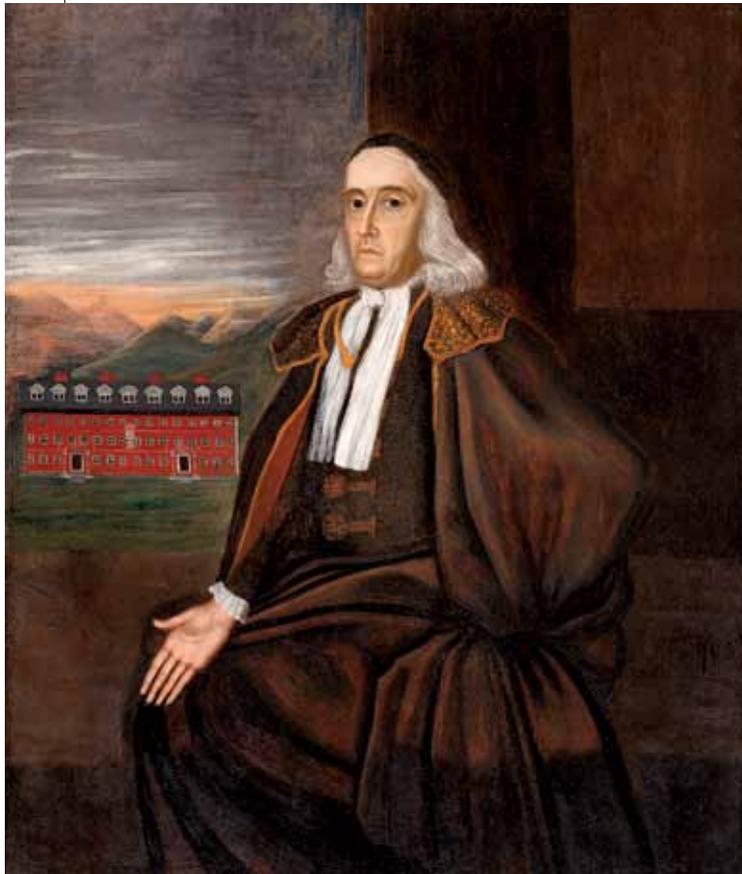
Stebbins's favorite among this early



George Downing, A.B. 1642, the probable subject of this portrait by Thomas Smith, was a member of Harvard's first graduating class. His checkered career in England led to a baronetcy and seat in Parliament.

est group hangs in a corner of University Hall's Faculty Room (which he calls "a chapel of eminent Harvard figures"). Modeling itself on Cambridge and Oxford, the colonial college quickly began soliciting the paintings of presidents, deans, and scholars that now line the room. Harvard added donors as well, and commissioned the portrait at left of lieutenant governor William Stoughton, A.B. 1650, around the turn of the eighteenth century. His awkwardly rendered hand gestures toward the newly constructed Stoughton Hall and, somewhat bafflingly to those familiar with Cambridge topography, a misty mountain range beyond (perhaps a biblical allegory or a reference to Stoughton's vast landholdings).

The early donor looks a bit stern, perhaps intentionally. "He was a widely disliked guy...a harsh and unrelenting Puritan" and the only judge from the Salem witch trials who never apologized, Stebbins says. Three-and-a-half centuries later, most students and faculty overlook the portraits that hang, as at Oxbridge, in dining halls, libraries, and reception rooms. But "each one of these paintings was a contemporary painting, in its day," Stebbins reminds. "They were all modern, freshly made, of people who were important at the time." ~STEPHANIE GARLOCK



AT LEFT: WILLIAM STOUGHTON, C. 1700. OIL ON CANVAS. HARVARD UNIVERSITY PORTRAIT COLLECTION. GIFT OF JOHN COOPER TO HARVARD COLLEGE, 1810. H377. TOP: THOMAS SMITH, PORTRAIT OF A MAN, PROBABLY SIR GEORGE DOWNING, C. 1675-90. OIL ON CANVAS. HARVARD UNIVERSITY PORTRAIT COLLECTION. GIFT OF MR. ROBERT WINTHROP. CLASS OF 1926. TO HARVARD COLLEGE, 1946. H527.

This year at **Radcliffe Day**—on May 29, 2015—the Radcliffe Medal will be presented to associate justice of the Supreme Court of the United States **Ruth Bader Ginsburg** in honor of her transformative impact on society.

The day includes a panel, “A Decade of Decisions and Dissents: The Roberts Court from 2005 to Today,” moderated by **Margaret H. Marshall** EdM '69, the former chief justice of the Supreme Judicial Court of Massachusetts; remarks from retired associate justice **David H. Souter** '61, LLB '66; and a conversation with Justice Ginsburg.

Radcliffe Day is an opportunity to honor the legacy of Radcliffe College and to celebrate the Radcliffe Institute’s dedication to generating and sharing ideas.

RUTH BADER GINSBURG



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*IT IS NOT THE CRITIC
WHO COUNTS;*

*THE CREDIT BELONGS
TO THE MAN WHO IS
ACTUALLY IN THE ARENA,*

WHO STRIVES VALIANTLY;

*WHO ERRS, WHO COMES
SHORT AGAIN AND AGAIN;*

*WHO KNOWS
GREAT ENTHUSIASMS;*

*WHO SPENDS HIMSELF
IN A WORTHY CAUSE;*

*WHO AT THE BEST
KNOWS IN THE END*

*THE TRIUMPH OF
HIGH ACHIEVEMENT,*

AND WHO AT THE WORST,

*IF HE FAILS,
AT LEAST FAILS
WHILE DARING GREATLY.*



Cadillac

DARE GREATLY