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# HARVARD

MAGAZINE

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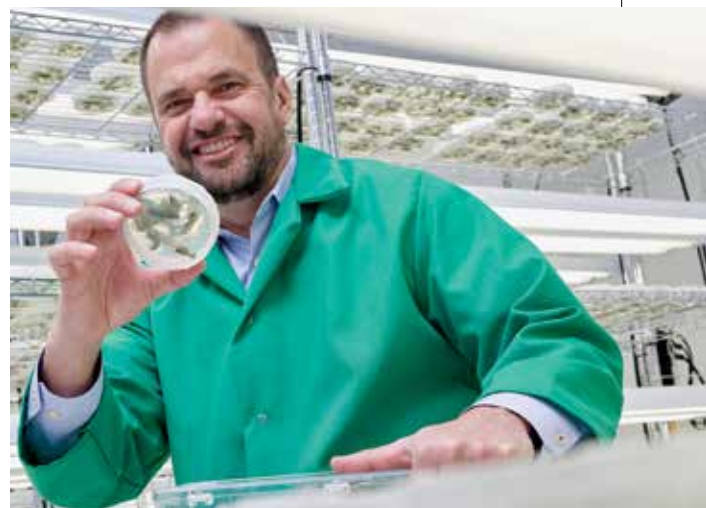
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On the cover: Illustration by Taylor Callery

# Cambridge 02138

*Endowment taxes, final clubs, Chapter and Verse*

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## A TOO-POLITICAL MADISON?

IN HIS REVIEW of a book about James Madison ("America's Little Giant," January-February, page 56), Lincoln Caplan makes the statement that the Electoral College is "obsolete." I suggest that it is not. The United "States" is just that—a group of states bound together by agreement. The U.S. therefore is not a country, it's a federation. The Electoral College is just one means of granting power to each state to assert its rights vis-à-vis the federal government. It's up to each state to create its own mechanism for participating. If the States wish to change how they participate, it's up to them, including an (unlikely) vote to amend the Constitution.

RICHARD BORGESON, J.D. '69  
Katonah, N.Y.

I HAVE LONG admired Caplan's writing, but even the best among us can let political leanings cloud historical judgment. Caplan used his book review to bemoan "big money," voter ID laws, and Internet bots. Really?

A reviewer with libertarian, rather than progressive, instincts could just as easily (and perhaps more accurately) have identified the existential threat to Madisonian government as the inexorable expansion of centralized power, federal encroachment into citizens' daily lives, the rise of the administrative state, and the permanence of stopgap measures meant to address transitory crises (2018 marks the country's fortieth consecutive year under a multitude of presidentially declared emergencies). As the late Shattuck professor of government James Q. Wilson noted, the "legitimacy barrier"



demarcating a given sphere in which the federal government may act has fallen almost entirely by the wayside: "Since there is virtually nothing the government has not tried to do, there is little it cannot be asked to do."

Better yet, we could resist the temptation on all sides to remake the founders in our own image. Historical inquiry tends to reveal

that our current situation is not as unique, our predicament not as severe, and our indignation not as righteous as we imagine in the moment. It is no doubt comforting to claim the mantle of Madison's constitutionalism, but self-justification is rarely the path to wisdom.

CHARLES G. KELS '00  
San Antonio

## ENDOWMENT TAXES

I'D LIKE to make a few comments about "Taxing Matters" (January-February, page 17).

Harvard is subject to a tax rate of 1.4 percent. This rate is considerably below the rate that the rest of us pay. In fact, most of us would kill for a tax rate of 1.4 percent.

Drew Faust worried about "weakening the nation's strongest contributors to medical cures, economic innovation, job creation...." Leaving aside the grandiosity of this comment, it just means that Harvard will have to make the same choices that all the rest of us make. Many of us have had to postpone or eliminate purchases and expenditures we would like to have made because we had to pay taxes instead.

Finally, it does not seem that Harvard and other universities had many advocates arguing their side of the issue. Why were



# Topping Off

**T**HE FINAL BEAM of the Science and Engineering Complex in Allston was lowered into place on an unseasonably warm day this November. For years, I have watched the building come into focus in artist renderings and architectural blueprints. Standing at its base surrounded by students and faculty who will work within it, alumni and friends who have supported it, and community partners and elected officials who have enabled its creation was a powerful reminder to me of the remarkable progress we have made toward realizing the promise and possibility of campus expansion in Allston.

When it opens in 2020, the SEC will do more than become home to the majority of the Harvard John A. Paulson School of Engineering and Applied Sciences. It will create more opportunities for collaboration and launch Harvard's next century of achievement. Standardized class start times, approved last spring by the Faculty of Arts and Sciences, will give undergraduates an hour to make their way from Cambridge to Allston, and expanded transit options will make day-to-day travel more convenient for all members of the community. Faculty from SEAS and the Harvard Business School have already begun exploring the ways in which their activities and research intersect, and new academic offerings such as the MS/MBA joint degree are designed for individuals who want to pursue the business of technology and engineering.

Former United States Office of Management and Budget Director Shaun Donovan '87, M.Arch.-M.P.A. '95, who has for the last six months served as senior strategist for Allston, likes to say that Harvard has in Allston "the most extraordinary opportunity of any university anywhere," and we have already begun to see remarkable changes unfold. Western Avenue has become a destination for artists, educators, innovators, and entrepreneurs—from the craftspeople perfecting their work at the Harvard Ceramics Studio; to the community members participating in educational, arts, wellness, and workforce and economic development programs at the Harvard Ed Portal; to the undergraduate, graduate, and professional students building businesses at the i-lab, where more than 80 companies have been incubated since 2011. Nearby, the Launch Lab supports alumni-backed ventures, and the Pagliuca Life Lab provides laboratory space for high-potential life sciences and biotech startups. New housing and retail offerings, including Continuum apartments, Trader Joe's, and Our Father's Deli, have brought 24-hour activity to the area. Art installations and murals, one of them the result of an open-call competition organized by the Graduate School of Design, have added new dimensions to familiar areas, and a 9,000-square-foot ArtLab will become home to student and faculty artists in search of studio and performance spaces when it opens early next year.



These achievements are important first steps toward realizing our once-in-a-generation opportunity to reimagine Harvard's campus in ways that are as bold as they are thoughtful. In December, the University filed regulatory plans for an Enterprise Research Campus that will bolster the remarkable strengths that exist at Harvard and throughout higher education institutions, hospitals, and research-driven industries in Greater Boston. Partnerships with corporations, organizations, and institutions will speed our efforts and extend our reach, bringing new ideas and talent to our community and multiplying the potential for serendipitous interactions. How can we take greatest advantage of undeveloped space at the center of one of the most research dense areas in the world—an area that can inspire and support some of the future's most extraordinary ideas, careers, and companies?

The Allston neighborhood owes its name to Washington Allston, a member of the Harvard College Class of 1800, who set out from Cambridge to travel the world and returned to the United States to become one of the most celebrated artists of his time, creating the very first painting to enter the vast collection of the Museum of Fine Arts. More than two hundred years after his graduation, we gathered on land named in his honor to celebrate an endeavor that has brought extraordinary minds together and given all of us a chance to look up—and look ahead.

Sincerely,

they so isolated? It could be that they have adopted and promulgated political correctness, which does disdain and disparage the beliefs that many of us have. If Harvard and other universities deliberately alienate a large part of the public, they should not be surprised when the public acts in ways other than what Harvard perceives as its own best interests.

As a last thought, it is amusing to be lectured about “conservative principles” by a liberal magazine representing a liberal institution. If two can play at this game, can I note that “liberal principles” are in favor of larger government and higher taxes—and so Harvard and *Harvard Magazine* should have been promoting these higher taxes long since?

TOM NEAGLE, M.B.A. '72  
Fort Mill, S.C.

TO FULLY UNDERSTAND the impact of the tax reform on Harvard, one must examine all sides of the issue.

While the very slight increase in the tax on endowment income may have a modestly deleterious impact on the University community, that impact is offset by the dramatic capital gains in the stock market, since the election of Donald J. Trump. Using the S&P 500 as a proxy for the endowment, I estimate (without having the actual numbers at my fingertips) that the Harvard endowment has grown by \$6 billion since the election of DJT.

Such capital gains dwarf, rather dramatically, the very slight tax imposed on the investment income, which amounts to an estimated \$20 million per year. In other words, Harvard has already gained enough in capital gains to cover 300 years of that tax increase...and even more if future cash flows are discounted according to proper mathematical discounting rates. Future increases in donations can also be expected from a raging bull market with a low tax structure.

The tax-reform package is not the enemy

#### SPEAK UP, PLEASE

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

of academia and innovation. Neither is capitalism itself. Quite the contrary, actually, Trumpian tax reform is a boon to academia and to innovators both within and without the university walls.

For Harvard to truly excel at innovation, it should begin by embracing the greatest innovation in the history of mankind, namely capitalism itself.

JONATHAN L. GAL '89  
Provo, Utah

*Editor's note:* The magazine does not have a political orientation; among the commentators cited were some conservatives who decried the imposition of federal taxation on formerly tax-exempt nonprofit institutions—an extension of the public sector into a formerly private realm. Given the diverse composition of the endowment, an index of publicly traded U.S. stocks, like the S&P 500, is an insufficient benchmark for investment performance. And it is possible, of course, that lower tax rates may discourage philanthropy.

#### FINAL CLUBS, CONTINUED

WHILE AT HARVARD, I did not belong to a fraternity or a final club. So my ox is not being gored. What the President and Fellows sent out December 5 (News Briefs, January-February, page 20) is a megadose of condescending self-righteous simpering superiority. Big Brother knows best, and until the benighted come to recognize his truth, he will withhold “decanal endorsements and leadership positions supported by institutional resources.” So get with the program, you fraternities, sororities, and final clubs at Harvard. The telescreen is watching.

BILL SWANN '64  
Knoxville, Tenn.

I WOULD LIKE to make the following modest proposal regarding the Harvard administration's effort to punish single-sex clubs.

These clubs aren't on the campus and they own their own real estate. They sit close to the College. I'm reminded here of another such institution: St. Paul's Roman Catholic Church in Harvard Square, which sits in proximity to some of these same clubs and whose sexism is of a piece with these organizations'. When did you last hear of a Catholic female priest, cardinal, or bishop? The power in this Church resides with the male sex.

So I think any stu- (continued on page 7)

# HARVARD

MAGAZINE

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*Harvard Magazine* (ISSN 0095-2427) is published bi-monthly by Harvard Magazine Inc., a nonprofit corporation, 7 Ware Street, Cambridge, Mass. 02138-4037, phone 617-495-5746; fax 617-495-0324. The magazine is supported by reader contributions and subscriptions, advertising revenue, and a subvention from Harvard University. Its editorial content is the responsibility of the editors. Periodicals postage paid at Boston, Mass., and additional mailing offices. Postmaster: Send address changes to Circulation Department, Harvard Magazine, 7 Ware Street, Cambridge, Mass. 02138-4037. Subscription rate \$30 a year in U.S. and possessions, \$55 Canada and Mexico, \$75 other foreign. (Allow up to 10 weeks for first delivery.) SUBSCRIPTION ORDERS AND CUSTOMER SERVICE INQUIRIES should be sent to the Circulation Department, Harvard Magazine, 7 Ware Street, Cambridge, Mass. 02138-4037, or call 617-495-5746 or 800-648-4499, or e-mail [addresschanges@harvard.edu](mailto:addresschanges@harvard.edu). Single copies \$4.95, plus \$2.50 for postage and handling. MANUSCRIPT SUBMISSIONS are welcome, but we cannot assume responsibility for safekeeping. Include stamped, self-addressed envelope for manuscript return. Persons wishing to reprint any portion of *Harvard Magazine's* contents are required to write in advance for permission. Address inquiries to Irina Kuksin, publisher, at the address given above. Copyright © 2018 Harvard Magazine Inc. 





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## 7 WARE STREET

## Searching Insights

A HARVARD presidential search naturally culminates in the appointment of a new Harvard president. But a good search also surfaces ideas that resonate beyond the announcement proper. Herewith, some thoughts overheard while the bushes were being beaten.

*Build a lot of housing, and a school.* Harvard is erecting its science and engineering center in Allston, and has revealed a tiny glimpse at its plans for commercial development of an “enterprise research zone” nearby, closer to the Charles River and the Mass. Pike (see page 20). In the meantime, if the University is to have a reasonable hope of hiring young professors, it needs to build a lot of family-friendly apartments there, too, at rents below Greater Boston’s unreasonable residential market. (From Allston neighbors’ perspective, Harvard’s institutional development worsens local traffic problems, as a mass-transit hub for the area is delayed until 2040.) The University must welcome young faculty members and postdocs; supply adequate daycare; and aim for a large enough cohort so other young stars will be attracted as well. And why not build a magnet school (as Penn did), so they can educate their children locally, while providing the Graduate School of Education a laboratory for innovations and best practices?

*Study abroad, at home.* At a time of intense political polarization in the United States, and pronounced sorting among red and blue states, the geographic listings in freshman registers suggest that the College draws its students most heavily from Democratic-leaning states and probably from blue counties within redder parts of the country. And given the economic allure of California, Massachusetts, New York, and environs, it is likely that graduates concentrate at least as much in the coastal blue regions, if not more so. How about instituting an exchange program so Harvard undergraduates spend a semester at a “fly-over-state” institution, and counterparties come to this campus for a Crimson immersion—just to incite some cultural and sociopolitical dialogue along those dimensions of diversity?

*Transparency.* The public, or at least their elected representatives, are increasingly impatient with endowed private colleges and

universities (hence the new tax on some institutions’ investment income; see page 18). Even many of the University’s supporters clearly do not understand how the endowment works; how it is invested; or Harvard’s and the schools’ budgets. Their confusion is understandable, in light of the prevailing scanty disclosures (exacerbated last fall when the new Harvard Management Company [HMC] leadership, working to improve results, declined to provide customary details about the distribution of endowment assets, performance by class, or even long-term rates of return). Transparency might work better: a public budget, and a report on results compared to the plan; disclosure of capital-project costs; and some light shed on assessments on endowment distributions to fund administration, overhead, and University academic priorities.

Consider an internal, Allston-related case in point. Harvard has been assembling land since the 1980s, so it is obviously encouraging that it is at last building academic facilities there: the billion-dollar science complex. But questions remain. The central administration undertook to finance this facility; did it do so through its assessments on other schools’ endowments? It will own the completed building; will it lease it on concessionary terms to the School of Engineering and Applied Sciences (which would strain to pay the costs of amortizing construction, operating, and depreciating its nifty new quarters)? Either step confers on one school a valuable subsidy that others do not routinely enjoy; what does that say for Harvard’s academic model and priorities going forward—and what do these decisions imply for the next Allston building? And for envisioned investments in the life sciences? Absent clear information, expect rumors and resentments.

*Compensation.* No fair person doubts that running an enterprise like Harvard is demanding, sometimes even killing, work. But the presidency remains a high academic honor, and a form of nonprofit service. Harvard cannot do anything about the seven-digit salaries commanded by the heads of its affiliated hospitals (a tempting target amid gigantic healthcare costs), and is apparently at the mercy of the investment-management market in setting the pay needed to hire talent for HMC. But Congress fired a warning shot in assessing a 21 percent tax on the annual compensation in excess of \$1 million

given to the five highest-paid employees of nonprofit organizations, including universities. The Corporation ought to consider what signals it sends when it sets the president’s compensation, awards deferred “retention” bonuses (increasingly popular in higher education), and allows leaders to serve on (richly compensated) corporate boards. Apart from the optics, there is a point beyond which the culture of a nonprofit institution breaks down.

*Expenses.* Administrators emphasize Harvard’s revenue problem: tuition growth, net of financial aid, is constrained; federal funding for research is threatened by deficits and changing political priorities; endowment investment returns are uncertain (and now subject to taxation). All true. Supporters have been generous with gifts. Executive and continuing education continue to grow. Foundation and corporate sponsors are supporting more research. But tougher talk about expectations may be warranted. In fiscal year 2008, Harvard spent \$3.5 billion. In fiscal 2017, it spent \$4.9 billion—for a student body and faculty of approximately the same size, and during a period of continued modest inflation. It may not forever be so lucky.

*Allston encore.* The Corporation and administration point to Allston as a significant opportunity to expand this world-important institution, adjacent to its existing footprint (see [harvardmag.com/lee-17](http://harvardmag.com/lee-17)). And so it is—but it is not risk-free. The costs and difficulties of proceeding have proven large and protracted. The ways in which people interact are evolving, digitally and across boundaries worldwide. The University has other expensive needs and priorities, too. What is the process for reassessing Allston in light of changing circumstances? Holding aside the potential financial returns from the enterprise zone, locking the institution into a multibillion-dollar, decades-long program of academic real-estate development in effect anchors it in the most fixed of costs. Only a decade ago, overly ambitious plans for Allston deepened the entire institution’s financial woes, and it continues to have sunk costs there totaling at least hundreds of millions of dollars (see transparency, above). It would be well for the Corporation and the new president to explain clearly the factors separating aspiration from albatross.

~JOHN S. ROSENBERG, *Editor*



(continued from page 4) dent who is seen entering St. Paul's should be subjected to the same punishment being dished out to a single-sex club member: no Rhodes nor Marshall scholarship nor a team captaincy. To enforce this, the University should employ non-Catholic students to photograph anyone of student age seen entering the church at times of a mass. Using facial-recognition software, the administration could easily identify Harvard students. The tactic could also be applied to students attending Orthodox Jewish services in Cambridge. When did you last meet a female Orthodox rabbi?

I am of course being facetious. But I'm deliberately invoking a spectre of a new McCarthyism, one that is likely to happen if the University's sanctions against these clubs go into place. It is certain that the lists of club members will be kept secret. Will the College employ students to infiltrate these organizations and note who the members are and start "naming names" (as we said in the 1950s) to deans?

The sanctions may be well intended. But there are certain problems that the College cannot solve.

A. DAVID WUNSCH, PH.D. '69  
Belmont, Mass.

## ROBOBEES

IN "The RoboBee Collective" (November-December 2017, page 56), you describe the sort of ambitious, cross-disciplinary and multi-pronged project that is a hallmark of Harvard engineering. The article chronicles in detail the contributions of Professors Robert Wood, Gu-Yeon Wei, and David Brooks, and refers briefly to a critical co-leader of the RoboBee project, Professor Radhika Nagpal. Your readers may enjoy learning more about her important role in this work.

While Wood, Wei, and Brooks helped the RoboBee take flight and control its aerial maneuvers, Nagpal's expertise in collective artificial intelligence provided the theoretical basis for a swarm of RoboBees to communicate and function as a colony. Her research on self-organizing multi-agent systems takes bio-inspiration from social insects such as termites and ants. In her Kilobot project, with its 1,024 golf ball-sized microbots, she pioneered an understanding of how to program large-scale autonomous swarms. Not only was Nagpal's work a cornerstone of the RoboBee vision, it was

chosen as one of the top 10 breakthroughs by the journals *Science* and *Nature*.

She has furthered the exploration of embodied intelligence of autonomous robot collectives in her Termes project. How is it, she asks, that individual termites cooperate to build stunningly complex mounds, or legions of army ants coordinate efforts to transport materials and build dynamic structures? And how can we use insight into such collective behavior to get large swarms of robots—whether they crawl, fly, or swim under water—to carry out useful tasks, from plant pollination to construction to search and rescue operations? Her Self-Organizing Systems Research Group is breaking new ground on these foundational questions.

Along the way, Nagpal has forged a role as tenacious champion of the next generation of engineers and scientists and serves as a role model for young women interested in STEM.

FRANK DOYLE  
Dean, John A. Paulson School of Engineering and  
Applied Sciences  
SALIL VADHAN  
Area Chair, Computer Science, SEAS

## CHAPTER AND VERSE LIVES ON

I WAS SORRY to see that Chapter & Verse (January-February, page 58) has been largely replaced by the Internet and will become "an occasional item only." I spent a long time trying to track down a story via the Internet, but it was a C&V reader who recognized the plot and told me the name of "The Shanrahan Strad," as well as the book where it was published. I enjoyed getting reacquainted with stories I remember from high school, and I've used "The Shanrahan Strad" frequently since in remedial reading classes. I was also pleased to be able twice to help other seekers of lost words.

I always look for C&V in my *Harvard Magazine*, and I still will look for the occasional posting. Another small bright pleasure crushed by the power of the computer.

JANE ARNOLD, A.L.B.'85, M.T.S.'92  
Queensbury, N.Y.

I WAS DISAPPOINTED to learn that you intend to discontinue Chapter and Verse except as "an occasional item only." In my view, it has been one of the features that distinguish *Harvard Magazine* from other alumni magazines that I receive. It certainly has not been superseded by the

World Wide Web, as the farewell notice maintains.

There are often connections in memory that cannot yet be fully duplicated by artificial intelligence. About 15 or 20 years ago, at a time when Google searches were already available, I was able to supply the answer to a "Chapter and Verse" question because I remembered reading a short story many years earlier in an O.Henry Prize anthology; this information allowed me then to find the full citation on the Internet through the O.Henry Prize listings. Clearly it had not been found there by the questioner or by *Harvard Magazine*, since the editor subsequently wrote to me to ask what type of search strategy I had used to locate the citation.

I hope that you will reconsider the magazine's decision, and that you will keep "Chapter and Verse" as one of your regular features.

EDWARD TABOR '69  
Bethesda, Md.

*Editor's note:* We are not killing off the department; it will appear occasionally, depending on when we receive queries, or answers. The volume of queries has declined, likely because of the power of contemporary online searches (the favorable interpretation), or because there are fewer readers (the unfavorable one). Happily, we have received a new query, and C&V appears on page 58.

## SHIP'S FATE

THE SHIP mentioned in "American Studies" (The College Pump, January-February, page 68) did in fact sink. The S.S. *Harvard* and its sister ship, the S.S. *Yale*, sailed between San Francisco and Los Angeles. On May 30, 1931, while steaming south, the *Harvard* made what was termed an improper course correction and ran aground on some rocks about four miles north of Point Arguello. All the passengers were taken off in the lifeboats, but the ship could not be freed from the rocks. It broke up and sank two weeks later.

PAUL McCORMICK, LL.B. '65  
Bloomfield, Conn.

THE LIFE PRESERVER from S.S. *Harvard* recalls the century-old scandal involving the New York, New Haven & Hartford Rail-

  
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for additional letters.

road, its attempt to monopolize all forms of transportation in southern New England, and its running battle with Boston's "people's attorney," Louis D. Brandeis, LL.B. 1877.

*Harvard* and her sister ship, *Yale*, were built in 1907 for the Metropolitan Steamship Company, which intended to use them in competition with the New Haven's own steamship lines on Long Island Sound (including the legendary Fall River Line). In a set of devious transactions motivated by the New Haven, in 1910 *Harvard* and *Yale* were transferred to a Pacific Coast steamship operator for service between San Francisco and Los Angeles, to get them out of New England.

JOHN READING, ED.M. '72  
Brookline, Mass.

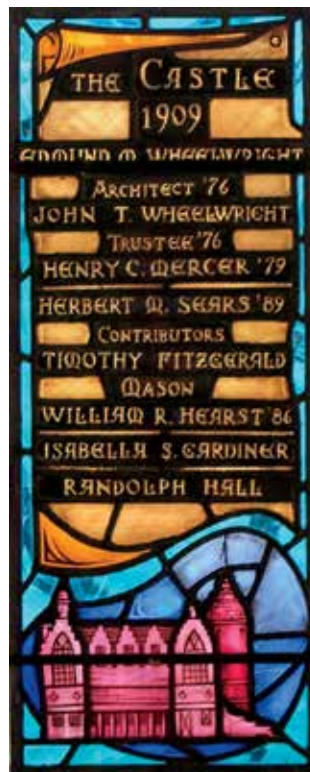
#### MORE ON MERCER

TWO THOUGHTS concerning Henry Chapman Mercer (Vita, by Nancy Freudenthal, January-February, page 40).

When I was an architecture student at Penn in the mid '60s, Mercer's astonishing buildings were a pilgrimage objective to those of us less prone to orthodoxies. The

photos accompanying the article brought back a vivid memory of being admitted to Fonthill by a fussy, tiny old lady who was said to have been his housekeeper. We had the astonishing house and glorious museum to ourselves—the norm then, I suspect.

The article does not mention Edmund March (Ned) Wheelwright's use of Mercer's Moravian tiles in the Harvard Lampoon building, where his name appears immediately below those of Ned and his brother Jack in a memorial window. Although Mercer, unlike the Wheelwrights, was not a Lampoon member, they did overlap at Harvard and were all involved in College theatrics. Later both Ned and Mercer were inscribed as "Masters" of the Boston Society of Arts & Crafts. And J.T. Coolidge (as



COURTESY OF DENNIS DE WITT

noted, the author of a Mercer obituary) was an "India Wharf Rat," along with the Wheelwrights.

DENNIS J. DE WITT,  
M.Arch. '74  
Brookline, Mass.

WE WERE DELIGHTED to read the Vita on ceramicist Henry Chapman Mercer, and noted with interest the mention of his floor tiles at the Isabella Stewart Gardner Museum. Unmentioned and gone—but not forgotten—were the Mercer tiles at Harvard's Fogg Art Museum. They were originally laid on the ambulatory floor that ran (and still runs) around the courtyard at the second-floor level. But the tiles were unable to survive

the demolition and reconstruction necessary to bring the museum into the twenty-first century, in terms of climate control,

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functional flexibility, and, perhaps, the aesthetic of the renovation's architect. Yet we still cherish our memory of the tiles' warm rose color, handcrafted irregularity, and harmonious union with the stucco walls and gold ground paintings usually hanging above them.

MARJORIE BENEDICT COHN, A.M. '61  
Weyerhaeuser curator of prints emerita  
Arlington, Mass.

EMILY RAUH PULITZER, A.M. '63  
Former chair, Art Museums Visiting Committee  
St. Louis

*Nancy Freudenthal responds:* I appreciate the comments of all three writers who seem to share my joy in Mercer's work—whether the warmth of his tiles or the imagination of his architecture. I wrote the Vita to pass along my enthusiasm and am so pleased to receive enthusiasm, and information, in return. It is satisfying to imagine I might have encountered his tiles at the Fogg long before I became aware of Mercer, and intriguing to learn of tiles not in the published (not necessarily complete) records of the Tileworks. Those records do include the

Lampoon Castle, but as images don't seem to be had, I was delighted to see the window honoring Mercer's role in the building. He reported that in 1909 he was made an honorary *Lampoon* editor. Now I understand why.

#### THE LORD'S WORK

THE STORY on Father Columba Stewart ("From Here to Timbuktu," January-February, page 62) rings close to home to me. I was a member of the Harvard staff in 1975 when we admitted this somewhat unusual kid from a public high school in Texas. Fast forward some 30 plus years, and Father Stewart and I found ourselves in rural, central Minnesota "working" for the monks and nuns of St. Benedict.

The article documented well his incredible journey and contributions. I remained in higher education as associate director of admissions at Harvard and Radcliffe until 1981, when I left to finish my doctoral studies at the Graduate School of Education.

Father Columba and I sit on the President's Cabinet at St. John's University with another Harvard guy, President Michael

Hemesath; needless to say, with his academic credentials and his personal courage, when Columba speaks, we all listen intently. I am so pleased that the magazine chose to do this story. He is the best possible example of wisdom, passion, faith, and commitment. He is, indeed, doing the Lord's work.

CAL RYAN-MOSLEY, Ed.D. '81  
Minnetonka, Minn.

#### UP A TREE

I WAS DELIGHTED about the article publicizing the Arnold Arboretum's efforts to collect living material from remote Sichuan, China ("Botanizing in the 'Mother of Gardens,'" January-February, page 32).

Dedicated botanists like Michael Dosmann and Andrew Gapinski are safekeepers of our planet's vanishing natural wealth. I've studied trees for more 30 years in forests across tropical East Asia and I understand their motivations and joys. And their frustrations!

Their struggles to collect specimens from trees were all too familiar. Despite loads of tantalizing seeds overhead, often they didn't even attempt the fruitless effort. The *one* ma-



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for limitation in my career has been the inaccessibility of a tree's branches. My most effective tool has often been a "wrist rocket" and a rock, yielding a leaf or two for DNA analysis.

We need creative tools to study trees, like an autonomous rover to explore the forest's "outer space." The tangled mass of life in the forest canopy is unbelievably dynamic and *alive* and can be destroyed in a few hours with a chainsaw. We need the focused engineering ingenuity and sense of urgency that put astronauts on the moon. We spend bil-

ions to measure Jupiter's magnetic fields while botany's "cutting-edge" tool is a long pruning pole! The misplaced priorities are astounding.

As director of the Center for Tree Science at the Morton Arboretum, I engage engineers, students, and businesspeople to invent and develop new tree-science tools. We're designing drone-based leaf-harvesters, canopy robotics for 24/7 observation, and a "tree observatory" to integrate simultaneous streams of data for a holistic view of tree response to our rapidly changing world.

If you are a cutting-edge engineer tired of the cold, abstract, dead world of outer space, join us! Help us revolutionize our ability to explore life on Earth. Think of the technology that can successfully navigate the branches of a tree! Endless possibilities await!

CHUCK CANNON '88  
Lisle, Ill.

#### ERRATA AND AMPLIFICATIONS

IN "The Low End Theory," Jesse McCarthy's profile of Fred Moten (January-February, page 42), the text should have noted that Moten's mother, who attended the University of Arkansas at Fayetteville, eventually transferred to, and graduated from, the Arkansas Agricultural Mechanical and Normal College. To clarify her relationships with members of the community, the text has been edited online to read, "Moten's mother knew a number of musicians, dancers, and singers; when jazz singer Sarah Vaughan came to town, they would gather at a friend's house to cook greens, listen to music, and gossip." And the radio station that figured in Moten's youth was KVOV.

Information in the account of the interview with Harvard Medical School dean George Q. Daley ("Cheaper, Faster, Better," January-February, page 18) has been corrected: he started his lab in the mid 1990s rather than in the early 1990s. In addition, the annual cost of medical education was said to be nearing \$90,000, when in fact, it has already exceeded that sum (the school provided incorrect data earlier).

NCAA swim races are measured in yards, not meters, as we erroneously reported ("No Secrets about How to Get Faster," January-February, page 29).

The family name of Rhodes Scholar-designate Harold Xavier Gonzalez was misspelled in University People (January-February, page 19).

In "A Composed Response" (January-February, page 52), composer Jonathan Bailey Holland was described as commuting to the Berklee College of Music in 2015, and currently being on the faculty there. The school officially became the Boston Conservatory at Berklee in 2016.

And a photo caption in Harvard Squared ("A Wintry Jaunt to Newport, Rhode Island," January-February, page 12A) mistakenly relocated the billiards room from The Breakers to Rosecliff.



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## POWER OF THE PRESS

### The Newsmakers

**W**HEN THEY CONTACTED 48 small news-media outlets in 2011, Weatherhead University Professor Gary King and his colleagues were well aware of the peculiarity of their proposal. Asking professional journalists to allow a group of researchers to tell them what topics to cover, and when to publish stories, was something that had never been done before, and contradicted any reputable outlet's code of ethics. But King felt certain that such coopera-

tion was necessary to prove a correlation between issues the American news media choose to write about and the subsequent national conversation.

To measure the impact of news-coverage tone and topics on public discourse, the researchers had to find a way to listen in on conversations taking place all over the country. Twitter proved an excellent forum, because users publicly engage with one another on topics like race, immigration, and education—and by doing so, King

believes, those Americans are the ones who are ultimately shaping the national conversation. “In the past, we would have run a public-opinion survey,” he says. “But we weren’t interested in hearing just *anyone’s* opinions. We wanted to specifically look at Americans who are willing to publicly express their opinions on important issues” through social-media platforms like Twitter. King says the challenge of finding news outlets willing to participate in the study was made easier due to a shared interest in the study’s results: “Journalists want their stories to shape the national conversation—who wants to write stories no one is reading or talking about? Our work presented an opportunity to really quantify their impact.”

Because the outlets weren’t willing to sacrifice their reputations for the project’s sake, King and his researchers had to find a way to make their research goals compatible with the inherently competitive nature of newswriting. To this end, his team drew inspiration from “pack journalism,” a process in which competing outlets occasionally collaborate to get as many eyes on an important story as possible. They appoint a project manager from within the group to coordinate and share reporting resources leading up to publication—the Panama Papers coverage was a re-





cent example. King and his team appointed themselves the project managers, enabling participating outlets such as *The Nation*, *The Chicago Reporter*, and *Ms.* to release similar stories between October 2014 and March 2016 on a previously agreed upon topic, like taxes, during one particular week. The outlets also agreed not to run stories on the topic during the subsequent week, to allow the researchers to study shifts in public conversation.

King's team also took special care to ensure that the experiments were conducted during relatively calm news weeks when the public's attention wouldn't be dominated by new legislation, a major election, or political scandal. Their results showed a 62.7 percent increase in Twitter conversations about a policy area in the week when outlets agreed to write about that issue. Furthermore, when an outlet expressed an opinion on a given topic (favoring the new tax

plan, for example), public opinion shifted by 2.3 percent in the direction of the view expressed in the article.

The study's results show that journalists also wield significant power in what King calls "setting the agenda" for national conversation across party lines. "If an outlet publishes a piece about abortion but calls it 'reproductive rights,' then both Republicans and Democrats are going to be calling that issue 'reproductive rights' in their discussions on Twitter—the outlet has determined how we refer to an issue." This is true, he adds, even though those Twitter conversations will likely be occurring within communities known as "filter bubbles," which form because people elect to follow those who share similar ideological views on social-media platforms.

One of the most significant implications of the team's findings, King believes, is the potential to embolden some news outlets

toward activism. For example, a journalist who feels that the pollutants being released into the atmosphere aren't receiving sufficient attention could choose to cover climate change in order to increase discussion about the topic. The journalist may also espouse an opinion about companies that refuse to divest (in order to influence public opinion) and refer to the issue as "climate danger," thereby pointing the agenda in the desired direction. Such power, King says, also comes with great responsibility. "Our research shows that one journalist can really shape the national conversation, which is why it's so important that journalists adhere to strict ethical standards. If just one person skimps on those ethics, it can really have a noticeable impact." —OSET BABÜR

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#### ABCS OF ABSTRACTION

## The Emergent Mind

**W**HAT GOES ON in the minds of babies? A lot, it turns out: long gone are the days when psychologists believed infants couldn't use abstract thought. Recent research from the lab of Elizabeth Spelke, Berkman professor of psychology, suggests that babies can understand things about social behavior, preferences—even about people's objectives and values. According to a new paper in *Science* coauthored by psychology Ph.D. candidate Shari Liu, Spelke, and colleagues at MIT, infants seem to infer how much people value different goals based on how hard adults are willing to work to attain them. The research sheds light not just on the developing infant mind, but on the fundamental process that allows humans to learn and reason.

The study relied on a set of three cleverly designed experiments that use the length of time babies spend looking at an object to make inferences about their cognition. Ten-month-old babies were shown a series of animated videos where the main character—a smiley, bright-red sphere—must move through physical barriers of varying difficulty

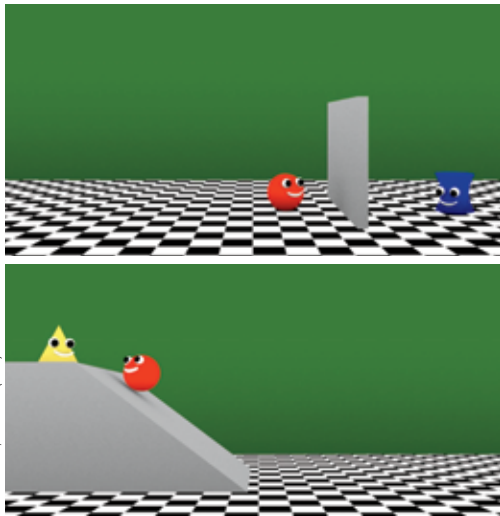
to reach two different objects. The character eyes each object up and down, making a cooing "mmm" noise of acknowledgement. In the first experiment, the character must jump over walls of different heights to reach the objects; in the second, it must climb hills of different levels of steepness; and in the third, jump over trenches. In some trials, the

character glances at the object that's hardest to reach but refuses to visit it because of the perceived barrier.

Then the babies were shown a new scene in which the character is faced with a choice. Standing equidistant between two objects it had visited previously—a yellow triangle and a blue square, for example—the character must choose which one to approach. When the character chose the object that had previously required less effort to reach, the babies looked at the screen longer. The team says this shows babies were surprised by choices of objects that







S. LIU ET AL., SCIENCE (2017)

In videos screened for babies in the lab of Elizabeth Spelke, the red spherical character must jump over a wall (top) or climb a hill (bottom) to reach its goal.

had previously required less effort to attain, and further argues that this suggests infants have an innate understanding of cost and value: they expect that goals people work harder to reach must be valued more, and expect actors to choose the highly valued,

hardest to reach reward. “The most parsimonious interpretation of the findings,” Spelke says, “is that babies are understanding the events in all three experiments in accord with the same abstract variables of cost and value, and they’re using the different physics of the situations to infer the different costs of the actions.”

“Of course, that’s a very simple inference,” she continues. “It’s a basic tenet of utility theory, and yet it depends on two highly abstract variables: cost and value. We now have evidence infants are understanding the actions they’re seeing in fundamentally the same kind of way.” The key to the experiments

was designing scenarios that were identical in every way *except* in the size of the barrier between the character and his goal objects: “What we tried to do in this study was set up a situation where *if* the babies were just interested in physical actions, and not so much in abstract variables that could underlie whole patterns of motivated behavior, they wouldn’t know what to make of the events they were seeing.”

“Preferential looking” or “looking-time” studies were developed in the 1950s, as a way of asking basic questions about how the world looks to babies: can they see color, patterns, and depth? “You could show that blue and green look different to babies by presenting something blue again and again, until the looking time went down, and then show them an alteration, like green, and then you would see looking time going up,” Spelke explains. “That was the first evidence that babies would attend to change.”

In the intervening decades, looking-time studies have expanded beyond visual acuity to more difficult questions about babies’ capacities for abstract thinking. “These are the basic, building-block methods that we and many people have gone on to use to ask, not ‘What does the world look like to infants?’ but, ‘What they do *understand* about the world?’” Spelke explains. In the 1980s and ’90s, her experimental work showed that babies look longer at objects that seem to defy physical laws by, for example, appearing to move through an obstruction. That might sound trivial to an adult mind—but it suggests that infants aren’t blank slates born without

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a mental architecture for understanding the world—in fact, they're attentive learners. "It may be that the reason a baby looks longer when an object seems to go through a wall or when someone chooses a reward that is less valuable," Spelke says, "is not that they're thinking, 'Something's wrong here'—but rather they're thinking, 'I must have missed something. I didn't expect that object to go through a wall, so maybe I should pay more attention and figure out why that happened.'"

An immediate implication of the study and others like it, Spelke says, is that infants'

capacity for learning *depends* on their ability to grasp abstract relationships: "Infants have an enormous amount to learn about the world, about agents, how they behave, what they want, what they care about. What makes that possible? I think it's possible because they're able to understand patterns of activity in terms of variables like cost and reward." More ambitiously, infant research may also help bring to light building blocks of human cognition that cut across human societies. "Even though infants seem to be utterly different from us—with this huge

gap between what we understand about the world and what they understand—there are nevertheless basic, fundamental relationships that we may apply to the world in the same way that they do. It may be these relationships that ultimately are going to help us understand" why humans are "such incredibly flexible, prolific, creative learners."

—MARINA BOLOTNIKOVA

ELIZABETH SPELKE WEBSITE:

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## OUTSIDE THE LOVE BOX

# Of Mice and Mating

**W**HAT DO Darwin's finches and cichlid fish have in common? Both animals provide intense parental care, which appears to influence their offspring's mating preferences later in life. In recent decades, scientists have proposed this "sexual imprinting" as one of the main mechanisms that drive explosive speciation within these groups: rapid branching in the tree of life.

Sexual imprinting has been observed in 15 orders of birds, some fish, and a few mammals. Now two species of deer mice (the most abundant mammal in North America) can be added to the list, according to a new paper in *Evolution* by Emily K. Delaney, Ph.D. '14, and Hopi Hoekstra, Agassiz professor of zoology: the white-footed mouse (*Peromyscus leucopus*), and the cotton mouse (*Peromyscus gossypinus*). Known to produce viable hybrid offspring, these "sister species" have genetic markers suggesting that they diverged relatively recently—they're at what Hoekstra calls the "sweet spot" for scientists interested in speciation.

While working in Hoekstra's lab, Delaney (now an evolutionary geneticist at the University of California, Davis) planned to study a natural population of hybrids in the field, thinking she might examine the pheromones involved in mating. But the best-laid schemes of scientists often go awry: out of 316 wild mice that she collected and ran through genetic analysis, only 5 potentially fit the profile for hybrids. She therefore switched the focus of her project. The two species mate successfully in the lab—so why

not in nature, when they're running around in the same plot of woods?

To find out, she raised some mouse pups normally—weaned from their parents 23 days after birth and separated into same-sex cages. Other newborn litters were swapped into nests of nursing females of the opposing species. When it came time to test all the newly mature adults' sexual preferences, she tried to make courtship conditions as natural as possible. Generally, past rodent

mate-choice studies tethered the two "stimuli"—one mouse from each species—at either end of a Y-shaped chamber, with a third "chooser" mouse in the middle, but Delaney explains that this set-up tended to stress the mice out. She "needed something that would allow the mice to physically interact, but that would still contain the two stimuli mice." So she devised an apparatus she privately nicknamed "the love box": three chambers, with the male or female chooser in the middle and a suitor off in each wing, separated by gates pre-programmed to let only the chooser move freely. This allowed a wider range of interactions between chooser and candidates: fighting, chasing, nesting, copulation—all of it recorded on video.





By comparing the preferences of cross-fostered with native-raised mice, the researchers found that same-species preferences are largely determined by sexual imprinting. In other words, cotton and white-footed mice choose not to mate with each other in the wild due to learning, rather than genetics. But the degree of imprinting differs by species, and within that, by sex. Cotton mice preferences can be easily altered by cross-raising them: in adulthood, they will mate with a member of their foster species. In white-footed mice, though, only males seem to sexually imprint on their parents, whether native or foster; females' preference for their own species remains constant regardless of who raised them. In the paper, Delaney and Hoekstra suggest that female white-footed mice might imprint on their male siblings (rather than parents), or that any nest-in-stilled preference for the foster-parent species might switch after they interact with the two candidates—especially, say, if the white-footed male seems receptive while the cotton mouse male wants to fight.

What makes offspring imprint? "That's the next question," says Hoekstra. In Dar-

## Delaney found evidence for “diet-based...mat-ing”—females in particular seemed to strongly prefer males on the same diet as their parents.

win's finches, for example, females pair with males that sing songs like their fathers'. In cichlids from Lake Victoria, females pick either red or blue mates based on the mothers who brooded them in their mouths, and scientists think that they're following either color or chemical signals.

Delaney has a hunch about the mechanism in deer mice: "I'm almost certain that it's going to be at least somewhat based on olfaction." In a follow-up study, she tinkered with potential imprinting cues by raising some litters with parents who drank orange-flavored water, and others with parents who drank garlic-flavored water. Testing their mate choices (aided again by the "love box"), she found evidence for "diet-based assortative mating"—females in particular seemed to strongly prefer males on the same diet as their parents. Something about what their parents ate—possibly changing the odors

of their saliva or waste, or just the general smells of the nest—impressed on offspring, who then used that information in adulthood.

Delaney and Hoekstra's research adds to a sharpening portrait of speciation, and the impact of behavior like sexual imprinting. But the paper also clears up a question that had dogged mammalian ecologists for some 75 years: why cotton and white-footed mice won't mate in nature, but will in captivity. What's fun, says Hoekstra, is that with new molecular tools, and an assist from "this newfangled mate-choice apparatus," scientists can elucidate "this age-old mystery in the field."

~SOPHIA NGUYEN

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HOPI HOEKSTRA WEBSITE:

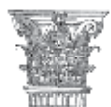
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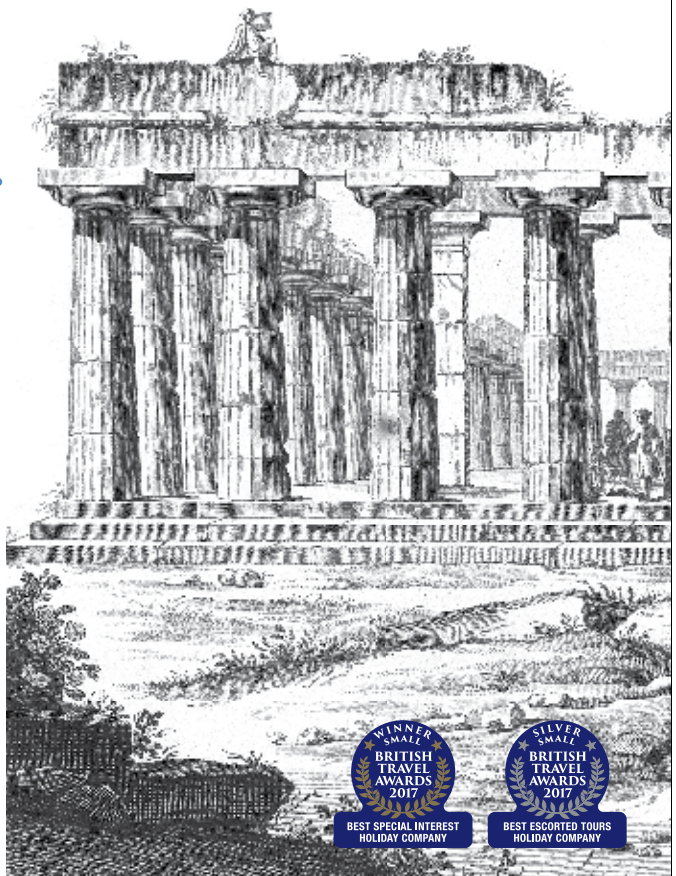
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From left: Flutist Claire Chase performs at Holden Chapel; sacred Ukrainian embroidered textiles at the Museum of Russian Icons; and *WarGames*, with a young Matthew Broderick, part of the "Caught in the Net" series at the Harvard Film Archive

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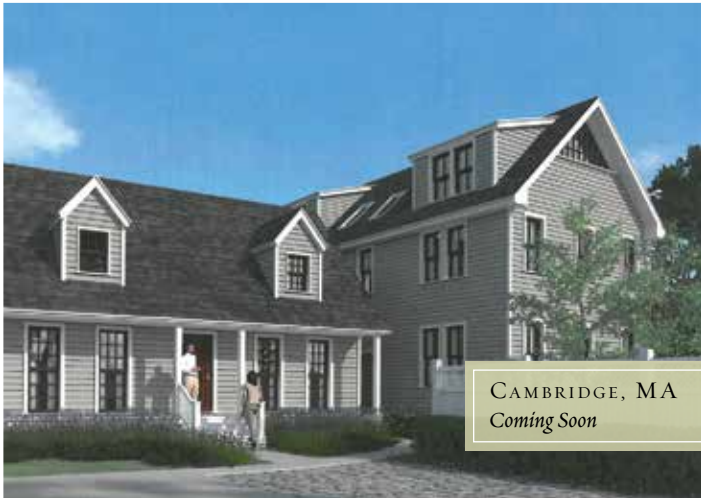
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## HARVARD SQUARED

Caribbean rhythms with **Lady Lee & The New Awakening Band** and guest artists Mashy Word Compressor and Boston rap star Scape Scilla. Oberon. (March 30)

### MUSIC

#### Harvard Department of Music

[www.music.fas.harvard.edu](http://www.music.fas.harvard.edu)

Flutist **Claire Chase**, professor of the

practice of music, performs seven world-premiere compositions, joined by guest vocalists. Holden Chapel. (March 29)

#### WCRB Classical Cartoon Festival

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

Animated stories on a giant screen accompanied by live music. Boston Symphony Hall. (March 24)

## STAFF PICK: Skeletons, Skylines, and Weeds

**"Gorey's Worlds,"** at the Wadsworth Atheneum Museum of Art, explores what inspired Edward Gorey '50, mostly through works he bequeathed to the Hartford museum. They range from nineteenth-century folk art to photographs and drawings by Eugène Atget and Edvard Munch and an oil painting, *Dandelions in a Blue Tin* (1982), by the brilliant and reclusive landscape artist Albert York. Gorey was "ahead of his time" in appreciating York's work, and acquired eight of them in the 1980s, says Erin Monroe, Wadsworth's associate curator of American painting and sculpture. She believes Gorey was drawn to something "subtly subversive" in York's "ordinary" subjects, and to the humor in the carefully arranged weeds.



Images of skeletons, alleyways, animals, skylines, dancing figures, and gravestones also appear in the show, as they do, one way or another, in Gorey's own legendarily macabre and dry-witted works. Dozens of borrowed objects—his own art, fur coats, and handsome jewelry, along with 1970s portraits by culture photographer Harry Benson—flesh out a singular creative spirit.

Gorey died in 2000, leaving no explanations of his attachment to the bequeathed items. But Monroe's research suggests connections: parallels between *Church and Graveyard* (c. 1850), a folk-art sketch by an unknown artist, and Gorey's *Haunted America* (below), a 1990 watercolored pen-and-ink design for a book on supernatural short stories; or between many Gorey-esque objects and those in Atget's *Naturaliste, rue de l'École de Médecine* (1926-27; printed by Berenice Abbott). On view, too, is a print of a 1952 illustration Gorey made for the Poets' Theatre, a Cambridge group that included Frank O'Hara '50 (Gorey's College roommate), and of which Gorey was the resident artist. "It was about as counterculture as you could get in the early 1950s," says Monroe.

The flyer reflects the link "between text and image, and a unique typography and theatricality, that are the foundation" of his artistic career, she notes. Acrobats, gloved women in gowns, and mustached gentlemen are depicted as "languid bodies, graceful, and unusually boneless," resembling his later drawings.



His own "presentation—fur coats, high-top sneakers—which seems sort of pre-hipster now, was strange on campus then, and even when he moved to New York City," she adds. "At six-foot-four, he didn't necessarily blend in. I think he was OK with everything that was strange and unexpected." ~N.P.B.

WADSWORTH ATHENEUM MUSEUM OF ART, AMERICAN PAINTINGS AND DRAWINGS PURCHASE FUND, 2015.4.1.

EDWARD GOREY ANNOUNCEMENT FOR THE POETS' THEATRE PERFORMANCE IN FOGG MUSEUM COURT, MAY 1952/OFFSET LITHOGRAPHY ON PAPER, 5 1/2 X 14 IN./©THE EDWARD GOREY CHARITABLE TRUST



### Harvard Glee Club

[www.boxoffice.harvard.edu](http://www.boxoffice.harvard.edu)

The **Harvard Glee Club** and Ashmont Boy Choir sing the *Davison Mass*, by Memorial Church resident composer Carson Cooman. (April 6)

### Holden Choruses

[www.boxoffice.harvard.edu](http://www.boxoffice.harvard.edu)

The **Holden Choruses** and **Harvard-Radcliffe Orchestra** perform Mahler's *Resurrection* Symphony. Sanders Theatre. (April 20)

### LECTURES

#### The Peabody Museum of Archaeology & Ethnology

[www.peabody.harvard.edu](http://www.peabody.harvard.edu)

Smithsonian Institution curator of globalization Joshua A. Bell delves into the international network behind the production, repair, and disposal of mobile devices in **Unseen Connections: A Natural History of Cell Phones**. (April 18)

#### The Radcliffe Institute for Advanced Study

[www.radcliffe.harvard.edu](http://www.radcliffe.harvard.edu)

**The Alzheimer Enigma: The Causes of the Dementia Epidemic** features Albert Hofman, Kay Family professor of public health and clinical epidemiology at the Harvard Chan School of Public Health. (April 23)

### EXHIBITIONS & EVENTS

#### Museum of Russian Icons

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

**Rushnyky: Sacred Ukrainian Textiles** offers beautifully embroidered cloths used in life-cycle ceremonies and sacred rituals.

#### Fuller Craft Museum

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

**Mindful: Exploring Mental Health Through Art** highlights the powers of creativity and expressiveness through sculptures, drawings, and other works. (Through April 22)

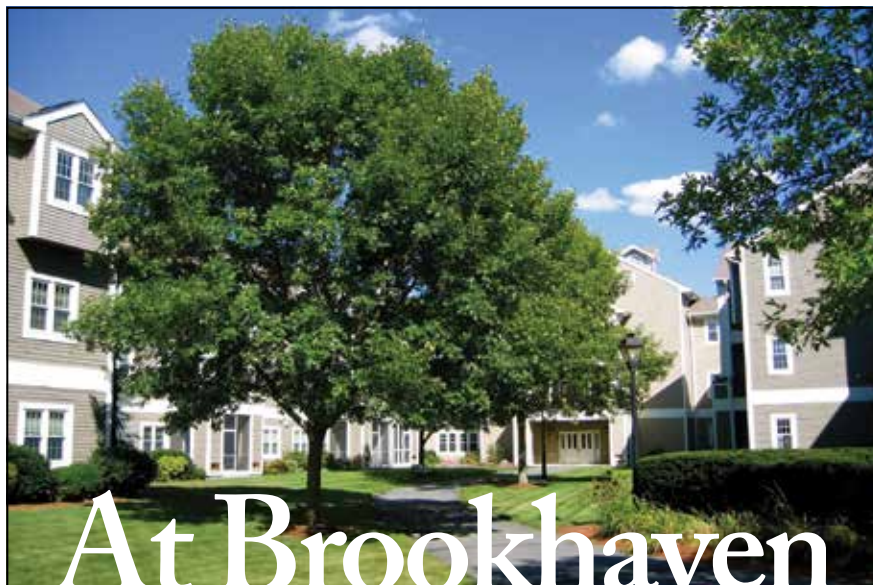
### FILM

#### Harvard Film Archive

[www.hcl.harvard.edu/hfa](http://www.hcl.harvard.edu/hfa)

**Caught in the Net: The Internet in the Paranoid Imagination** surveys films from the 1980s to the present, including *eXistenZ*, *Personal Shopper*, *Pulse*, *Ghost in the Shell*, and *Southland Tales*. (March 9-18)

Events listings are also found at [www.harvardmagazine.com/harvard2-events](http://www.harvardmagazine.com/harvard2-events).



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# Hidden Treasures

New Britain's "Little Poland" and museum of American art  
by NELL PORTER BROWN



**O**N A recent visit to Broad Street, the heart of New Britain's "Little Poland," not a word of English was heard.

Customers lining up for kielbasa at Krakus Meat Market, picking out blintzes and *cuki-erki czekoladowe* (chocolate candies) at Polmart down the street, and crowding into Kasia's Bakery for babka and puffy donuts called *paczki* all spoke Polish.

"And it's not just markets and restaurants, it's bank tellers, accountants, and doctors, art galleries. This is becoming the cultural Polish center for all of New England," says bilingual attorney Adrian Baron, president of the Polonia Business Association, formed a decade ago to help focus revitalization efforts begun in the late 1990s. "This area was littered with pawn shops, a strip club, and empty storefronts," he says. Even when he relocated his law office, Podorowsky, Thompson & Baron, from Hartford to Broad Street in 2006, "There was a heroin dealer doing business

on the front steps. Today, there's a school bus stop, and I put in a welcome bench for parents waiting for their kids."

New Britain is about 15 miles southeast of Hartford. It was a Colonial-era settlement, but rose to prominence as a manufacturing center, dubbed the "Hardware City," when companies like P&F Corbin Company and Stanley Works (now Stanley Black & Decker, still headquartered there) were founded in the mid nineteenth century. These enterprises anchored the cultural and community attractions that are thriving there today.



**April's Little Poland Festival; an elegant vista in Walnut Hill Park; the New Britain Museum of American Art—and images from two current exhibits, on American Sign Language and pulp-art paintings**



Poles began arriving in the late 1800s and joined other immigrants—Irish, German, and Italian—working in the booming factories. The fast-growing Polish community was soon buttressed by the neo-Gothic Sacred Heart Church, built in 1897, which looms

CLOCKWISE FROM TOP LEFT: COURTESY OF THE LITTLE POLAND FESTIVAL, NEW BRITAIN, CONNECTICUT; WIKICOMMONS; THE GROVE OF DOOM, FROM THE SHAW MAGAZINE, SEPTEMBER 1933; THE ROBERT LESSER COLLECTION OF PULP ART, 2009.22.511C, COURTESY OF THE NEW BRITAIN MUSEUM OF AMERICAN ART

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large on the Broad Street hill and still holds services in Polish. Another wave of Poles arrived after World War II, then a third influx associated with Polish independence in 1989.

IMMIGRANTS WERE once so crucial to New Britain commerce that company representatives sought to recruit them as they dis-

embarked from ships in New York City, says Min Jung Kim, director and CEO of the New Britain Museum of American Art (NBMAA). The museum traces its roots to the New Britain Institute, founded in 1853 to foster learning and cultural awareness among the new arrivals. In 1903, John Butler Talcott, a former mayor, chair of the Institute's building

committee, and founder of the American Hosiery Company, donated \$20,000 in gold bonds for an art-acquisition fund. This transformative gift was part "of a civic and cultural consciousness that began to develop in the first part of the nineteenth century in prosperous cities in the Northeast and gradually spread throughout the country," Kim wrote

## CURIOSITIES: Boston Roller Derby

**When not** holed up in a Harvard chemistry lab, fifth-year graduate student Cristin Juda lets loose as her alter ego, "Brutyl Lithium." The Boston Roller Derby track name is a play on the compound *tert*-Butyllithium, she says with a smile: "When it comes into contact with air, it catches on fire."

That's a handy trait for playing a rigorous sport rooted in targeted aggression and strategic containment. Two five-player teams skate furiously around a track in the same direction while the designated "jammer" from each side fights to get past the pack of opposing "blockers" without being knocked out of bounds. As everyone plays offense and defense simultaneously, and boundaries shift with the pack, the action can get chaotic. About 18 officials are required to run a given game, and strict rules govern hitting.

Skaters can't use elbows, hands, head, or feet, or "hit directly in the back or the face, or below the knee," says Erica Viscio, graphic designer and marketing coordinator for Harvard Medical School's office of global education. "You use your body, usually hips or shoulders, to initiate contact. I have bruises, and my face is a bit scratched, so it can get a little rough," she allows, but "I grew up playing sports with the boys and it was nice to play with women—

and have that intense physical outlet when going to the gym doesn't really cut it."

An estimated 1,200 amateur roller-derby leagues for women, men, and juniors compete across the globe. American derby's origins date to popular



JOE MEDOLO



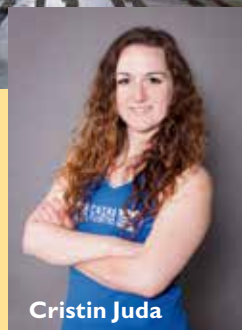
Erica Viscio, a.k.a. "Maul," slams by opponents on the track.

STEVE JURKOVIC



The Cosmonaughties roll out for a game

JOE MEDOLO



Cristin Juda

KASEY TAPPER

roller-skating marathons in the 1930s, which then morphed into a "kitschy sport that appealed to nontraditional sports fans: skaters wore fishnets and tutus and put on sort of a stage show," says Viscio, who plays as "Maul" (short for "Agent MauledHer," inspired by the *X Files* protagonist) for the Boston Masseur team that last year won the Division II world championship against Paris.

That campy element still exists, but has waned since the mid 2000s, when roller derby began to emerge as a more serious competitive sport—it was short-listed for inclusion in the 2020 Olympics—played predominantly by women.

Boston Roller Derby, among 400 leagues in the Women's Flat Track Derby Association, began in 2005 and has since grown to seven teams as well as a junior-level training program, headquartered at a warehouse in Lynn. Games are played at Shriners Auditorium, in Wilmington, except those in May and June, which are held at Cambridge's Simoni Skating Rink.

The all-volunteer league (only some game officials are paid) is a tight-knit community. "Not only do you practice with the team three to five days a week," Viscio says, "we travel and train together." She and Juda also coach and teach. "Graduate school is very stressful, and this is a sport where you can really get out your frustration," says Juda, a blocker with the Cosmonaughties. "People outside of the derby community think I'm really tough. Roller derby does build confidence—knowing you can play a contact sport," but for her the appeal also lies in its "welcoming environment. People are very open-minded and tolerant. It's a sport where you can be whoever you want to be."

Viscio joined Boston Roller Derby when she moved from Vermont for her Harvard job, not knowing a soul. "I thought it would be a good way to make some new friends," she says, "and it turned into this incredible adventure that has altered the entire course of my life."

—N.P.B.



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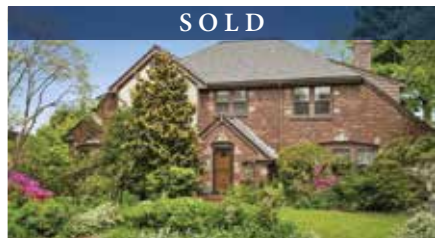
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LITTLE POLAND FESTIVAL, NEW BRITAIN, CONNECTICUT

### Children in traditional dress perform at the Little Poland Festival.

in “American Art in the 21st Century: Building Bridges, Not Walls,” for *Art New England* (May-June 2017). “In short, the NBMAA was uniquely positioned to reflect the new, unifying, and ‘American’ visual rhetoric.”

Local leaders also commissioned the adjacent Walnut Hill Park in 1870, now on the National Register of Historic Places. It was designed by the office of Hartford-born landscape architect Frederick Law Olmsted, A.M. 1864, LL.D. ’93, as a respite for residents—and is still a picturesque place for exercising,

walks, public events, and simply relaxing. In 2009, the Friends of Walnut Hill Park Rose Garden organized to re-create and maintain that garden (originally added in 1929) by moving it to the courtyard by the World War I memorial and planting more than 800 bushes, representing 75 varieties, as a purposeful symbol of the city’s diverse population.

The NBMAA was the nation’s first institution dedicated solely to American art, Kim says; its permanent holdings stand at more than 8,300 works, including pieces by the Connecticut-raised Sol LeWitt. It also owns prime examples of Colonial portraiture, the Hudson River School, and works by Winslow Homer, Mary Cassatt, Thomas Eakins, Childe Hassam, and Thomas Hart Benton.

In 2015, an addition greatly expanded gallery and classroom space. The museum continues to serve as a vibrant community resource, offering lectures, concerts, and classes for all ages. “NEW/NOW: Francisca Benitez” (through April 29) highlights video and photographic works exploring the power and diversity of sign languages and deaf culture,

including a collaborative project with children at the American School for the Deaf, in West Hartford, the birthplace of American Sign Language. The museum also holds upward of 200 original oil paintings created for inexpensive pulp-fiction publications such as *The Shadow* and *Doc Savage*, hugely popular from the Great Depression through World War II. The sensational graphics often depict archetypal characters—barely clad “damsels in distress,” “heroic” tough guys—engaged in adventures, mysteries, and science-fiction narratives that influenced a collective understanding of American values and success stories.

Kim wants the museum to reflect the “rich and varied” aspects of American culture and experiences, and on mounting shows that speak to local and regional residents. With a Polish community constituting about 20 percent of New Britain’s nearly 73,000 residents, the museum has hosted events and exhibits over the years exploring Polish and Polish-American arts and heritage, she explains. Last year’s “Vistas del Sur: Traveler Artists’ Landscapes of Latin America from the Patricia Phelps de Cisneros Collection,”

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which featured more than 150 works created between 1638 and 1887, together with English and Spanish exhibit texts, reached out to a Hispanic community encompassing nearly 44 percent of city residents. “Ghana Paints Hollywood” (through February 19) presents hand-painted African movie posters for U.S. films from the mid 1980s through the early 1990s that represent a Golden Age of pre-commercial, “imagination-driven” advertisements by individual artists. Such shows purposely “flip the gaze,” Kim says, because the focus “is not always about our declaration of what American art is, but about opening ourselves up to other global representations of us—and that only contributes to a more informed consciousness about what American art is and how America is perceived.”

In May, the museum’s gaze returns to New Britain’s industrial legacy with “New/Now: Paul Baylock.” His works integrate iconic factory and hardware motifs reflecting his own experiences growing up in the city, where he was part of an Irish-Lithuanian family of 10, and taught art in the public schools for decades. He also witnessed the postindustrial decades of economic challenges,

demographic shifts, and the blight that still plagues some sections.

YET IN AN age when many ethnic neighborhoods that coalesced around that long-ago heyday are gone, Little Poland, designated in 2008, is thriving.

And it’s serving as an inspiration elsewhere. The New Britain Latino Coalition is developing the “Barrio Latino” (renamed a few years ago) around Arch Street, which holds a cluster of Latin-American organizations and businesses, including the Criollissimo Restaurant and the Borinquen Bakery. “We’re in the infant stage,” says coalition chairman Carmelo Rodriguez, “working on getting more businesses to the area, and with landlords to fix up their buildings.” The city already hosts annual Latino and Puerto Rican Festivals; this spring, following a six-year effort, the new Borinqueneers Monument (honoring the 65th Infantry Regiment from Puerto Rico, the last U.S. Army unit to



HARVARD MAGAZINE/NPB (2)



**Krakus Meat Market offers all kinds of sausages, along with homemade blintzes, stuffed cabbage, poppy-seed bread, and other Polish delights.**

be desegregated) will be dedicated in a new city park, Rodriguez says.

“New Britain is a melting pot of cultures,” he continues, “we have Polish and Central and South Americans, and Laotians and Vietnamese and Yemeni. You name it, we got it. We have seen the fruits of their hard work in Little Poland, and it’s awesome. We are all proud of each other here. It’s not about competitions.” Many city residents and officials are also increasingly joining forces to clean up and revitalize other areas—and the Polonia Business Association wants to help. “We try to be inclusive and support each other,”



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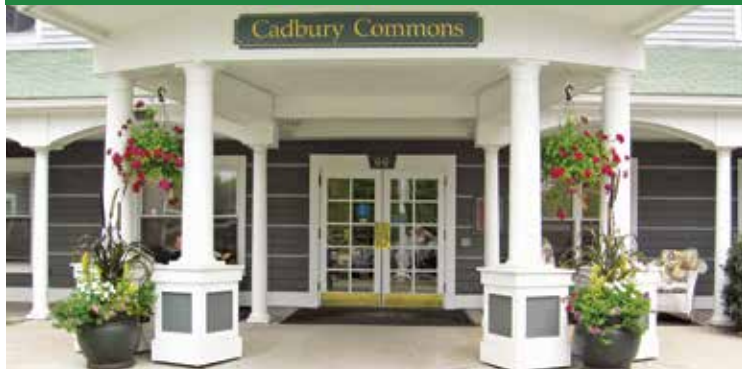


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## HARVARD SQUARED

Adrian Baron says, “because helping the city helps all of us.”

Still, these projects take time. Lucian Pawlak, who settled in New Britain with his emigré parents in 1956, is credited with spearheading renovation and eradicating gang activity in Little Poland when he was mayor, from 1995 to 2003; the recently re-furnished sidewalks and new street lamps were improvements he began pushing for in 1999. He and Baron agree the still emerging transformation has hinged, in large part, on a loyal base of second- and third-generation Polish Americans (and recent immigrants) who patronize the professional businesses, markets, and restaurants—like Belvedere Café, Staropolska, and Polonia Taste—even after they move to nearby communities. “The place is a way for many Polish-Americans to reconnect with their heritage,” Baron says. “They’re in language classes, buying books and music, and sampling the food.” But the reversal also reflects the locals’ initiative, he adds: “We don’t wait for things to happen. Instead of complaining to the city about cleaning up an empty lot, we’ll clean it up ourselves. If there’s a problem with a drug dealer on a corner, then we’ll call the police and say we’ve got footage, we’ll speak out in court.”

Such active participation has helped bolster the annual Little Poland Festival (on April 29 this year), where performances by Polish polka, rock, and jazz bands, by the Polish Language School, and by traditional Goral singers and dancers from southern Poland, among others, now draw thousands of people. “And there’s great food,” says the organizer, Pawlak. “Everything from pea soup that your spoon stands up in to, obviously, *parówki*, *kapusta*, *pierogi*, and *golabki*”—hot dogs, sauerkraut with bacon and onions, dumplings, and stuffed cabbage, respectively.

“It’s very heart-warming,” he adds, to see this “amazing turnaround.” He remembers arriving in New York Harbor as a boy. “We were at the port and company agents picked us up and dropped us off at a 13-story hotel—I had only ever known a hut. None of us spoke English, and my father had two slips of paper because he had a sponsor in New Britain and one in Chicago.” He figured out that the train ride to Connecticut was three hours, while Chicago took 20, “and chose New Britain, because my brother was sick. When we arrived, the agents threw us in a two-family house, and there were eight other families living in that house, too. It was terrible,” he says, “but that’s another story.”

## ALL IN A DAY: Cambridge Science Festival

The twelfth annual Cambridge Science Festival offers more than 200 events, promising something for all ages—"Science Carnival and Robot Zoo," "Astronomy on Tap," "You're the Expert"—in locations across Greater Boston. Founded by MIT Museum director John Durant, the 10-day event was the "first of its kind in the United States," says festival manager MaryCat Chaikin: "You get to engage in hands-on, creative activities directly with scientists" working in a world-class research hub.

Also unique is the fair's breadth, from math challenges, lab experiments, citizen-driven data drives, and philosophical debates to activities that underscore the essential roles of math and science

in food, the arts, business, education, human development—and even comedy. "You're the Expert" is a hilarious attempt by comedians to guess scientists' areas of research through a 20 Questions-style game. The Boston Public Market hosts a daylong focus on science and edibles, while Red's Best opens its Boston fishery to explain technologies used by sustainable sea-



food markets. At "Be A Medicine Hunter," the Novartis open house, visitors can talk with researchers; meanwhile, the City of Cambridge offers "How Cambridge Works—Science at City Hall." Harvard events range from "Cambridge Explores the Universe," at the Harvard-Smithsonian Center for Astrophysics, to "The Invisible Chef"—ferreting out microbes in food with the Harvard Microbial Sciences Initiative.

Most activities are free, accessible by public transportation, and open to families. But it's adults-only at "Astronomy on Tap," where postdocs present their research over pints. The challenge mounts as the night wears on. ~N.P.B.

**Options: Robots at the MIT Museum, and viewings through a solar telescope at the Museum of Science**

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*Harvard Art Museums, artwork © Carlos Amoraes*



# Broadsheet Coffee Roasters

*An antidote to Starbucksification?*

by NELL PORTER BROWN



**F**IGURING THAT “day-trading my stock portfolio was not the best use of my time,” former banker Aaron MacDougall ’94 chose instead to open Broadsheet Coffee Roasters, a specialty coffee house in Cambridge that aims to educate as it caffeinates.

MacDougall “curates” the raw green beans—mostly from growers in Ethiopia, Peru, and Guatemala—and convection-roasts them in the gleaming and efficient Loring S-15 that sits behind a rope like a museum piece in the Kirkland Street café. It perfectly browns coffee that’s sold in bags or brewed for customers (using water thrice filtered and re-mineralized in the basement) by discerning baristas. “What we’re really fighting here is the fast-food mentality of the United States,” says MacDougall. “Across the country, coffee equals ‘caffeine-delivery mechanism’ for the working person. We’ve

been trained to just dump in the cream and sugar and not even taste the coffee.” He’s trying to communicate the “value proposition” of fine coffee: to help consumers think differently and not waste their “caffeine capacity on something that’s inferior.”

A 12-ounce brewed cup costs from \$3.25 (plain) to \$5.00 (vanilla latte, mocha); a 12-ounce bag of roasted beans is \$18 to \$22. When asked about what some patrons see as steep pricing, MacDougall counters: “But I always think, ‘Why is it so cheap?’”

Consider the labor-intensive process of bringing coffee to the market, he explains: the cultivation, hand-picking, sorting, and cleaning that mostly occur in high-altitude, rural areas that are hard to reach; then add transportation costs. His raw coffee is a “dramatically” higher grade than any Starbucks offering, and costs customers only

**Clockwise from far left: Broadsheet is an open, light-filled space for working or socializing; the view from Kirkland Street; baristas and servers customize coffee orders; Broadsheet owner and coffee connoisseur Aaron MacDougall**

about 50 cents more per cup. Like fine wines, he points out, specialty coffees have distinctive nuances. Describing two varieties from Ethiopia, which holds near-mythic status among serious coffee-drinkers as the origin of the indigenous arabica coffee shrubs, he says, “The best-selling Qonqona brew tastes of rich, dark cherries,” whereas “the classic Yirgacheffe Kochere is a lighter roast with “a strong bergamot, herbal note.”

Broadsheet also customizes grinding, brewing, and roasting. “Starbucks uses super-automatic machines; they just press a button and out it comes. They have built-in

grinders and their espresso-makers are notoriously crappy,” he adds. “And we use a steam wand, which forces hot steam into the milk, creating micro-foam [versus the frothers at Starbucks], and milk from a local farmer, too.”

MacDougall spent 17 years in banking, ultimately as a managing director in the global markets division of Deutsche Bank in Tokyo. In starting Broadsheet, he considered the paths of some peers. “I know a lot of people in their forties and fifties who were in the finance industry and are now doing nothing, or going through the motions, doing more of the same—really bright, really capable—and they’re managing their portfolios all day, watching Netflix, and trying not to pay taxes,” he says. “I just had a negative reaction to the money making money.” Instead, he sees his café (which also sells excellent, house-made baked goods, along with breakfast and lunch fare) as a means of “doing something fun that I love, and building something: employing people, creating community.” He enjoys applying his banking acumen to the specialty coffee industry (understanding relative value, and global and commodities markets, for starters), as well as to running a small business.

But his infatuation with java began only after he’d left finance—and moved with his wife and their young son (then suffering from myriad allergies) to Hawaii. It was a purely sensuous pursuit: “In Hawaii I could go into the mountains and pick coffee with friends and bring it home and roast it myself,” he says. Analytical and detail-oriented by nature, he soon found a local coffee-roasting mentor and began experimenting, testing various beans and temperatures, learning the art and science of extracting and honing flavor. “My wife told me, ‘This is so much better than any other middle-aged-guy hobby.’”

Five years ago, the family moved to the mainland United States and settled in Brookline, closer to MacDougall’s parents, and he sought out the local specialty coffee subculture, attending seminars and trainings at the Somerville outpost of Counter Culture Coffee company. In 2015, he sat through a six-day exam period to become a certified Q-grader (“Like a master sommelier, but for coffee,” he says; “there are only maybe 300 to 350 of them in the United States”), entitled to officially evaluate the quality of coffees.

Here’s his quick lesson on grading: green arabica coffee is scored on a 100-point scale; anything below 80 points is priced off of

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**HARVARD SQUARED**



Visitors can see MacDougall's prized coffee roaster at his Broadsheet café.

the commodities futures markets and sold in grocery stores, although the top-shelf brands at big coffee chains rate as high as 84. Most lower-grade arabica coffee comes from Brazil and Colombia, while robusta (which MacDougall calls "crap") is from Vietnam; and the specialty coffees are grown largely in East Africa (Ethiopia, Kenya, Rwanda, Burundi) and Central America (Guatemala, Costa Rica, Colombia, and Panama); those above 86 points are generally produced in micro-lots of under 10,000 pounds. Broadsheet's beans, he adds, are scored from 86 to the low 90s: "Coffees over 92 points are unicorns, there are almost none, and often go for hundreds of dollars a pound raw."

MacDougall now puts his connoisseurship to the test. He won the Genuine Origin Coffee Project's debut "Roast and Go" competition in 2016, and last year placed fifth in the United States Cup Tasters Championship (against experts from companies like Green Mountain Coffee Roasters and Blue Bottle). Contestants strive to be the fastest and most accurate in identifying the odd one out of three cups of coffee. If that sounds easy, he says, it's not: "They try to select coffees that are very similar. You can have two coffees from the same farm, but one's grown on one side of the plantation, and the other, on the other side."

Appreciation of fine coffee (and the price point that often goes with it) already exists in Los Angeles and New York City, he says, and is slowly emerging in Greater Boston, through the work of companies like Counter Culture and the Acton-based George Howell Coffee. And MacDougall concedes that he was once as naïve as anyone else: "Before I got into this, I thought of a coffee bean as a grain of rice: every one was perfect. And it couldn't be farther from the truth."



# JOHN HARVARD'S JOURNAL



**KLARMAN CONSTRUCTION:** A mid January view of Klarman Hall, the new auditorium-conference-convening complex scheduled for completion later this year at Harvard Business School. The facility, which will replace Burden Hall and define a new campus quadrangle and roadway, can accommodate up to 1,000 people at a time: more than an entire M.B.A. class, for instance, or joint events with engineering and applied sciences professors and students, with whom HBS is already building academic and degree collaborations in advance of completion of the new home for most of that school's faculty, rising across Western Avenue and expected to open in 2020. The eastern end of HBS's campus will, upon completion, include not only Klarman, but also expanded and renovated executive-education quarters, consistent with the school's aim of bringing together business leaders from around the world. Details about the new facility were reported at [harvardmag.com/klarman-hall-16](http://harvardmag.com/klarman-hall-16).

## Endowments, Taxed

THE TAX CHANGES enacted by the Republican majorities in the U.S. House of Representatives and Senate just before Christmas and signed into law by President Donald Trump did not incorporate many of the features that most alarmed the higher-education community (see "Taxing Matters," January-February, page 17). Thus, graduate students do not face an onerous cash tax bill for the imputed income associated with their (typically waived) tuition bills, nor do students and families face the loss of the deductions associated with interest on their education loans. Universities and colleges can still resort to the tax-exempt bond market to finance construction projects (although advance refinancings—to take advantage of more favorable interest rates, for instance—are prohibited).

But the issue that most troubled Harvard's

leaders, and those of a couple of dozen other fortunate institutions, has become law: those whose endowments exceed \$500,000 per student, and with more than 500 students, are now subject to a 1.4 percent tax on annual investment earnings. The roster of affected schools begins with Princeton and extends through Yale, Harvard, Stanford, and MIT, through colleges such as Pomona, Amherst, Swarthmore, Grinnell, and Williams.

President Drew Faust and other universi-

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ties' leaders lobbied hard to defeat the endowment levy. In a statement after it was enacted, she said, "I am deeply concerned that the adoption of an unprecedented excise tax on charitable organizations that targets certain colleges and universities will weaken our ability to support students and research. The provision will constrain the resources that enable us to provide the financial aid that makes college more affordable and accessible and to undertake the inquiries that yield discoveries, cures, innovation, and economic growth." She promised that "We will assess the damaging impacts of this tax legislation moving forward, and we will continue to engage policy makers in substantive conversations on higher-education finance to ensure a deeper understanding of the role college and university endowments play in making higher education accessible to students from across the country."

The University will calculate the exact impact after analyzing the legislation's final details and the ensuing regulations. Given the formula, more schools could become subject to the provision as their endowments appreciate or as they enroll more students—and of course, revenue-hungry lawmakers could easily boost the government's take in the future.

In the near term, Faust estimated that Harvard would have had to pay about \$40 million on its investment earnings during the fiscal year ended last June 30 (see [harvardmag.com/endowment-tax-17](http://harvardmag.com/endowment-tax-17)). The longer term is less calculable, and perhaps of greater concern. The tax law both increased the standard deduction for individuals and families, which may make

prospective donors less eager to act philanthropically (since the value of itemizing charitable deductions is diminished), and limited the deduction for state and local tax payments and deductions for interest payments on future large mortgages—both of which raise the costs for many prospective donors. The increase in the estate-tax threshold may also undercut the incentive to give.

## More schools could become subject to the endowment tax, and lawmakers could easily boost the government's take in the future.

An interesting possible straw in the wind may be discerned in the recent \$12-million grant by Priscilla Chan '07 to support public-service activities at Phillips Brooks House Association (PBHA; see [harvardmag.com/chan-grant-17](http://harvardmag.com/chan-grant-17)). She and her husband, Mark Zuckerberg '06, LL.D. '17, have embarked on a multibillion-dollar program of philanthropic activity, based on their Facebook wealth, through their Chan Zuckerberg Initiative. But rather than *endowing* positions or programs, they are sponsoring term- and topic-limited *research* efforts in areas of interest (biomedical discovery, education). Chan's PBHA grant is of this form.

Harvard is surely glad to receive this fellowship support. But because it is in the form of a grant, rather than an endowment, the University will *not* be able to make its usual assessment on continuous distributions of income from the endowed principal to help defray administrative overhead costs.

(Perhaps some assessment will be imposed to cover expenses associated with the non-fellowship parts of the Chan gift.) The new tax is an additional, and highly visible, wrinkle that financially sophisticated donors may consider when deciding to how to structure their philanthropic support for elite colleges and universities. That comes just as Harvard and peer institutions are worrying about the ability of their heavily endowment-depen-

dent financial models to support research, teaching, libraries and other academic infrastructure, as well as financial aid.

As if speaking to these concerns generally, in early December Moody's Investors Service issued a report changing its 2018 outlook for the entire sector from "stable" to "negative," citing slowing revenue growth outpaced by rising expenses (estimated at 3.5 percent and 4.0 percent, respectively, for higher education as a whole). In partial confirmation of the challenge, the Commonfund Institute's higher education price index for fiscal year 2017, published in mid December, rose to 3.7 percent—up from 1.8 percent the prior year and the fastest rate of growth since 2008. Contributing factors included employee benefits, up 5.9 percent, reflecting an aging work force using more medical services, and administrative and clerical salaries, up 3.0 percent (outpacing growth in faculty salaries, at 2.5 percent).

—JOHN S. ROSENBERG

## Final-club Finality

PRESIDENT Drew Faust and Corporation senior fellow William F. Lee on December 5 brought an end to 19 months of formal faculty debate about and challenges to the College's sanctions on undergraduate membership in unrecognized single-gender social organizations (USGSOs: final clubs, fraternities, and sororities). At the monthly Faculty of Arts and Sciences (FAS) meeting that afternoon, Faust read a statement from the Corporation, announcing that the policy promulgated in May 2016 by College dean Rakesh Khurana, and accepted by Faust,

would be implemented. Accordingly, current freshmen and their successors will be prohibited from serving as leaders of recognized social organizations and clubs, or as captains of athletic teams, and from receiving the required endorsement for academic fellowships such as the Rhodes and Marshall scholarships, if they belong to a USGSO. (Read a full account at [harvardmag.com/implementation-17](http://harvardmag.com/implementation-17).)

In choosing to adopt the policy, Faust and her fellow Corporation members signaled their sense of urgency on the subject ("the University must act"), and their rejection of alternative courses: a proposed outright ban on membership in a USGSO, or a third op-

tion, which might have involved concerted efforts to change the undergraduate culture of pursuing social life that is associated, particularly, with the long-established male final clubs that own Harvard Square facilities and have the means to stage parties.

The Faust-Lee statement focused especially on those clubs and on "eliminating the allocation of social opportunities on the basis of gender." It described the sanctions regime as one that "does not discipline or punish the students," because they would remain in good standing within the College otherwise (albeit excluded from other leadership positions or fellowships), even if they decide to join a USGSO. In fact, tricky

## HARVARD PORTRAIT



## Makeda Best

**At 13,** Makeda Best bought her first photo-book: Brian Lanker's *I Dream a World: Portraits of Black Women Who Changed America*. (Her second was an Annie Leibovitz collection; after that, lacking funds, she made her own with magazine cutouts.) **At 16,** she was given her first camera—a Nikon 6600, then the fastest automatic on the market—and began taking portraits. It was the only genre she knew before college, at Barnard, exposed her to other formats: “I didn’t know what photography could be.” Later, as a student at CalArts, she mostly snapped unpeopled landscapes, especially in San Francisco, its storefronts roiled by the dot.com boom. Best had been raised there by New Yorker parents who’d struck out west in the 1970s. To her mind, “California’s a place where people escape. It’s a place where you go because want to think freely, you want to be expansive. The East Coast is very much grounded in history.” Though she got her M.F.A., Best says, “I have nothing to *show*” for that time in art school. There’s no framed work, no secret box of prints—just an enduring fascination with the form’s technical aspects, which she brings to her new position as Menschel curator of photography at the Harvard Art Museums. Documentary is a special strength of the collection; Best, Ph.D. ’10, specializes in the photography of war and protest. Centrally, she’s interested in how artists struggle to capture their moment, grappling with new cameras and films. “That’s where my own background as a photographer comes in,” she says. “I can look at something and say, ‘Well, he’s trying to do this, but it’s not quite there.’” She no longer makes images, but her life is still dedicated to understanding that process: “It’s become a practice, now, of writing, of reading.”

—SOPHIA NGUYEN

problems of implementation remain: because membership is not public, the College does not know who belongs to what organizations. Dean Khurana promises clarification on these matters early in 2018.

The Corporation has reserved the right to revisit the policy within five years—an option that strongly suggests it will move more forcefully against the final clubs and similar entities if the sanctions neither cause them to become gender-neutral, nor incentivize the student body to turn away from membership. For now, the issue—at least as a matter of policy—has been resolved before the Corporation announces Faust’s successor as president, even though the details about enforcement, and longer-term effects resulting from faculty members’ concerns about governance, may linger. (For an analysis of some of those issues—and of the wider repercussions of the protracted, bruising debate within FAS on the narrow issue of sanctioning student membership in legal social organizations, and broader questions about undergraduate social life—see [harvardmag.com/fallout-17](http://harvardmag.com/fallout-17).)

—JOHN S. ROSENBERG

## News Briefs

## Allston Updates

BOSTON AUTHORITIES have approved construction of Harvard’s 9,000-square-foot, temporary “ArtLab” near the corner of Western Avenue and North Harvard Street. The facility will be sited to the west of the cluster of innovation spaces that have sprung up at the edge of the Business School campus, but is conceived in the same spirit. Construction is expected to take about one year (as reported in [harvardmag.com/artlab-plans-17](http://harvardmag.com/artlab-plans-17)).

On a far more consequential scale, the preliminary filing for the commercially oriented “enterprise research zone” (unveiled in December), outlines two office and laboratory structures totaling 400,000 square feet; a 250,000-square-foot hotel/conference center; and a similarly sized apartment tower. They would occupy part of 14 acres along Western Avenue, opposite the business school—between the science and engineering complex now rising and the existing Genzyme manufacturing center. The rest of the site would be surface parking lots, at least temporarily. Harvard did



# University People

## Decanal Departures

When the new freshmen arrive, they will find a new dean of undergraduate education; Wolfson professor of Jewish studies **Jay M. Harris**, former head of Cabot House, is relinquishing the post at the end of the academic year, concluding a decade of service engaged in matters ranging from the General Education curriculum and the introduction of the academic honor code to a new class schedule (to accommodate courses held in Allston, beginning in the fall of 2020) and proposed changes in advanced standing (see page 22)....Separately, Mallinckrodt professor of geophysics **Jeremy Bloxham**, who is dean of science within the Faculty of Arts and Sciences (FAS), will complete his service in that role. College and FAS deans **Rakesh Khurana** and **Michael D. Smith**, respectively, have begun searches for successors.

## Artist Honored

Novelist **Colson Whitehead** '91, author of the acclaimed *The Underground Railroad*, has been named the Arts First honorand; he will be recognized in a ceremony on April 26. He was profiled in "A Literary Chameleon" (September-October 2016, page 32). Two other novelists have received the arts medal: **John Updike** '54, Litt.D. '92, and **Margaret Atwood**, A.M. '62, Litt.D. '04.

## Online Update

Carswell professor of East Asian languages and civilizations **Peter K. Bol**, who in 2013 was appointed the initial vice provost for advances in learning (VPAL; see [harvardmag.com/teaching-innovation-13](http://harvardmag.com/teaching-innovation-13) for background on his digital expertise), will conclude his service in that capacity at the end of the summer. He plans to return to his scholarly and teaching commitments full time. The new office assumed responsibility for HarvardX and the Harvard Initiative for Learning and Teaching, and associated research in the field. Harvard DART (Digital



MICHAEL LIONSTAR

**Colson Whitehead**



STEPHANIE MITCHELL/HFAC

**Peter Bol**

Assets for Reuse in Teaching), created during Bol's VPAL tenure and recently deployed, enables faculty members to search for HarvardX material and to embed it instantly in their Harvard course websites. A search for his successor will begin soon.

## Brain Drain

**Margo I. Seltzer** '83, who has taught at the University since 1992 and is now Smith professor of computer science and director of the Center for Research on Computation and Society, is departing for a post at the University of British Columbia. She is one of the first scholars appointed to a Canada 150 Research Chair, a concerted national effort to attract scientific leaders. According to the announcement, Seltzer's work will be supported by \$1 million annually. At Harvard, she was recognized as a leader in computer-systems research, and for championing women in science.

## Endowment Evolution

Continuing its restructuring (see [harvardmag.com/hmc-summary-17](http://harvardmag.com/hmc-summary-17)), Harvard Management Company has spun out its real-estate investment team, which is now part of Bain Capital; the staff will continue to manage the endowment's direct real-estate investments under Bain's auspices. Meanwhile, more of its investment professionals have relocated to new positions. In January, the New York Public Library announced that **Geetanjali Gupta**, formerly HMC's senior vice president of absolute return and public market funds, had been appointed its chief investment officer, responsible for assets of \$1.2 billion. And **Rich Hill**, who came to HMC from the Teacher Retirement System of Texas in 2014 to oversee the critical private-equity portfolio, and has recently been a managing director of the generalist team, is heading south again. He will be deputy chief investment officer



## Development Leader to Depart

With The Harvard Campaign headed for a record finish as of June 30, the same day **Drew Faust's** presidency concludes, **Tamara Elliott Rogers** '74 has made public her plan to step down as vice president for alumni affairs and development at the end of 2018—time enough to wind up the fundraising drive, thank its tens of thousands of supporters and volunteers, and effect a transition to the University's new president. Her Harvard service began in 1976. Read a full report at [harvardmag.com/rogers-18](http://harvardmag.com/rogers-18).

of the University of Texas Investment Management Company, which has a Harvard-sized pool of assets: \$42 billion.

## Miscellany

The Claremont Institute will confer its Statesmanship Award (previously given to Ronald Reagan, Margaret Thatcher, Clarence Thomas, and Senator Ted Cruz, J.D. '95, among others) on Senator **Tom Cotton** '99, J.D. '02, at its annual dinner this April 14....**Winthrop McCormack** '67, owner and editor in chief of *The New Republic* (and an incorporator of this magazine) has endowed a professorship of citizenship and self-government at the Harvard Kennedy School; academic dean **Archon Fung** is the first to hold the chair....**Semma Therapeutics**, which seeks to develop a stem-cell therapy for diabetes that could eliminate the need for insulin injections, has attracted investment totaling \$114 million during its second round of venture financing. It was founded and is based upon research led by Xander University Professor **Doug Melton**, who is also faculty dean of Eliot House.

not identify a private developer for the project. Plans for the rest of the 36 acres envisioned for the zone, and for the more extensive Harvard landholdings underneath and south of the Massachusetts Turnpike intersection, which is to be reconstructed, were not put forward—a disappointment to some Allston residents. Another concern is the state's delay, until 2040, on a mass-transit hub for the area. Further details on the filing appear at [harvardmag.com/erc-filing-17](http://harvardmag.com/erc-filing-17). For an update on Harvard's January offer to jump-start the transportation hub by contributing as much as \$50 million to the needed financing, see [harvardmag.com/transit-offer-18](http://harvardmag.com/transit-offer-18).

Down river, in the booming Kendall Square neighborhood around MIT (the sort of technology-academia hub Harvard's planners may envision), the announcement that a supermarket would soon move into One Broadway signaled the area's increasing appeal not only to life-sciences and information-technology tenants, but to their employees, who are taking up residence. MIT plans further intensive commercial growth in the area, including more than a thousand housing units plus offices and laboratories

on a 14-acre site for which it has recently gained planning and development approval.

—JOHN S. ROSENBERG

## Overhauling Advanced Standing

AT THE December 5 Faculty of Arts and Sciences (FAS) meeting, dean of undergraduate education Jay M. Harris (see page 21) outlined proposals to eliminate the College's policies on advanced standing. One element of the proposal proved uncontroversial: students should no longer be allowed to receive Harvard College credit for Advanced Placement (AP) examinations associated with their high-school courses, given the dissimilarity of aims and demands between those courses and their classes in Cambridge. (AP exams would still be used as measures to guide placement into College courses appropriate for each student.) Effecting this change would also, in a way, be a bow toward equity, because students from high schools with lesser resources and fewer course offerings arrive at Harvard less likely to have accumulated AP credits.

But two implications of the proposal

were of concern to faculty members. Using AP courses has been the sole channel to advanced standing, enabling students to complete their undergraduate studies in six or seven semesters, or to pursue a master's degree in their fourth Harvard year.

Harris observed that with financial aid, low-income students do not bear the cost of tuition and fees during a fourth year in residence. But some faculty speakers observed that some students wish to graduate in fewer semesters because of constraints on their health, or because of the pressing need to begin earning a full-time income to support their families—significant opportunity costs not captured in the grant of financial aid during a fourth College year.

More speakers, particularly from the sciences—computer science and physics among them—said that withdrawing the option to obtain advanced standing during an AP-eased fourth year would severely disadvantage Harvard in recruiting the most outstanding stu-



Jay Harris

dents in those fields, for many of whom the dual-degree option is a compelling attraction. The proposal Harris outlined—permitting any student capable of advanced work to pursue a master's degree within four years of residence, but no longer allowing a reduction in College requirements (other than allowing a maximum of two courses to be counted toward both the bachelor's and master's degree, so earning two degrees would require a minimum of 38 courses or 152 credits)—did not alleviate those concerns.

One further element was not aired during the faculty meeting. The proposal suggests that students should continue to be allowed to fulfill their foreign-language requirement with a score of 5 on an AP exam. But the committee that drafted the report also noted that “policies around the language requirement should be reviewed.” Presumably, many high-school language courses, focused on acquiring skills and proficiency, also fall short of many College courses, which aim at “a broader cultural experience, and the kind of critical intercultural inquiry that further supports the core intellectual mission of the College.” (Main-

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# Brevia

## Grad-Student Unionization

In a succinct ruling issued in early December, the National Labor Relations Board (NLRB) upheld its prior finding that graduate students seeking to unionize at Harvard are entitled to a new election. The NLRB had previously ordered fresh balloting, following its finding that the University had not provided a complete list of eligible voters for the election held in November 2016. (The final tally for that election, the NLRB announced this January, showed that 1,526 students voted against forming a labor union and 1,396 voted in favor.) Harvard had appealed that finding, but the board found that the challenge “raises no substantial issues warranting review.”

On February 2, the NLRB announced that a new election would be held April 18 and 19. A full report is available at [harvardmag.com/nlrb-election2-18](http://harvardmag.com/nlrb-election2-18).

## Language and History Recessions

New data on job openings in English, foreign languages, and history depict academic fields in deep recession, if not depression. The Modern Language Association’s listings for tenure-track jobs in English and foreign languages have now fallen below the level reached during the recession at the end of the last decade. The American Historical Association’s postings for full-time positions during the 2016-2017 academic year fell to the lowest level since 1984-1985; unfortunately for job-seekers, the number of new Ph.D.s in the field has doubled during those decades, and now equals more than twice the volume of current listings.

## Affirmative-Action Litigation

As discovery proceeds in the *Students for Fair Admissions* lawsuit alleging that Harvard has discriminated against Asian-American applicants to the College, the

access to the information at its offices, in a redacted form that protects the confidentiality of applicant and student information—consistent with its presentation of the information in the private lawsuit. The government was “considering” this offer.

## Medical Milestones

The Columbia University College of Physicians and Surgeons has announced a \$250-million gift from P. Roy Vagelos, LL.D. ’03, former chairman of Merck & Co., and his wife, Diana Vagelos, \$150 million of which will underwrite financial aid. The intent is to offer scholarships (in place of the onerous loans medical students often incur) to students who qualify for aid; an estimated



**PUDDING PLURALISM:** On the occasion of honoring (and roasting) *Woman of the Year Mila Kunis—a star of *That 70s Show*, *Family Guy*, *Black Swan*, and other series and films—on January 25 (shown here in the traditional parade), Hasty Pudding Theatricals announced that it would open its heretofore male-only casting to women, beginning this coming fall in preparation for the 2019 production. The parent organization has had female members and officers for decades, but women have been denied roles in the annual show—including those who auditioned during the past three years. Future productions may, as a result, present even more complex gendered situations than those in what will be the last all-male, drag extravaganza, *HPT 170, Intermision Impossible*, running in Cambridge and beyond this winter.*

20 percent will receive full-tuition packages. Some \$100 million of the gift will underwrite basic research and work on precision medicine....Florence Irving and her late husband, Herbert Irving, co-founder of Sysco Corp., have given \$700 million to Columbia University Medical Center, encompassing New York-Presbyterian Hospital and the medical school, for cancer research and clinical care. The school and the center have been named, respectively, to honor the benefactors’ gifts....Separately, the Robert H. Woodruff Foundation has pledged \$400 million for a cancer-care and research facility, and a separate health-sciences research facility, at Emory University, the largest gift in that institution’s history.

## Sexual Assault and Harassment

The 2016-2017 report of the University’s Title IX Office and its Office of Dispute Resolution (which were formally separated last spring), released in December, depicts efforts to expand outreach to the entire community, both at a University level and through dozens of school-based co-

U.S. Department of Justice began pursuing similar inquiries last summer. Just after Thanksgiving, a federal request for access to admissions records heated up, with the government claiming that the University was not providing the data it sought in an October query. Harvard’s counsel at WilmerHale responded by offering ac-

**DESIGN AND BUILD:** The Graduate School of Design has announced a \$15-million gift from Ronald M. Druker and his family foundation. Druker, a local developer and 1976 Loeb Fellow, is supporting the school's plan to renew and expand its main Gund Hall facility, which is overcrowded and in need of updating to adapt to new design practices and technologies. This seed funding will start the work; its completion will depend on further fundraising, extending beyond the current capital campaign. In recognition, the school's primary exhibition space has been renamed the Druker Design Gallery.

ordinators. The offices are responsible for education, training directly and through the school staff, and pursuit of formal complaints. An early, and perhaps expected, result of the outreach is an increase in the numbers of disclosures to Title IX coordinators and formal complaints filed with the dispute-resolution office. In a message to the community, President Drew Faust wrote, "Sexual harassment and sexual assault degrade human dignity, and they have no place at Harvard." During the year covered in the report, she noted, the number of complaints increased by 65 percent. Details are available at [harvardmag.com/titleix-17](http://harvardmag.com/titleix-17).

### Defending Dreamers

With the clock ticking on congressional action to extend legal protection to immigrants covered by the Deferred Action for Childhood Arrivals (DACA, the so-called "Dreamers") program, in December, more than two dozen college and university leaders formed the Presidents' Alliance on Higher Education and Immigration to advocate for immigration-related policies affecting their campuses, including undocumented students. President Drew Faust, a member, said, "[O]penness is essential to our excellence," and that member presidents "have long understood that our ability to attract energetic and talented individuals regardless of their origin is critical to our success."

### Financial-Aid Transition

Sally C. Donahue, undergraduate admissions' director of financial aid and senior

admissions officer, has announced her plan to retire this summer, concluding 36 years of service at the Kennedy School, the Law School, and, for the past 18 years, Harvard College. She has been most closely associated with the Harvard Financial Aid Initiative, launched in 2004, under which undergraduates whose family incomes are less than \$65,000 receive a package that covers the entire term bill for tuition, room, board, and fees. In a message to colleagues, Donahue called their work "a remarkably important profession" and reminded them that there is "so much more to be done" to ensure access to higher education. Bill Fitzsimmons, dean of admissions and financial aid, hailed her for making "a significant difference in the lives of countless students and their families," and playing a national leadership role in the financial-aid profession. For more about her, see [harvardmag.com/donahue-11](http://harvardmag.com/donahue-11).

### On Other Campuses

The Bloomberg Philanthropies-supported American Talent Initiative, begun with 30 member institutions (including Harvard) that aim to increase enrollment of low- and moderate-income students (see [harvardmag.com/ecdiverse-admits-17](http://harvardmag.com/ecdiverse-admits-17)), has grown to 86 schools. Some have begun making specific commitments; Yale, which is expanding its undergraduate cohort by some 15 percent, aims to enroll 150 more first-generation students, and 225 more Pell Grant recipients.... The



The GSD hopes to expand, perhaps by growing toward the Swedenborg Chapel.

LYDIA CARMICHAEL/HARVARD MAGAZINE

Howard Hughes Medical Institute, a premier supporter of biomedical research, has launched its HHMI Professors program, recognizing an initial cohort of 14 scientists for excellence in both research and education; they receive grants, typically of \$1 million for a five-year period, to explore new approaches to science education. Initial recipients are based at institutions including Berkeley, Cornell, Stanford, the University of Texas at Austin, and Yale, among others.

### Nota Bene

ON TO '22. The College admitted 14.5 percent of early applicants to the class of 2022 (964 of 6,630 hopefuls). It reported that they are an especially economically diverse cohort, with first-generation college students making up 10.6 percent of those admitted. Details are available at [harvardmag.com/earlyaction-17](http://harvardmag.com/earlyaction-17).

HARVARD SQUARE'S EVOLUTION. The retail and office properties at 1-8 and 17-41 Brattle Street have been sold to North Carolina-based Asana Partners, a real-estate investment-management firm. The transactions took place against a backdrop of ambitious plans to redevelop the properties across the street into a high-end retail mall, and other projects, such as replacing

the theater complex on Church Street with offices and new cinemas. Upon assuming ownership, Asana outlined only cosmetic changes for its new properties. For full coverage of the status of the Square, see [harvardmag.com/brattlebldgs-sale-17](http://harvardmag.com/brattlebldgs-sale-17).

**SPRING FEVER.** On December 21, the calendrical first day of what promptly became a wintry winter in Boston, Harvard Athletics unveiled plans to construct a new hitting facility for Crimson baseball and softball players. Wisely, its design (artificial turf, retractable batting cages) is adapted for three-season use, and can be converted for pitching and fielding practice. The release noted that the facility provides both the tripling of usable space compared to the facility it replaces, and "cover from the unpredictable New England weather."



COURTESY OF HARVARD ATHLETIC COMMUNICATIONS



taining the AP exemption also maintains the inequity imposed on students from under-resourced high schools.)

The proposal as a whole was advanced in December for informational purposes and initial discussion; it returns to the faculty for further airing, possible modification, and a vote in the spring term. ~J.S.R.

## Doctoring the Medical School

IN HIS 2017-2018 REPORT, Harvard Medical Dean George Q. Daley noted a \$44-million operating deficit for the fiscal year ended last June 30, and promised that in the

current year, "several major initiatives will help improve our long-term financial performance. These involve cultivating philanthropy and further evaluating the school's real estate portfolio." On the latter point, it

is selling a 99-year lease interest in the Harvard Institutes of Medicine laboratory building at 4 Blackfan Circle, which the school acquired and renovated in 1994 and where it is now a tenant, along with two Harvard-affiliated hospitals. Although the school's analysis obviously projects a value for the transaction, details are being kept private until a transaction closes, perhaps late this spring. Harvard will remain a tenant in about 20 percent of the space, and sublease other parts of the building to other users. The proceeds may be applied to reduce the school's debt, fortify its endowment (strained by the operating losses), or fund research. The adjacent New Research Building, where the medical school uses more than half the space, was considered a strategic asset and was therefore not put on the market. To effect other economies and accommodate growing demand for research space, several projects under way on the core Longwood campus aim to reconfigure corridors and underutilized areas and "densify" labs. For any announcements about philanthropy of school-wide significance, stay tuned. ~J.S.R.



George Q. Daley

STEPHANIE MITCHELL/HPAC

## Yesterday's News

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

**1913** In response to a petition from the Woodrow Wilson Club of Harvard, a justice of the Supreme Judicial Court rules that college students may vote in Cambridge if they make the city their domicile, even though the parents who support them live elsewhere.

**1928** The Harvard Club of Boston has introduced "the most novel of winter resorts"—a tanning salon. At 50 cents a sun bath, "over 300 men visit the beach regularly" to take their ease, clad only in goggles. Beginners are allowed two or three minutes a side; the "hardened" have 10 each way, and not a minute more.

**1933** Lampoon editors sneak into the Crimson building and publish a spoof "extra" announcing the selection of "Henry E. Clarke '04... a [nonexistent] business Messiah" as Harvard's new president.

**1958** For the first time in its history, the Harvard Fund Campaign has garnered more than a million dollars in a single year.

The Phillips Brooks House Association has officially merged with the Radcliffe Voluntary Service Organization, following the pathbreaking coeducational initiatives of the College's United Nations Council and the Harvard Dramatic Club.

**1963** On the Peace Corps' second anniversary, the 43 College alumni serving abroad place Harvard second only to Berkeley as a source of A.B.s in the Corps.

**1978** At its March and April meetings, the Faculty of Arts and Sciences discusses the proposed "Core Program," described by its chief proponent, Dean Henry Rosovsky, as not going "back to basics—I detest that phrase—but forward to modern liberal education."

**1993** About 50 students from the newly formed Minority Coalition for Diversity make an unscheduled appearance during the College's Junior Parents Weekend to denounce "Harvard's failure to realize institutional diversity."

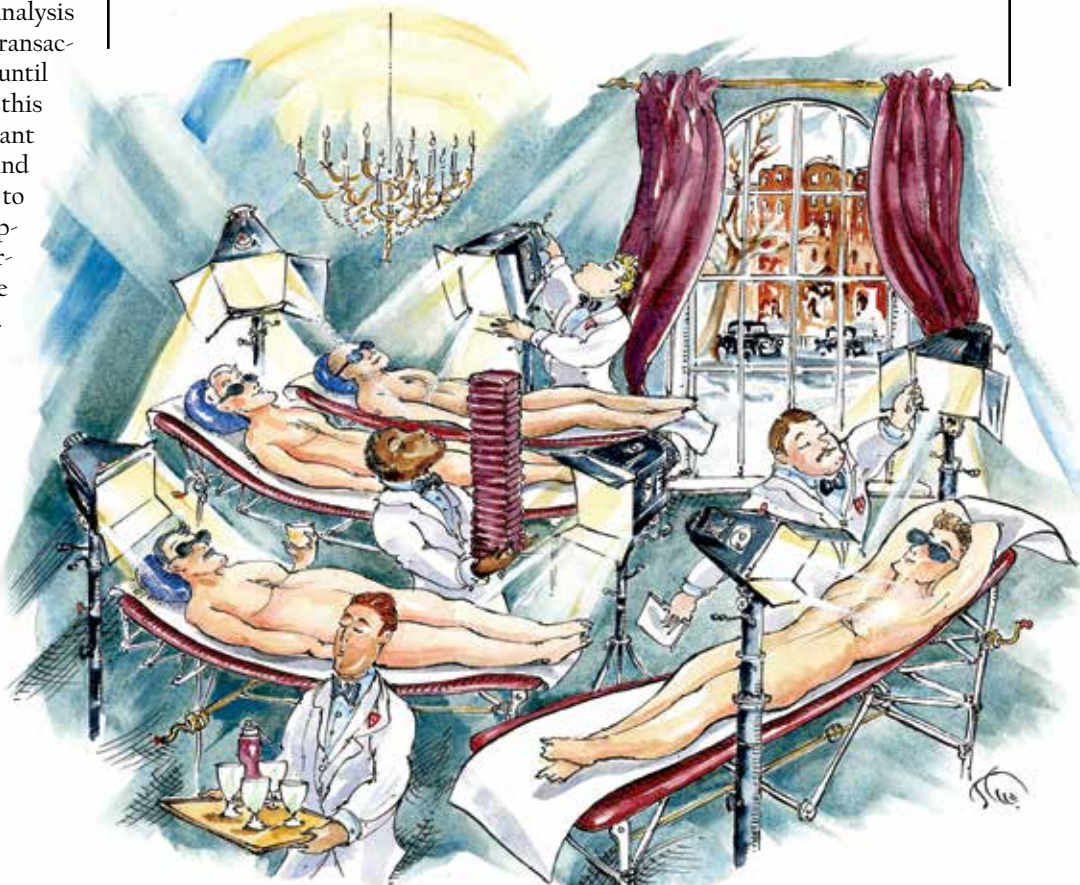


Illustration by Mark Steele



## THE UNDERGRADUATE

## Harvard and the Valley

by NATASHA LASKY

THE FIRST PERSON to congratulate me on getting into Harvard was Mark Zuckerberg. I clicked on the link in my acceptance email to find a picture of him looking back at me with his characteristic blank smile, as “Congratulations” appeared on the screen in white sans serif font above his head. At the time I was too thrilled to pay much attention, but later the choice of spokesperson felt strange to me. “Didn’t he drop out?” I wondered.

I thought I’d applied to Harvard to *escape* aspiring Zuckerbergs. My family moved to Menlo Park in 2008, just in time to see Silicon Valley transform from a chain of nondescript California suburbs into the tech hub it is today. As I drove to school each morning I passed landmarks of the corporate

world, from the cluster of venture-capital firms on Sand Hill Road to the Facebook headquarters off the 101.

Silicon Valley felt like a company town—any ambition was bent back toward tech culture. Moms cooed over luncheons about how someone’s son who got a good score in AP Calculus could code for Facebook, or how someone’s daughter who gave a good speech at an assembly could be a CEO. Many of my high-school classmates dreamed of working five minutes away from their childhood homes, in the same tech jobs their parents held. This isn’t a bad thing—after all, who could criticize someone for wanting to work in America’s seat of innovation?

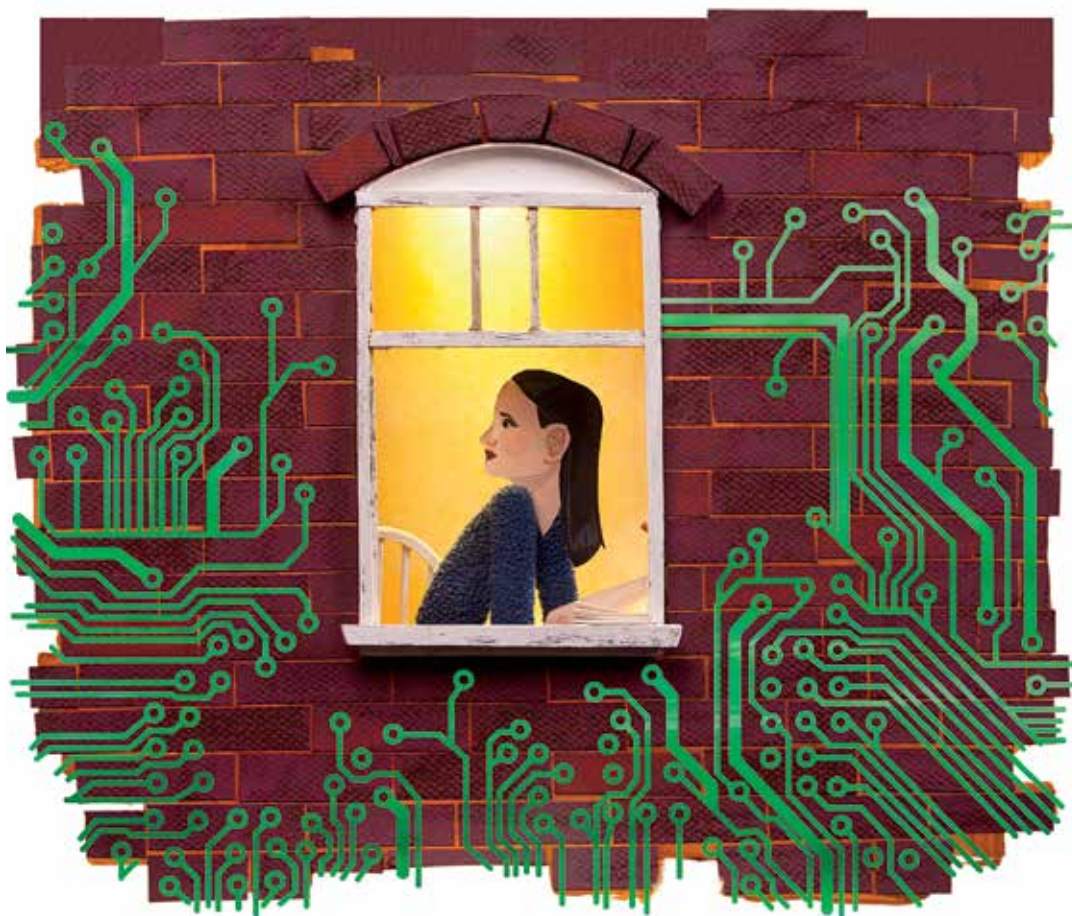
But I didn’t see myself coding or starting a company. I spent most of high school reading books my teachers recommended

and writing furtive bits of fiction between classes. Most of my friends viewed my literature habit as if I were collecting stamps—a quirky, old-fashioned hobby, nothing to make a career of. Some reassured me that reading or writing could help toward a job at a start-up, writing press kits or interview responses. Or, at the very least, that knowing how to write could get me into college, which could *then* get me a satisfying corporate career. I knew I didn’t want to work in the Valley, but everything else felt irrelevant, or unrealistic, so I learned to keep quiet.

Cambridge couldn’t have felt more alien; it was startling to see so many buildings made of earthquake-unsafe bricks, covered in snow, all smashed together rather than spread out in 1970s corporate parks and strip malls. I don’t remember much about the admissions tour, but the moment I considered applying was when I sat in a café and listened to a grad student talking about his dissertation on horror movies without any of the self-deprecation that would have inevitably accompanied it back home. I began dreaming of trading Palo Alto’s freeways and açai bowls for Cambridge’s libraries and coffee shops.

SINCE THEN, I’ve been able to fulfill many of my high-school dreams, dragging countless plastic bags full of books out of Widener and publishing articles in crumbling literary outlets like *The Harvard Advocate*. But it has also dawned on me that Silicon Valley is not as far away as I once thought; that many of my peers chose Harvard precisely *because* of its connection to tech culture.

The College markets Silicon Valley to 500 undergraduates each semester in its most popular class: Computer Science 50. Officially an introductory course, CS 50 functions as a microcosm of corporations like Facebook and Google. It has all the bells and whistles of a Silicon Valley behemoth—free food, T-shirts, a slogan (“This is CS 50”)—giving undergrads a sense of what could await them post-graduation. The class then culminates in a live-streamed festival in which students present their projects in booths,





modeled after start-up conferences in the Valley like TechCrunch. Tech recruiters attend the fair, giving students the amorphous promise that this class can be their golden ticket to getting a job out West.

CS 50's sloganeering seems at odds with the intellectual refuge I'd imagined Harvard to be: I couldn't imagine even McKinsey setting up tables in introductory Ec classes the same way tech companies put up booths at the CS 50 fair. But even those outside CS enclaves seemed resigned to a Silicon Valley takeover. *Advocate* members look at falling subscription rates and joke about mining Bitcoin to keep us out of the red; my professors cling half-heartedly to buzzwords like the "digital humanities," conveying a sense that the end is nigh. I've found myself contemplating learning Python, and coaching friends on their Google applications, as if I'd never left home in the first place.

UNDERGRADUATES looking to strike it rich in the Valley tend to split into two camps. The first group aims to work for existing tech outfits like Twitter or Google, companies known not only for paying well but also for providing employees with luxurious perks such as company gyms, subsidized apartments in trendy cities, and free food. There's also an advantage to applying for summer internships, since the competition for entry-level jobs in the Valley increases precipitously post-graduation. On-campus recruiting allows students to cut the line, and 50 percent of those who land Facebook internships in their junior summer find a return offer waiting for them in the fall, practically erasing senior-year future-job anxiety.

Those in the second group hope to start a company of their own, dropping out of school to eat ramen on the floor of a cluttered Palo Alto flophouse as they dream up the Next Big Thing. While very few actually have the chutzpah to quit college, aspiring founders fancy themselves disruptors and iconoclasts, pitching their nascent startups in the same hazy, delirious tone that idle writers use to talk about their always-deferred novels. University resources like the i-lab and the i3 Harvard College Innovation Challenge cultivate student start-ups, grooming pitches and matching budding CEOs up with industry mentors.

These two camps seem to reflect opposing values—one prizes security and conformity, the other risk and rebellion—but they aren't as different as they appear. Many aim-

less undergraduates suffer from the perennial fear that they must choose between making money and changing the world. In Silicon Valley, though, it seems that they can have both. They can gamble on starting a company, potentially coming up with a new technology and making billions, or work for a Google or a Facebook, content with their financial secu-

**Silicon Valley appears to offer undergraduates a form of disruption just subversive enough to upset the status quo, but not so subversive as to upset their parents.**

rity and their place in a company invested in innovation. No matter what path they choose, Silicon Valley appears to offer undergraduates a form of disruption just subversive enough to upset the status quo, but not so subversive as to upset their parents. It's no wonder Zuckerberg became the face of Harvard for incoming freshmen like me.

In fact, last year Zuckerberg returned to campus to give the main address on Commencement day, making a case for the Harvard education he did not complete. He admitted that this made him an unusual choice as speaker, joking that the speech would be the first thing at Harvard he ever finished. But he argued that school gave him something beyond a degree. After all, the Harvard Facebook is the company's namesake; he started the site, he said, to make the world feel more like a tight-knit college community.

This aspiration manifests in the company's corporate culture as well: Facebook calls its headquarters a "campus," with amenities including cafeterias, gyms, and shuttle

services with free WiFi. The job application requires essays, interviews, and tests, not unlike the intellectual acrobatics one goes through to get into an elite college. And in the minds of those undergraduates who aspire to work there, both Silicon Valley and Harvard provide prestige, intellectual fulfillment, and a coddling space in which these

still unformed geniuses can figure out what they want to do with the rest of their lives. Perhaps I was wrong to accuse Silicon Valley of invading Harvard; instead, they were never so separate in the first place.

Sometimes on my nighttime Widener trips I lug my bag of books past CS 50's office hours, which turn the normal tomblike silence of the elegant second-floor Loker Reading Room into a cacophony of amateur coders typing and laughing and barking questions at passing TFs. It reminds me of a start-up's open-office workspace: the high ceilings, the lack of cubicles, the programmers clustered around each table illuminated by their laptops' glow. I know that some of these undergrads will end up working in similar—if less ornate—rooms across the Valley. I picture them, arriving on their first day of work, only to find themselves already at home. ▢

*Despite it all, Berta Greenwald Ledecy Fellow Natasha Lasky '19 is still a Hist and Lit concentrator.*

## SPORTS

# Growing Pains

*A young men's basketball team battles inconsistency.*

**I**N JANUARY, the men's basketball team fell 62-56 against Vermont—the Crimson's third consecutive loss, dropping their record to 5-9, with the Ivy League

opener against Dartmouth just days away. The situation looked grim, yet the players spoke optimistically. "It'll click for us eventually," said Seth Towns '20. "Our record,"



**Seth Towns '20 is one of the team's most versatile offensive threats.**

Against the Huskies, the Crimson trailed 32-11 and lacked the energy and balance (Aiken and Lewis combined for more than three-quarters of the team's points) to sustain a comeback. The Crimson also had five turnovers in the first four minutes—the young team had gotten rattled on the road.

The schedule left little time to recuperate: after the Thursday-evening loss to Northeastern, the squad traveled to then-seventh-ranked Kentucky for a Saturday matinee matchup. The Crimson played hard in a competitive 79-70 loss—especially Towns, who scored 25 points and sank six three-pointers. Forward Weisner Perez '19 recalled that the strong performance against a top team prompted Amaker to tell the team that they had a “clean slate.”

That sentiment helped to carry the Crimson four days later in a two-point victory at Fordham. Towns sank a trey with nine seconds remaining to give the Crimson their first lead. He then got back on defense and forced Fordham's leading scorer into an off-balance miss.

AFTER a two-week break in December for exams, Harvard posted a 74-63 home win against Boston University, pushing their post-Kentucky record to 2-0. But then the Crimson dropped three games (at George Washington and Minnesota and at home against Vermont) in a streak that renewed concerns about the team's focus—and led Amaker to bench the starters again. It also highlighted other issues. One was weak shooting. As of January 17, the Crimson had the lowest field-goal and three-point shooting percentages in the league. Another was the absence of Aiken, who missed six of seven games with a knee injury. Without their leading scorer, Harvard

added Chris Lewis '20, “doesn't show how good of a team we are.”

This underscored the team's dilemma. On paper, they are studs: Towns and Lewis are two of four sophomores who were ranked among the top 100 recruits in the country in high school. Yet injuries, illnesses, and inconsistency this season led to the team's worst non-conference record in 10 years.

After losing to Yale in last year's Ivy League tournament, the Crimson moved on—literally. Shortly after the season, the

team vacated Laviestes Pavilion to facilitate the last stage of its two-year renovation. In the fall, the team returned to a modern facility: a video board, a new floor, and new locker rooms and coaches' offices.

Stemberg coach Tommy Amaker emphasized the importance of making upgrades that would “excite and energize.” “What would make it even better,” he added, “is if we can win here.”

In their first two games, the team did just that. First, it knocked off MIT. Then the Crimson—picked first in the Ivy pre-season poll—defeated the University of

Massachusetts in overtime. The star of that game was Bryce Aiken '20, who tallied 30 points, including a game-winning three with two seconds left. “This game showed

that our team matured a lot,” said Aiken, one of four sophomore starters. “I don't know what would have happened if we were in this position last year.”

THAT CONFIDENCE soon dissipated. The Crimson lost six games on an eight-game road trip that began at Holy Cross, where the team fell behind 12-2 and lost 73-69. A frustrated Amaker benched the starters for a matchup two days later at Manhattan College. The strategy backfired, though;

the Crimson fell behind by 18 points and lost by four. The team's poor starts reflected a bigger challenge. “Youth,” Amaker said, “is always probably synonymous with inconsistency.”

The next chance to build momentum came over Thanksgiving, when Harvard traveled to California for the Wooden Legacy tournament. Unfortunately, the Crimson took an 89-71 opening-round loss to then-twenty-first-ranked St. Mary's College, and numerous players caught a virus that swept through the event.

The Crimson did manage to defeat St. Joseph's 77-71, but the illness ham-

pered them in the tournament finale, a 70-61 setback against Cal State Fullerton. The following week multiple players missed practice ahead of a 77-61 loss at Northeastern.



**Bryce Aiken '20 missed a significant stretch of non-conference play with a knee injury but returned in late January to help lead the Crimson to victories at Yale and Brown.**

## Harvard Hardwood

Follow the men's and women's teams all season long in reports and analyses by *Harvard Magazine* correspondent David L. Tannenwald '08, appearing online at [harvardmagazine.com](http://harvardmagazine.com)





had the league's worst scoring offense.

The silver lining was the conference's best defense. That strength was on display in Harvard's Ivy opener against Dartmouth. The Crimson limited the Big Green to just 19 first-half points and won 61-51.

The defense also kept the team competitive in its non-conference finale, a 63-62 setback at Wofford College. Still, the



**Point guard Katie Benzan '20, a first-team All-Ivy selection as a freshman, has spear-headed the team's attack, averaging 3.9 assists and 13.0 points per game through the start of Ivy play.**

GIL TALBOT/HARVARD ATHLETIC COMMUNICATIONS

team struggled to make plays to win. After Towns tied the score on a tough hook shot with just under a minute left, Harvard gave up two offensive rebounds before committing a foul that allowed Wofford to inch ahead on a free throw. The game ended after Towns missed a driving layup.

Then the team won four of five taut conference road games. It pulled out a 62-57 overtime win at Dartmouth before sweeping Yale and Brown by single digits. And after falling to Columbia in Manhattan, Harvard came from behind to defeat Cornell 76-73.

After losing so many close games earlier in the year, what had changed? First, Towns was excelling. Through February 4, he led the league in scoring in conference play. Another factor was improved shooting: as of early February, Harvard had the best three-point field-goal percentage in the league. Finally, the team was making smart plays. At Yale, with just over two minutes remaining and the score tied at 49, Justin Bassey '20 faked his defender into the air and was fouled beyond the three-point line. He sank all three free throws to give the Crimson a lead it would not relinquish.

Aiken's health remained a concern. After returning against Yale, he aggravated his



BRIAN MCWALTER/UNIVERSITY OF VIRGINIA

**Jeannie Boehm '20, shown here attempting a field goal against the University of Virginia, ranked in the top 10 in the conference in rebounding and blocked shots through late January.**

injury at Columbia and sat out at Cornell. Still, that the Crimson had won five of its first six league games (five on the road) suggested the team was learning to navigate what Amaker called the "fine line" between winning and losing.

The women's basketball team returned four starters from last year's squad, which

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won 16 consecutive games but fell in the Ivy League tournament semifinals. This year, the Crimson dropped their first two games, including a 76-51 thrashing by Maine. But thanks to a balanced attack, the team won eight of their final 11 non-conference matchups. They then prepared to focus on a league

slate that, according to head coach Kathy Delaney-Smith, is “the strongest ever.”

The Crimson learned that the hard way when they dropped their Ivy opener at Dartmouth. But then the squad reeled off five-straight Ivy wins in a streak that showed Harvard’s explosive offense (scoring 97

points against Yale) and the impressive play of Katie Benzan ’20, who led the team in assists and scoring. Harvard played five of those first six league games at home, and it would try to sustain momentum while playing six of its final eight games away.

—DAVID L. TANNENWALD



Jenny Allard

## Steering Softball

HEAD SOFTBALL COACH Jenny Allard, who has led Harvard’s team for more than half of its existence and ranks among the Ivy League’s most successful coaches, doesn’t want this to be a story about her. “Write about the team,” she says. “Write about what Harvard softball has become, not just the titles but the culture, the bonds.” She gives a little wave of her hand. “Talk to the players—they’ve got good stories.”

And they do. Here are some of the stories the players tell:

Senior co-captain Maddy Kaplan, one of the team’s strongest hitters: “Coach Allard is a big reason why I came to Harvard.”

Former pitcher Rachel Brown ’12, Ed.M. ’16, who helped lead the team to back-to-back Ivy titles in 2011 and 2012: “It all begins with Coach—she’s created this community of women who want to be together; we make our best friends on the softball team, and those connections go on for years.”

Senior outfielder Alexa Altchek: “She knows how to pull greatness out of us.”

Junior co-captain Kaitlyn Schiffhauer: “Coach is the thread that connects all of us.”

A STAR PITCHER and hitter for the Universi-

ty of Michigan in the late 1980s who threw her first softball when she was five years old, Jenny Allard arrived at Harvard in the fall of 1994, one of five coaches the University hired that year and the first full-time coach for softball. She was just 26, only three years into coaching (one as a part-timer at a high school in California, two as an assistant at Iowa), still exploring a profession—and a passion—that she’d turned to after a planned career in accounting left her cold. In those early seasons with the Crimson, she remembers, she and her players practiced in the indoor track, with its concrete floor and retractable tennis courts—or else in Lavietes late on a Friday night, after the basketball teams were gone. “We’d pull the nets away and get out this Astroturf that rolled the length of the court.”

The spring before she arrived, the team had gone 18-25 overall, and 4-6 in the Ivy League. Harvard had never won a conference championship. Allard set out to change that. “The freshmen I came in with, I didn’t recruit,” she says. “Those kids were all very talented, and I said, ‘You’re not graduating without an Ivy title.’” They didn’t. In Allard’s first season, Harvard finished second in the conference, with a 28-14 record overall, 9-3 Ivy. Three years later, in 1998, the team went

unbeaten in Ivy play and brought home its first championship. Five others have followed, along with six 30-win seasons and five NCAA berths. Harvard softball is now a perennial postseason threat.

That’s only half the story, though, Allard insists. The other half, harder to define, is wrapped up in the spontaneous road trips that seniors take together during the January term, or the fact that even on their day off from practice and each other, the players can usually be found together. Years after the women graduate, they travel by the dozens to attend each others’ weddings, or parents’ funerals. And it’s also in the fact that, for the third year in a row, Harvard earned one of the top 10 GPAs in the NCAA (3,588, the highest in the Ivies). That achievement began in the locker room, with a goal-setting challenge from Allard (who, with master’s degrees from the School of Education and the Extension School, spent 12 years as a freshman proctor and now is a non-resident adviser). It ended with the players pushing each other forward.

“We have a strong culture,” Allard says. Without it, the wins on the field don’t mean as much—and there are fewer of them. She figured this out during the 2006 season, a low point on the stats sheet, when the team went 20-24 and finished out of the top three in the league. There were illnesses and injuries and other issues, and for Allard, something shifted. “I’d learned a lot by then about how to coach the game, the strategy, putting players together, developing skills, all the technical pieces,” she says. “What I’ve really learned since is character and development, and the whole person.” A decade later, she says, “The players hand that down to each other.”

Not that her demands aren’t high, on and off the field. She expects hard work and good behavior, selflessness and supportiveness. “I tell my players, ‘My job isn’t to make your life easy; my job is to make your life better.’ So, knowing what you’re capable of doing and helping you get there.... There are times when I’ve got to push you, because I know you can get to another gear.”



THIS SPRING, the team expects to be in the Ivy title hunt again. For the first time in a few years, the roster is dominated by upper-classmen (only eight of 29 players are freshmen or sophomores), and seven returning players made All-Ivy honors last season. Among them is lefty hitter Rhianna Rich '19, who finished second in the conference in 2017 with a .418 batting average and led the league with seven triples. Kaplan, the team's number two hitter, got 11 extra-base hits last year, and center-fielder Schiffhauer surged late in the season, hitting .545 in the last eight games to help send the team to the Ivy championship series against Princeton, though the Crimson fell short of the title.

Ask these women for their favorite memory in a Harvard uniform, and the answer is unanimous: the final game against Dartmouth in 2016, which propelled the Crimson to the Ivy championship series. Harvard came into the seventh inning down one run, having dropped the first game of the afternoon's doubleheader to the Big Green. "We were literally down to our last three outs for the season," says Schiffhauer. The team got a base hit, and then another, and then

Kaplan doubled to left field, sparking a rally that earned the Crimson four runs. Dartmouth couldn't answer, and Harvard won 8-5. "That moment was such a team effort," Kaplan says. "Everyone on the bench was screaming their heads off cheering, holding each other, and the energy was electric. Every girl who came up to bat was finding a way to get on base, finding a way to move the runners. That was the sweetest part. We all came alive together."

And in the thrill and tension of that last inning, Allard stood on the third baseline, focused, grounded, "steering the ship," Altchek says. "A rock." Adds Schiffhauer: "There's so much trust between us and Coach. You really see it in moments like that."

That image is reminiscent of another that came to mind for Brown. In 2013, one of her teammates married a Harvard swimmer. Something like 35 softball players traveled to attend, from perhaps seven or eight

**Allard works with her pitchers in the Harvard Stadium Bubble, softball and baseball's winter practice site.**

graduating classes. And on the morning of the ceremony, they held a giant slow-pitch softball game, with the bride and groom and all their friends swirling around the field. Reprising her playing-days position, Allard stepped in as the designated pitcher. "And to see Coach in the middle of all this," Brown says, "and to think, this is something she created. She created this community of women who will be with each other through life." In that way, they never leave the field.

~LYDIALYLE GIBSON



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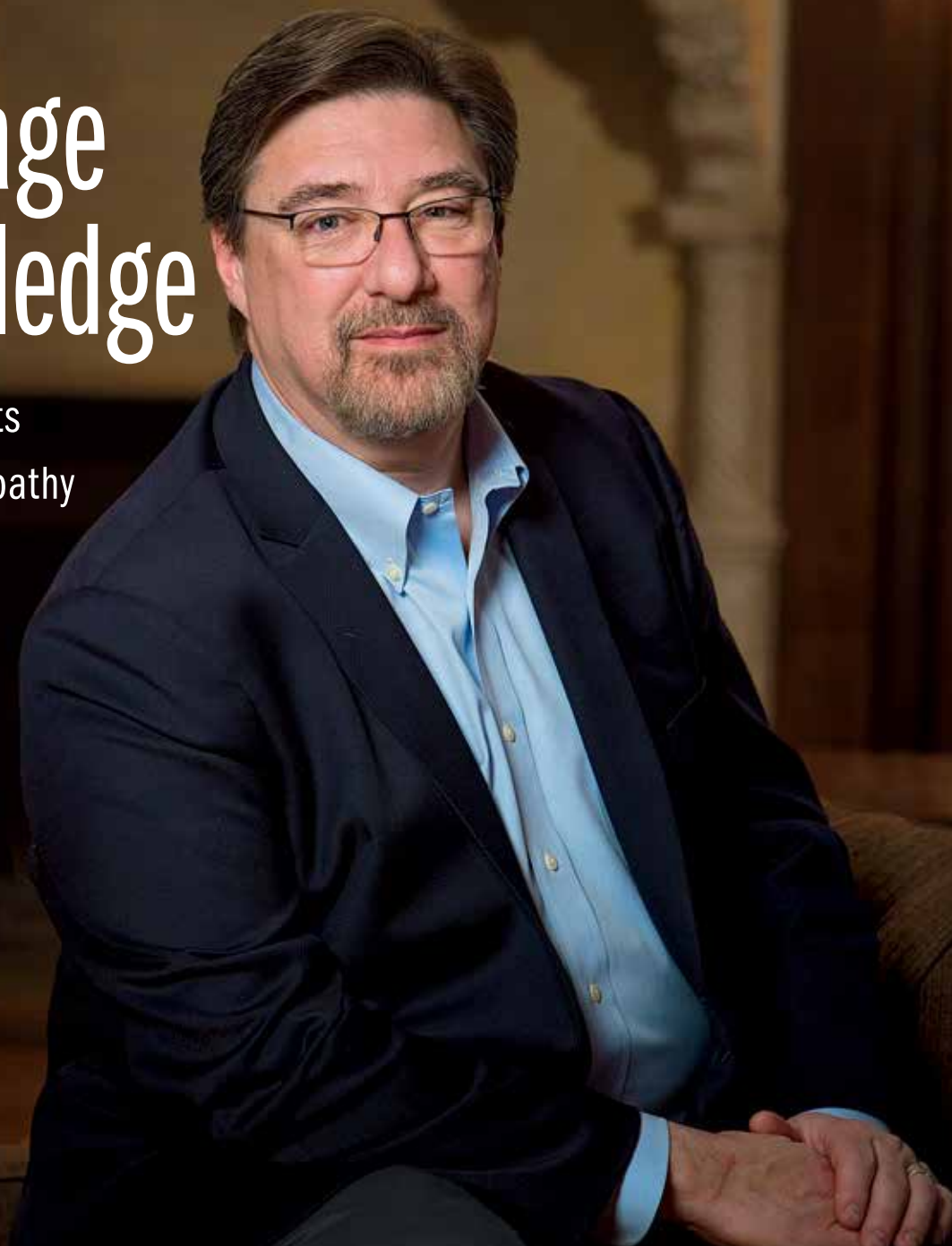
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# The Mirage of Knowledge

Tom Nichols dissects the dangerous antipathy to expertise.

by Lydialyle Gibson




**S**EVERAL YEARS AGO, Tom Nichols started writing a book about ignorance and unreason in American public discourse—and then he watched it come to life all around him, in ways starker than he had imagined. A political scientist who has taught for more than a decade in the Harvard Extension School, he had begun noticing what he perceived as a new and accelerating—and dangerous—hostility toward established knowledge. People

were no longer merely uninformed, Nichols says, but “aggressively wrong” and unwilling to learn. They actively resisted facts that might alter their preexisting beliefs. They insisted that all opinions, however uninformed, be treated as equally serious. And they rejected professional know-how, he says, with such *anger*. That shook him.

Skepticism toward intellectual authority is bone-deep in the American character, as much a part of the nation’s origin story as





the founders' Enlightenment principles. Overall, that skepticism is a healthy impulse, Nichols believes. But what he was observing was something else, something malignant and deliberate, a collapse of functional citizenship. "Americans have reached a point where ignorance, especially of anything related to public policy, is an actual virtue," he would write in the preface to *The Death of Expertise: The Campaign Against Expertise and Why It Matters*, which was published by Oxford last year and quickly became a bestseller. "To reject the advice of experts is to assert autonomy, a way for Americans to insulate their increasingly fragile egos from ever being told they're wrong about anything." Further down the page, he would add: "I'm worried."

NICHOLS IS BEST KNOWN these days as an outspoken "Never Trump" Republican, a lifelong conservative whose snappy Twitter feed is the site of quips and skirmishes and occasional drawn blood, and whose op-eds in publications like *The Washington Post*, *The New York Times*, and *USA Today* sharply praise the U.S. president and his supporters. An "increasingly hideous movement," Nichols labeled candidate Trump's rising popularity in early 2016; and this past November, noting the "moral depths" the administration was plumbing, he argued for shaming (rather than more softly engaging) voters who still stood behind a "cast of characters in Washington who make the 'swamps' of previous administrations look like experiments in good government."

*The Death of Expertise* resonated deeply with readers. Soaring sales kept Nichols on the road for much of last year, speaking before packed audiences in Texas and New York and Missouri and California and Washington D.C., as well as Australia and Canada and Scotland and the Czech Republic. He was interviewed on CSPAN, NPR, Comedy Central, MSNBC. The book was translated into a dozen languages. In December, *Politico* named Nichols to its annual list of 50 people whose ideas are "blowing up American politics," and *Foreign Affairs* listed an article excerpted from his book as one of its best, and best-read, of 2017. Readers regularly approach Nichols with stories of their own disregarded expertise: doctors, lawyers, plumbers, electricians who've gotten used to being second-guessed by customers and clients and patients who know little or nothing about their work. "So many people over the past year have walked up to me and said,

"You wrote what I was thinking," he says.

His own expertise is in nuclear policy and Russian affairs—during the Cold War, he was what was called a Sovietologist—and Nichols is a professor at the U.S. Naval War College. Since 2005 he has also taught at the extension school, on subjects like international security, nuclear deterrence, and Cold War pop culture ("That's a fun one"). His previous books have titles like *Eve of Destruction: The Coming Age of Preventive War*, and *No Use: Nuclear Weapons and U.S. National*

*Security*. A self-described "80s guy" in loafers and khakis, he is 57, a mix of warmth and directness and slight exasperation. There's a brisk, suffer-no-fools self-assurance about him. Somehow he always seems to be in motion, even when he is standing still.

*The Death of Expertise* began as a *cri de coeur* on his now-defunct blog in late 2013. This was during the Edward Snowden revelations, which to Nichols's eye, and that of other intelligence experts, looked unmistakably like a Russian operation. "I was trying to tell people, 'Look, trust me, I'm a Russia guy; there's a Russian hand behind this.'" But he found more arguments than takers. "Young people wanted to believe Snowden was a hero." Finally one day, someone said to him, "Tom, I don't think you understand Russia. Let me explain Russia to you." This was a person who didn't know where Russia was three months earlier." The dam broke. He pounded out a blog post that got picked up by *The Federalist*, and not long after that, an editor from Oxford University Press called.

FROM THE BEGINNING, discussion of *The Death of Expertise* was inextricably bound up with Donald Trump. The book appeared less than six months after the upheaval of the 2016 election, and barely three months into the new presidency, and it seemed to have been composed with Trump in mind: a man, Nichols wrote, who quoted *The National Inquirer* as a reliable source of news, traded in conspiracy theories, and remained willfully and persistently uninformed about basic issues of public policy. Nichols recalled how a candidate with less experience in public service than any president in the nation's history had disdained experts and elites during his campaign and promised to banish them from his administration. He cited a Wisconsin rally in early 2016, where Trump had declared, "The experts are terrible. They say, 'Donald Trump needs a foreign policy adviser'...But supposing I didn't have one. Would it be worse than what we're doing now?" Trump's eventual victory, Nichols wrote, was "undeniably one of the most recent—and one of the loudest—trumpets sounding the impending death of expertise."

In fact, though, the book was all but finished by the time the election took place, and explicit mention of the winner comes only in its final pages, which were written after the rest of the book went to press. *The Death of Expertise* diagnoses a malady decades in the making, for which Trump represents only one case, albeit perhaps its most famous and extreme. "I didn't know ahead of time that Trump was going to happen," Nichols says now, "but I knew that someday *something* like him would."

The indictments the book levels are numerous: misguided egalitarianism run amok; the "protective, swaddling environment" of higher education, whose institutions increasingly treat students as customers to be kept satisfied; the 24-hour news cycle and the pressure on journalists to entertain rather than inform; the chaotic fusion of news and punditry and citizen participation. Meanwhile, the Internet's openness offers a "Google-fueled, Wikipedia-based, blog-sodden" mirage of knowledge, Nichols argues, and an inexhaustible supply of "facts" to feed any confirmation bias. "The Internet encourages not only the illusion that we are all equally competent," he says, "but that we are all peers. And we're not. There was once a time when saying that would have been considered unremarkable."

Along the way, *The Death of Expertise* dissects the Dunning-Kruger Effect, formulated in 1999, which holds that the less competent people are, the greater the belief they tend to have in their own competence. Nichols draws from prior cultural studies like Su-

san Jacoby's *The Age of American Unreason*, Robert Hughes's *Culture of Complaint*, and Richard Hofstadter's landmark 1963 work, *Anti-Intellectualism in American Life*. He explores contemporary phenomena like the anti-vaccination movement and the Obama birther conspiracy theory. There is a chapter on the failures of experts—"like plane crashes, spectacular but rare," he argues, and a reason to find better experts, not to abandon expertise—and admonitions that experts are the servants and not the masters of democratic society. The book sticks mostly to events in the United States, but Nichols notes similar trends in other countries: the U.K.'s Brexit debate, South Africa's AIDS denialism in the late 1990s.

At the bottom of all of it, Nichols finds "a growing wave of narcissism." Voters increasingly see political figures as extensions of themselves—"He's just like me!"—imagining shared personalities and values. Narcissism elevates feelings above facts, and it breeds social resentment, a major driver, Nichols believes, of the revolt against expertise. "People cannot accept ever being at a disadvantage in a conversation with anybody else," he says. "It's a persistent insecurity that goads people into having to say that they know something even when they don't. Which didn't used to be the case—we used to be a much more reasonable culture. You know, everybody doesn't have to know everything."

Something else, too, gnaws at Nichols: "It strikes me that the affluence and convenience of modern society lull people into thinking that it all kind of happens magically, without any human intervention. People live in a world that functions, and not just because of technical experts, but policy experts too." Americans can board an airplane and fly almost anywhere in the world, unencumbered—a triumph of pilots and aeronautical engineers, but also of diplomats and air-traffic control regulators and transportation security policy-makers. "People have just gotten used to remarkable ease," he says. "They look around and say, 'How hard could this be?' You know? 'How hard can it be?'...That idea is totally animating our political life right now. People say, 'We'll elect Donald Trump and he'll just put in a bunch of guys. We don't need those experts. That's the swamp. Because, really, how hard can any of this be?'"

**N**ICHOLS GREW UP in Chicopee, Massachusetts, a mill town about 90 miles west of Cambridge. His father was a cop who later worked his way up from the loading dock of a local chemical factory to become a gray-collar middle manager; his mother was executive secretary to the owner of a paper plant. She never finished high school. "Entirely self-taught," Nichols says. The child of a second marriage, he has three half-siblings, though they were mostly grown by the time he came along. "I just had this classic '50s working-class childhood."

Except for one thing: the Cold War was inescapable in Chicopee. The city was home to Strategic Air Command's East Coast bomber base; the daily roar overhead used to rattle the china in his family's dining-room cabinet. At nine years old, he knew that if nuclear war

broke out, "We weren't going to survive; we were going to go pretty quick." During fire drills in first and second grade—that's what the teachers called them, though they weren't really fire drills at all—he and his classmates were lined up against the wall and told to cover their faces. Other kids he knew were simply to be sent home, to die with their families. "I've talked to people who grew up in military towns in the Soviet Union who had the same experience," Nichols says. "It was a little mind-blowing—this existential global threat you're suddenly aware of as a child."

After high school, Nichols enrolled at Boston University, first as a chemistry major—a solid, employable field, he figured. Within a year he'd switched to Russian and international relations. From there he went on to a master's degree at Columbia in political science and Soviet studies, and then a Georgetown political-science Ph.D. He received his doctorate in 1988, about 18 months before the Berlin Wall came down. The night the Soviet Union collapsed two years later, Nichols was at a Christmas party in Chicopee. He was a professor at Dartmouth, having recently finished up a year and a half as a legislative aide on Capitol Hill. He'd been in Moscow the previous month, his fourth visit to the country in a decade. During his first trip, in 1983, he spent a summer studying in Leningrad. Local

people were terrified to talk to him because he was an American, and he remembers seeing churches watched by the KGB and propaganda posters everywhere. The whole place was a sealed bubble. "I was there for an entire summer and I didn't know anything that happened in the world outside. No telephones, no computers, no foreign newspapers." He mailed postcards home to his parents that arrived in the United States after he did. "I literally went out to the mailbox one day and picked up my own postcard."

By his 1991 journey to Moscow, the Soviet Union seemed markedly different. "It was superpower in freefall," Nichols recalls. "I was really worried about the potential of the whole thing exploding. I mean, it was chaos. There were people standing in line for bread." At the Christmas party in Chicopee, he watched the tape of the Soviet flag being lowered for the last time over the Kremlin and thought, "Everything's different now." The whole world that I knew until I was 31 years old was gone."

**P**EOPLE ALWAYS ASK HIM, "How does this end?" That's the question Nichols hears most often from readers and interviewers and audience members at speaking events. How does it end? This turn away from expertise, this willfully inept presidential administration, this age of ignorance and unreason. He doesn't know. He hopes the answer is not disaster. "This idea that we don't really need experts, that everyone knows as much as the experts, it's the kind of illusion that we can indulge ourselves in until something terrible happens. Everybody wants to second-guess their doctor until their fever hits 104. And then suddenly—I mean, you don't see a lot of people in emergency rooms arguing with the doctor. When you're sick enough, when you're clutching your chest or you're bleeding or in deep danger, then you go to the emergency room and say, 'Do whatever you do, doctor.'"

One thing gives him a measure of optimism. "If I have a slogan



about the past year in politics, it's something I stole from the old Barry Goldwater bumper sticker: 'In your heart, you know he's right.' Even the people who resist my argument, in their hearts, they know they're wrong. People who say, 'I don't have to listen to my doctor'—deep down you know you should. The people who say that Donald Trump is right and experts are idiots—deep down you know you're wrong about that. You're just angry. I think deep down, people know that this phase we're going through is unhealthy. Even the people who are immersed in it."

In truth, though, Nichols really is worried. A year after the book's publication, he finds himself even more pessimistic than he was when he wrote it. In December, at a JFK Library event on reality and truth in public discourse, a moderator asked him a version of "How does this end?" Nichols and the other panelists—*Washington Post* senior correspondent Dan Balz and Kathleen Hall Jamieson, director of Penn's Annenberg Public Policy Center—had spent 45 minutes discussing how established sources of knowledge and facts have been systematically undermined. So, wondered the moderator, Boston College historian Heather Cox Richardson, what did Nichols expect to happen now? "In the longer term, I'm worried about the end of the republic," he said. Immense cynicism among the voting public—incited in part by the White House—combined with "staggering" ignorance, he said, is incredibly dangerous. In that environment, anything is possible. "When people have almost no political literacy, you cannot sustain the practices that sustain a democratic republic." The next day, sitting in front of his fireplace in Rhode Island, where he lives with his wife, Lynn, and daughter, Hope, he added, "We're in a very perilous place right now."

**T**HERE'S AN ODD ECHO between the perilousness of now and the course Nichols was teaching at the extension school last fall, "Nuclear Weapons and International Security." Twenty-six years after the fall of the Soviet Union, his students in Harvard Hall were trying to comprehend the uncertainty that gripped Americans during the Cold War, the sense back then of plunging unavoidably forward, the awareness that vastly different outcomes were all possible. ("I'm glad the Cold War ended," Nichols said one afternoon at his home, "because the natural endpoint was going to be World War III.")

Students had learned about fissile materials and delivery systems; they'd studied the basics of deterrence and the proliferation dilemma; nuclear terrorism and rogue states; arms control and "getting to zero." They'd tried to comprehend the thousands of missiles the United States and USSR kept pointed at each other for decades, the number of times the world came close to annihilation. In one starkly vivid lecture, Nichols had shown just how quickly and completely the aftermath of a single nuclear bomb would overwhelm any medical capacity to help survivors. Meanwhile, they'd all watched the brinksmanship unfolding in real time between Trump and North Korea's Kim Jong Un. Students brought anxious questions into the classroom, and Nichols answered mostly with uncertainty rooted in the unpredictability of an inexperienced president. "We're either going to

launch a preventive war and be in conflict on the Korean peninsula, which I think would be nuts," he said one evening, after a presidential tweet had launched another round of headlines, "or we're going to learn to live with a nuclear North Korea and try to apply the lessons of containment and deterrence that you guys have been studying for the past three months."

On the last day of class, he and the students returned to a question they'd begun the semester with: what are nuclear weapons for? War? Deterrence? History has strangely failed to nail down an answer, Nichols said. In the early days after Hiroshima and Nagasaki, some feared nuclear attacks would become a regular part of warfare. But no nation since then has dropped a nuclear bomb. "It's a weird situation that the developed powers have all had a weapon in their arsenals for 73 years now and we've not used it," Nichols said. "Three-quarters of a century, a weapon that no one's used in battle."

But that's his point: something held. "In the end, it boiled down to a very human question: is there anything worth doing this over?" Tens of millions of people would die in minutes, even in a "limited exchange." Nichols reminded his students that American casualties in World War II totaled about 470,000. Worldwide, that war killed 65 million people. "In 20 or 30 minutes, you're talking about many multiples of the total American casualties in World War II.... A global exchange would probably kill 500 million to 600 million in a few minutes." The room fell totally silent.

In *The Death of Expertise*, Nichols writes about the role of experience in expertise. He describes a Sovietologist at Columbia who could divine hidden policy positions from the featureless sameness of the Soviet press. It seemed like sorcery, but it wasn't; it was years of practice, skill honed to second nature, a certain kind of intimacy. In class, Nichols had told similar stories about the Cold Warriors, who in one administration after another were responsible

for nuclear diplomacy; knowledge and experience about the scale and scope of consequences lent real seriousness to their approach, Nichols said. Today, he said, "I think we've forgotten the horribleness of the decision we were contemplating." However clinically they discussed their options,

**"If I have a slogan about the past year in politics, it's something I stole from an old Barry Goldwater bumper sticker: 'In your heart, you know he's right.'...I think deep down, people know that this phase we're going through is unhealthy."**

he added, Cold War officials understood that they were talking about the end of civilization.

"So I guess what I'd like you to take away from this course," Nichols continued, "is not my view of nuclear weapons, or Kissinger's view or Putin's view or anybody else's, but to approach this question with real seriousness. Because that is part of what I think has kept the peace with nuclear weapons for so long. It's not just a strategic issue; there is embedded in nuclear weapons a kind of different moral calculus." And that, too, requires expertise.

In their hearts they know. ▢

*Staff writer and editor Lydialyle Gibson profiled wilderness-medicine physician Stuart Harris for the November-December 2017 cover story.*

# Art AND Activism

## Rediscovering Alain Locke and the project of black self-realization

IN THE AUTUMN of 1924, Alain Locke was enjoying the beauties of San Remo, Italy. But his mind and heart were back home in the United States—specifically, in Harlem, which was fast becoming the unofficial capital of black America. Locke—A.B. '08, Ph.D. '18—39 years old and a professor at Howard University, had been a leading light of the African-American intellectual world for almost 20 years, ever since he became the first black student to receive a Rhodes Scholarship. Now he was engaged in guest-editing a special issue of a magazine called *Survey Graphic* that would be devoted to Harlem. He enlisted as contributors some of the nation's leading scholars and creative writers, black and white—from the historian Arthur Schomburg and the anthropologist Melville Herskovits to the poets Countee Cullen and Claude McKay. The issue was shaping up to be a major event: a quasi-official announcement of what would come to be known as the Harlem Renaissance.

Now, vacationing in Italy, Locke set to work on his own contribution, an essay that would explain the meaning of this cultural moment. Like so many American writers, he found that being in Europe freed him to think in new ways about his country. (In the same year, Ezra Pound moved to Rapallo, where he would carry on his campaign against the status quo in American poetry.) The Harlem Renaissance, for Locke, was another expression of the modernist spirit; and modernism was a revolution in society as well as in art. For black America, it took the form of an intellectual liberation that, he believed, would be a precursor to social change.

The title of Locke's essay, "The New Negro," heralded that revolution. "The younger generation," he announced, "is vibrant with a new psychology, the new spirit is awake in the masses." The key to this newness, he argued, was a rejection of the old American way of thinking which made "the Negro...more of a formula than a human being—a something to be argued about, condemned or defended, to be 'kept down,' or 'in his place,' or 'helped up.'" Rather than being the

object of others' discourse, African Americans—and particularly, for Locke, African-American artists and intellectuals—were insisting on what a later generation would call "agency," the right to be the protagonists of their own history. "By shedding the old chrysalis of the Negro problem," Locke wrote, "we are achieving something like a spiritual emancipation...the decade that found us with a problem has left us with only a task." With the *Survey Graphic* issue—which would later be expanded into a landmark book, *The New Negro*—Locke was positioning himself as the philosopher and strategist of a movement.

But while Locke would go down in history as the dean of the Harlem Renaissance, his own work and personality are more obscure than those of the creative writers he mentored and sometimes fought with: now-canonical figures like Langston Hughes and Zora Neale Hurston. While Locke played a key role in African-American life for five decades, that role was usually behind the scenes, as editor, curator, teacher, and impresario. His essays and lectures helped shape cultural debates, but he never produced a major book of his own. After his death in 1954, his reputation inevitably began to fade.

Fortunately, Locke's achievement—and what is still more fascinating, his complex and contradictory personality—can now be appreciated in full, thanks to a monumental new biography. *The New Negro: The Life of Alain Locke*, by Jeffrey C. Stewart, a professor of Black Studies at the University of California, Santa Barbara, weighs in at more than 900 pages, and recreates Locke's life and times in exceptional detail. Drawing extensively on Locke's correspondence and archive, and offering a richly informed portrait of his milieu, *The New Negro* is a major biography of a kind that even writers more famous than Locke are lucky to receive.

The man who emerges from Stewart's book was, like all the most important thinkers, complex and provocative, a figure to inspire and to argue with. At first sight, Locke's focus on culture and the arts as a realm of African-

BY *Adam Kirsch*





**Alain Locke in an  
undated photograph**

American self-making may seem to be less than urgent. When we are still struggling as a country to accept the basic principle that Black Lives Matter, do we really need to read Locke's reflections on painting and sculpture, music and poetry? This was the very critique he faced from many in his own time—militant activists like W.E.B. Du Bois, A.B. 1890, Ph.D. '95, for whom Locke's aestheticism seemed a distraction or a luxury.

But Locke strongly rejected such a division between art and activism. Working at a time when the prospects for progress in civil rights seemed remote, Locke looked to the arts as a crucial realm of black self-realization. "The sense of inferiority must be innerly compensated," he wrote; "self-conviction must supplant self-justification and in the dignity of this attitude a convinced minority must confront a condescending majority. Art cannot completely accomplish this," he acknowledged, "but I believe it can lead the way."

It was because he had such high hopes for black art that Locke argued for the separation of art from propaganda. This, for him, was part of the point of the Harlem Renaissance, whose experimental aesthetics often alienated conventional taste, both black and white. "Most Negro artists would repudiate their own art program if it were presented as a reformer's duty or a prophet's mission," he wrote in one of his most important essays, "Beauty Instead of Ashes." "There is an ethics of beauty itself."

Locke's idea of beauty tended to be classical and traditional—he was wary of popular arts like jazz and the Broadway musical—but his faith in the aesthetic was quietly radical.

Indeed, long before terms like postmodernism and postcolonialism came on the scene, Locke emphasized the way racial identity was imagined and performed, not simply biologically given or socially imposed. He drew a comparison between the situation of African Americans and those of oppressed people like the Irish and the Jews, seeing in the Celtic Revival and Zionism models for a spiritual self-awakening that would have real-world results.

Yet Locke's own experience of race in America convinced him that there was no possibility of cultural separatism. He was an early and powerful advocate for an idea that is now universally accepted:

that black culture was not separate from American culture, but constitutive of it. "What is distinctively Negro in culture usually passes over by rapid osmosis to the general culture," he observed. "Something which is styled Negro for short, is more accurately to be described as Afro-American." Locke thought as deeply as anyone has about what it meant to be "Afro-American"; and the origins of that thought can be traced to his years at Harvard, both inside and outside the classroom.



**Locke earned his Harvard doctorate in 1918. His dissertation examined "The problem of classification in theory of value."**

ALAIN LEROY LOCKE arrived at Harvard in 1904 as a 19-year-old freshman, and immediately fell in love. "It's a beautiful place," he wrote to his mother, Mary. "Everything is old and staid....The largest finest trees I have ever seen and the campus full of pigeons and squirrels. Neither seem to mind passers by." Like many a student before and since, Locke was awed by the sense of connection with the American past that Harvard offered: "You can't imagine the historical associations of this place. I have to cross the field where the men assembled for the battle of Bunker Hill every day." The academic life of the College suited him equally well. It was one of the golden ages of Harvard's history, and Locke, a student of philosophy, relished the opportunity to study with figures like Josiah Royce and George Santayana. Looking back on his college years decades later, Locke summed up what Harvard meant to him: it was the place where he "gave up Puritan provincialism for critical-mindedness and cosmopolitanism."

That provincialism was a product of what Stewart calls, in one chapter title, "A Black Victorian childhood," at the heart of Philadelphia's African-American elite. This was an elite with little money or power, but with a strong class consciousness and high intellectual expectations, particularly in Locke's own family. His ancestors were prominent members of the city's free black community: his maternal great-grandfather was a naval hero in the War of 1812, while his father's father was a teacher at the Institute for Colored Youth, founded in 1837 as one of the first American schools for black students. Locke's father, Pliny, was the first black civil-service employee in the U.S. Postal Service. Stewart quotes an obituary that describes Pliny Locke as "born to command....All of his teachers conceded to him a wonderful mind and felt that had he been at



Harvard, Yale or any of the great institutions of learning, he would have been in the forefront of the strongest.”

Pliny died when Alain—known in his childhood as Roy—was eight, leaving him to be raised by Mary, a schoolteacher. Stewart writes that the relationship with his mother was by far the most important of Locke’s life. She provided him with the profound self-confidence he needed to succeed in a society built on racism and segregation. And Locke had a further challenge to negotiate when it came to his sexuality: he was gay, a fact known to his friends, though he could never allow it to become an official part of his identity. If Locke managed to build a highly successful public career despite these challenges, it was due in no small part to his mother’s support. No wonder he kept her as close as possible, writing to her constantly when he was at college, and bringing her to Washington, D.C., to live with him as an adult. He never recovered completely from her death, in 1922.

Central to Stewart’s understanding of Locke is that the Black Victorian ethos of his childhood—the stress on propriety, achievement, self-sufficiency, and high culture—was both indispensable for his success and a barrier to full self-realization. In Stewart’s view, Locke had internalized the idea that “gentlemanly culture would override racism.” In the elite white educational institutions where he flourished, like Central High in Philadelphia and then Harvard, this idea had a semblance of truth. “There is no prejudice here,” Locke wrote his mother soon after arriving in Cambridge. He was happy to find that the Cambridge boarding houses did not discriminate against him, as he evidently expected they would: “What do you think? Every single one but *one* was pleasant and offered me accommodations.”

But in the broader American context, the idea that Locke could escape racism through personal achievement was, in Stewart’s words, a “cruel myth,” and one that took a psychological toll. This was evident even at Harvard, where Locke made several close white friends but kept a conspicuous distance from other black students. (Senior album photographs of the time suggest that three to six African Americans entered each year: less than 1 percent of each class.) “They are not fit for company even if they are energetic and plodding fellows,” he wrote his mother after being introduced to a group of “colored” students. “I’m not used to that class and I don’t intend to get used to them.” Such anxiety suggests that his sense of fitting in at Harvard was brittle, provisional. Stewart writes that, at this time of his life, “Locke believed race was essentially a performance.” This was psychologically liberating, since it gave him a feeling of being in control of his own destiny. But at the same time, it left him feeling perpetually on-stage, afraid of making a wrong move. “It’s well enough for them to get an education but they are not gentlemen,” Locke wrote about his fellow black students, and it was crucial to his self-image that he be recognized as a gentleman.

Another reason for avoiding the company of other African-American students, Stewart observes, was that he was “a closeted queer student in an aggressively heterosexual Black student community.” He was more at ease with a handful of white students who, like him, expressed their sexual identity by cultivating the period’s high aes-

theticism. He was especially close to a fellow Philadelphian named Charles Dickerman: “they were likely lovers by the end of Locke’s Harvard years,” according to Stewart. Locke told his mother of one evening spent in Dickerman’s room listening to his friend read a play by the Irish poet W.B. Yeats, while Japanese incense burned. “I was a little bored,” he confessed, but in such settings, Stewart writes, “homosexual desire was beginning a slow process of intellectual growth.”

Locke soon grew into a star student. What’s more, he was “a master of the academic game in which letters of introduction, flattery, and genteel self-presentation were essential to being taken seriously by the ‘great men’ at Harvard.” He visited Josiah Royce, the eminent philosopher, at his home at 103 Irving Street, and charmed him: “He said...he would like to personally advise me on any point in my work—that he hoped to see me in his higher philosophy class,” Locke wrote proudly to his mother. He accumulated hon-

*Locke soon grew into a star student and “a master of the academic game in which letters of introduction, flattery, and genteel self-presentation were essential to being taken seriously...”*

ors, including the Bowdoin Prize for an essay on “Tennyson and His Literary Heritage.” And he managed all this while living on the tightest of budgets—whatever his mother could spare from her schoolteacher’s salary.

The most important influence on Locke, however, was not a philosopher but a professor of comparative literature, Barrett Wendell: “I see that I am a spiritual son of Barrett Wendell’s,” Locke reflected later in life. In Wendell’s course English 46, Locke was exposed to a new way of thinking about high culture, not as a universal pantheon of great men and great works, but as the distinctive expression of diverse national traditions. A writer did not become a classic by escaping his nationality or his race, but by expressing them in a way that spoke to all of humanity. This was the idea informing the literary movements that emerged across Europe in the late nineteenth century, the great age of nationalism.

For Locke, the application of this idea to black American culture was electrifying. This is already clear in the first piece in Locke’s collected works, a lecture he delivered in 1907 to the Cambridge Lyceum. His subject was the poet Paul Laurence Dunbar, a pioneering African-American writer who had died the previous year at the age of 34. Locke’s high aesthetic standards did not allow him to praise Dunbar unreservedly: “There have been greater writers than Dunbar of Negro extraction,” he noted. But Dunbar was historically significant, Locke argued, as an “exponent of the American Negro life in poetry.”

Dunbar, that is, embodied the genius and experience of his race, in just the way Yeats did for the Irish. In doing so, he helped build an African-American cultural tradition that would both strengthen its possessors and enrich world culture. For it was culture, not color, that defined race, Locke insisted. “I do not think we are Ne-

goes because we are of varying degrees of black, brown, yellow, nor do I think it is because we do or should all act alike. We are a race because we have a common race tradition, and each man of us becomes such just in proportion as he recognizes, knows, and reverences that tradition.”

Here was the definition of race that would inform Locke’s work down to “The New Negro” and beyond. For if race was a tradition, rather than an identity, it stood to reason that it was the creators and guardians of that tradition—the writers, painters, sculptors, musicians, and actors—who should stand at the forefront of African-American life. In this way, Locke invented a leadership role for himself in the black community. Unequipped to be a political intellectual or popular leader, on the model of Booker T. Washington or W.E.B. Du Bois, Locke argued that the aesthete had just as much to contribute.

BUT IT WOULD BE YEARS before Locke emerged as a leader of the Harlem Renaissance, and his education was not yet complete when he graduated from Harvard a year ahead of his class. In his senior year, he decided he would try for a Rhodes. The program had begun just five years earlier, and the scholarship had not yet been awarded to an African American. Locke’s mother doubted that it ever would be: “I don’t know why you are applying for that Rhodes thing. You know they will never give it to a Negro,” she told him. Indeed, Stewart shows that not everyone at Harvard wanted Locke to succeed. One dean failed to send a required letter to the Rhodes committee, and even Locke’s mentor Barrett Wendell confided years later that he believed Locke’s application was “an error of judgment,” on the openly racist grounds that no African-American candidate could be “widely, comprehensively representative of what is best in the state which sent him.” (Luckily, Locke didn’t ask Wendell for a recommendation.) There were other obstacles, too: at four feet, 11 inches, and under 100 pounds, Locke was clearly

not the athlete that the committee typically looked for.

Undaunted as always, Locke applied, and passed the initial qualifying exams. Next he had to decide which state competition he would enter. His mother lived in New Jersey, and his current residence was Massachusetts; but in those states he would be going up against graduates of Princeton and Harvard, making it a tougher climb. Instead, Locke decided to list his aunt and uncle’s address in Philadelphia as his home, as he had done when he applied to Harvard. “I shall try and try hard, and the Pennsylvania Com-

mittee will see that one negro has the nerve and the backing to thrust himself on their serious consideration if but for a few hours,” he vowed. His interview and academic record said all that was necessary, and Locke was chosen unanimously. Later, a legend arose that Locke did not appear before the Committee in person, and that they awarded him the scholarship not knowing that he was black. But Stewart shows that this was not the case: “the Committee knew Locke was Black and had decided to make a statement for racial justice.”

Locke’s triumph as the first African-American Rhodes Scholar made national headlines, and turned him into a celebrity in the black community. It also, predictably, provoked racist opposition from some people at Oxford, including Rhodes Scholars from the southern states, who saw Locke’s inclusion in their ranks as a grievous breach of the rules of white supremacy. The British administrators of the Rhodes Trust considered revoking Locke’s award, but decided it was impossible, in part because it would “bring up the colour problem in an acute form throughout our own Empire.” Still, all of Locke’s preferred Oxford colleges refused to admit him; finally, the Trust had to intervene to ensure that he was admitted to Hertford College. And the southern Rhodes Scholars boycotted Locke at Oxford, refusing to invite him



**Locke’s fellows in the Harlem Renaissance included (clockwise from top left) Langston Hughes, Countee Cullen, Claude McKay, and Zora Neale Hurston.**



to official functions or to attend receptions where he was present. For the first time in his academic career, he found his path blocked by overt racism. "At Harvard, Locke had been a favorite son. At Oxford, he was a pariah," Stewart writes. After Locke, it would be 56 years before another African American was awarded the Rhodes.

This hostile climate was part of the reason why Locke did not repeat his earlier academic successes at Oxford. Being separated by an ocean from his mother was another source of distress. In the end, he left Oxford without taking a degree—a fact he took care to conceal, partly because he did not want to disappoint the high expectations of those who had celebrated his achievement. (Later, he would return to Harvard and earn a doctorate.) Even so, the Oxford years were an important stage in his development. For one thing, he got his first taste of life in Europe, where he delighted equally in art treasures and in a freer sexual climate. For the rest of his life, he would spend as many of his summers as possible there.

Meanwhile, he found intellectual stimulation at Oxford's Cosmopolitan Club, made up of students from British colonies in India and Africa. Here Locke was exposed to new ways of thinking about race and imperialism, which gave him a different perspective on his own black American experience. In a paper delivered at the club in 1908, he returned to the theme of his Dunbar lecture, emphasizing that true cosmopolitanism did not mean hovering above all local attachments, but in honoring particularity and difference. Better than an empty universalism, he wrote, "is an enforced respect and interest for one's own tradition, and a more or less accurate appreciation of its contrast values with other traditions." Locke was now prepared "to choose deliberately what I was born, but what the tyranny of circumstances prevents many of my folk from ever viewing as the privilege and opportunity of being an Afro-American."

ONCE HE RETURNED to the United States in 1910, Locke began to forge the connections that would put him at the center of black intellectual life for the next five decades. He signed on to accompany Booker T. Washington on a fundraising tour of the South—his first time below the Mason-Dixon line, where he got a close-up view of Jim Crow. In Jacksonville, Florida, Washington delivered a speech while a riot was in progress, and his whole party had to be escorted by the police. It was a striking contrast with Europe, and left Locke permanently averse to living in the Deep South.

Thanks to Washington's influence, Locke got his first job, as an assistant professor at Howard University. But while he would spend the rest of his career at Howard, Stewart shows that Locke was always looking for ways to break away from it. He felt stifled, sexually and intellectually, among Washington, D.C.'s, black bourgeoisie. He longed to be on the scene in New York, where in the 1920s an explosion of creativity was under way. Locke began to contribute essays on literature and the arts to *Opportunity*, the new literary magazine that was closely associated with the Harlem Renaissance. Here he could encourage young poets like Langston Hughes, and call attention to the triumphs of performers like Paul Robeson and Roland Hayes. He became particularly interested in African sculpture, see-

ing it as a resource for African-American artists. "Nothing is more galvanizing than the sense of a cultural past," he wrote, in what could have been his critical credo. Like his Harvard contemporary T.S. Eliot, Locke was a believer in the close relationship between tradition and the individual talent.

Before long, he emerged as a trusted guide for white patrons and institutions looking to support black culture. As Stewart shows, this was often an uncomfortable position, since it meant negotiating the egos and agendas of donors: Albert Barnes, creator of the Barnes Foundation in Philadelphia and an early collector of African art, took umbrage when Locke broke with his favored artistic theories. Later there was Charlotte Mason, who supported writers like Hughes and Hurston but insisted that they call her "godmother."

*"We are a race because we have a common race tradition, and each man of us becomes such just in proportion as he recognizes, knows, and reverences that tradition."*

And when Locke put together the Bronze Booklets, a pioneering series of short books by leading black scholars, he dropped the contribution by fellow Harvardian W.E.B. Du Bois for fear Du Bois's radicalism would offend the foundation sponsoring the project.

Inevitably, Locke's prominence and influence meant that he attracted critics. In particular, some objected to the way that his New Negro idea emphasized art and culture, rather than politics and economics, as the most important arena for black struggle. Du Bois threw down the gauntlet in his 1926 essay "Criteria of Negro Art," where he famously proclaimed, "all Art is propaganda and ever must be, despite the wailing of the purists. I stand in utter shamelessness and say that whatever art I have for writing has been used always for propaganda for gaining the right of black folk to love and enjoy. I do not care a damn for any art that is not used for propaganda."

It was in response to such attacks that Locke insisted on the "ethics of beauty itself." Ever since his Harvard days, he had believed that the creation of art was a political act. And this is what makes him a thinker for our own times, when politics has once again assumed an urgency that might seem to make aesthetics a mere luxury. Literature and painting and drama, Locke believed, were the ways a people comes to consciousness; and that consciousness, once aroused, will inevitably have political consequences. "I believe we are at that interesting moment when the prophet becomes the poet," he wrote in 1928. Such moments don't come often, but when they do, they need critics and activists like Locke to interpret them. As Jeffrey Stewart writes at the end of *The New Negro*, Locke believed that "a spirit lurks in the shadows of America that, if summoned, can launch a renaissance of our shared humanity. That is his most profound gift to us." ▢

*Contributing editor Adam Kirsch '97, who has profiled Seamus Heaney, The Dumbarton Oaks Medieval Library, and the I Tatti Renaissance Library for this magazine, is a poet and critic. He is the author of The People and the Books: 18 Classics of Jewish Literature, among other books.*

# Mary Ellen Avery

*Brief life of a groundbreaking neonatologist: 1927–2011*

by AMALIE M. KASS and ELEANOR G. SHORE

WHEN Mary Ellen Avery finally began to walk, at 19 months, her mother wrote, “Having discovered she could walk, she kept steadily at it.” That observation characterized the rest of Mel Avery’s life. From childhood on, she clearly had an outsized sense of self and purpose and a zest for new experiences that help explain the extraordinary list of firsts she accumulated: first to recognize the pathophysiology and cause of respiratory distress syndrome (RDS) in premature babies; first woman to chair the pediatrics department at McGill, head a major clinical department at Harvard Medical School, and become physician-in-chief at Boston Children’s Hospital; and first pediatrician to be president of the American Association for the Advancement of Science, the world’s largest multidisciplinary scientific society.

She was the younger daughter of a former teacher and vice principal who left that career for marriage, and a canvas manufacturer who once encouraged her to take over his successful business. But next door lived Dr. Emily Bacon, the first pediatric specialist in Philadelphia. Bacon, who took her seventh-grade neighbor to the hospital, and even introduced her to her first preemie, steadily encouraged the girl to become a doctor—so when Avery entered Wheaton College, she majored in chemistry, graduating summa.

Her diaries and interviews document her ability to take charge and persuade others to follow. As a college sophomore she was elected a representative to the National World Federalist Conference, and wrote in her diary, “That’s the biggest thing that ever happened to me I guess. I hope I’m worthy.” As a junior, she wrote her parents “a long letter about why I was so ambitious and restless. I hope they won’t continue to try to hold me back. The only reason I am moving rapidly now...is my freedom to seek out inspiration and work hard—which I enjoy doing.”

She graduated from Johns Hopkins Medical School in 1952, one of four women in a class of 90, but within a month of becoming an intern at the Hopkins hospital she was diagnosed with active tuberculosis. Enforced rest led to an extraordinary interest in pulmonary pathology and her realization that the lung was far more complicated, particularly in premature infants, than anyone had understood. After nine months, she returned to finish her internship and residency, and then embarked in 1957 on a two-year research and clinical fellowship at Harvard’s Medical School and School of Public Health: her first chance to study the physiology and mechanics of newborns’ lungs and the crippling respiratory deficit found in the underdeveloped lungs of premature infants.

Her research into what was then called hyaline membrane disease led to contacts with scientists and physicians from Harvard and MIT to England and Japan. Ignoring disciplinary boundar-

ies, she looked into mixed insoluble films, pumps, foam, fluid and bubble mechanics, and other seemingly unrelated topics. She queried anyone who could contribute insights on any facet of the disease, and slowly assembled the puzzle pieces on her way to an extraordinary breakthrough. In 1959 she realized that a deficiency of a foam-like surfactant in premature babies’ lungs caused the alveoli to collapse, suffocating the infants; she and her mentor, physiology professor Jere Meade, then published the seminal paper on the cause of the disease.

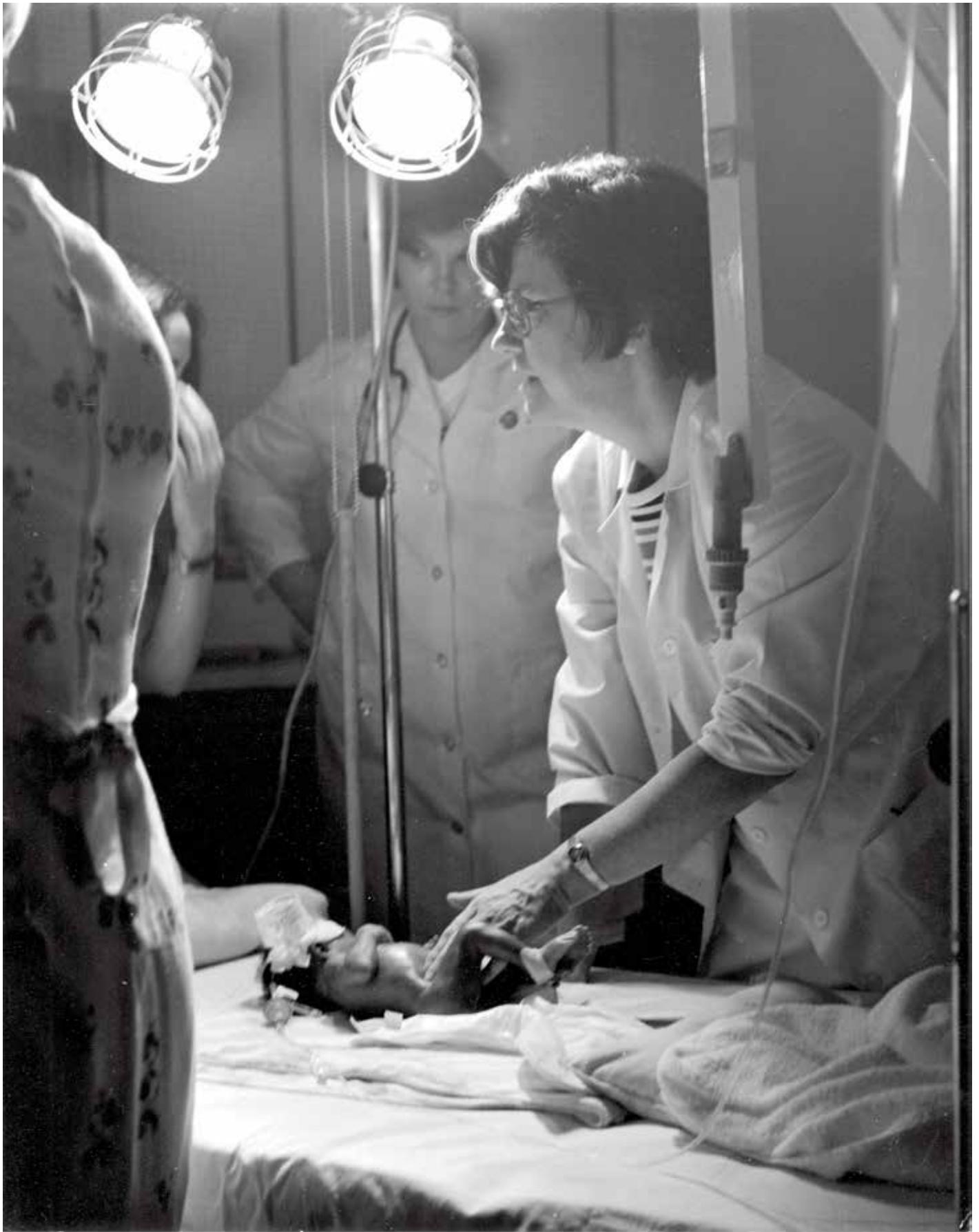
Once back at Hopkins, she reimmersed herself in patient care, teaching, and research until 1969, when—undaunted by her lack of facility in French—she became chair of McGill’s department of pediatrics and physician-in-chief at Memorial Children’s Hospital in Montreal. Boundless energy took her far beyond the city’s limits, too: she coordinated pediatric care for the Inuit of the eastern Arctic and pediatric education for a new medical school in Nairobi.

Her return to Boston in 1974 enabled her to foster both basic and applied research as Rotch professor of pediatrics and physician-in-chief at Children’s. One early priority, a joint center for neonatology that included Children’s, Brigham and Women’s, and Beth Israel hospitals, lowered neonatal deaths at all three dramatically. Physicians and trainees recall a focused woman with a good sense of humor. She increased the number of women in her department (one trainee called her the first chief to allow a house officer to return after giving birth) and was heard to advise junior women faculty to attend national meetings and stand up, belt out their comments, and utter no more than three sentences—the attention span of the men in the audience.

In retirement, she sought to aid “mothers of the world sharing a common cause that life will be good for their children.” Projects and consultations on RDS, oral rehydration, and children’s health took her to every continent except Antarctica. She even provided a recipe for surfactant to the Cuban Institute of Health. Honors continued: in 1991 she was awarded the National Medal of Science; in 2005, her honorary degree citation from Harvard read, “An eminent founding mother of newborn medicine, opening light on the genesis of breath, she holds nothing more precious than the life of each child.” Surely her own mother would have been astounded at what her slow-to-walk child had accomplished in one lifetime. ▢

*Amalie M. Kass, author of Midwifery and Medicine in Boston: Walter Channing, M.D., 1786–1876, a lecturer on history of medicine, is former chair of the board of the Massachusetts Historical Society. Eleanor G. Shore ’51, M.D. ’55, RI ’68, M.P.H. ’70, is retired dean for faculty affairs at the Medical School and retired chair of the Women in Medicine Archives at Countway Library.*







# A New Green Revolution?

Harnessing technology to feed a growing, hungry world

BY JONATHAN SHAW

**B**y 2050, somewhere between nine and 11 billion people will be living on the planet. What will everyone eat? More than half the calories consumed by humans come directly from plants, mainly from grains such as rice, wheat, and corn. But agricultural yields of some of these row crops have already plateaued in a third of world. How to feed everyone—without degrading the environment—may be one of the great social problems of the next generation.

In absolute terms, the projected shortfall in staple grain crops by 2050 is immense—394 million too few tons of rice alone—and the path to higher yields uncertain. The situation invites comparison to the decades that followed World War II, when many countries could not grow enough food to feed their own people. As the global fertility rate set a pace that would lead to a doubling of population, from three to six billion, between 1960 and 1999, there was a Malthusian question to confront. Even with globalization, could the farmers of the world feed twice as many mouths? The answer in 1960 was clear: they could not—not without the help of a “Green Revolution.”

That revolution—championed by American agronomist Nor-

man Borlaug, who was awarded the Nobel Peace Prize in 1970 for his work—led farmers to increase their use of chemical fertilizers, insecticides, fungicides, and herbicides; to adopt high-yielding crop varieties; to improve their irrigation practices and technologies; and to purchase machines for cultivating and harvesting their crops. Today, those practices are firmly entrenched facets of industrialized agriculture.

At the same time that these technologies have largely reached their potential, and their pitfalls have become more apparent, incomes have risen in the developing world, leading to preference-driven increases in demand for certain foods. In China, for example, as the population grew 41 percent between 1980 and 2015 and incomes soared far more, demand for pork quintupled, and demand for soybeans rose tenfold. Such shifts have global consequences. Brazil, an increasingly important exporter of soybeans to China, lost 9.5 percent of its forested land in conversions to “farming and other commercial purposes” between 2000 and 2014, according to a 2017 *New York Times* article chronicling the transformation of richly biodiverse Pantanal wetlands into soybean deserts. This in turn has contributed to substantial increases in Brazil’s greenhouse-gas emissions.





**At Indigo Ag's Charlestown headquarters, technicians track plant growth, isolate beneficial microbes, amplify the best in fermenters, and then coat seeds with the microbial solutions to test their effect on the resulting plants.**

Globally, between a fifth and a third of total greenhouse-gas emissions have been attributed to agriculture, as has three-quarters of all deforestation. Pesticide-contaminated farm runoff (involving insecticides, herbicides, fungicides, and poisons for killing mites, rodents, snails, and slugs) pollutes fresh-water resources, while nitrogen and phosphate fertilizers can even poison the oceans, creating dead zones thousands of square miles in extent. People have begun to ask whether modern technology has a second act, one that would allow farmers to sustainably feed a peak population of 10 billion people without bumping into absolute limits in the availability of arable land and fresh water—not to mention the potential threats to cultivating food crops in a changing climate.

Innovators in new agricultural technologies say yes—the seeds of a new revolution are already growing. In the corporate sector, change is being driven by consumers in developed nations—thinking of their health, and the impacts of their food choices (see, for example, “Eating for the Environment,” March–April 2017, page 11)—and has been enabled by molecular biology, genomics, and information technology. Starting with major row crops, researchers have identified beneficial microbes that help plants grow, have edited plant genomes to improve them, and have pioneered ingenious solutions to reduce waste in the food-supply chain. These innovations could mark the beginning of a second Green Revolution—with the potential to help people in developing nations in Southeast Asia and Africa. And David Perry, M.B.A. ’97, the CEO of

Indigo Ag, an agricultural-technology startup headquartered in Boston, believes that this time, these revolutionary changes will be better for everyone.

“In the 1940s we created industrialized agriculture for a good reason: we had to feed a whole bunch of people, and it worked,” he points out. “But the unintended consequences of that were technologies and methods that probably weren’t good for the environment, weren’t good for us as consumers, and arguably haven’t been very good for farmer profitability either. They end up spending all their money paying for those technologies”: chemical fertilizers and pesticides, expensive varieties of seed, giant tillers and combines.

Perry, who speaks with a hint of a drawl, knows about such things first hand. He grew up on a farm in Arkansas, where his family also sold fertilizer to their neighbors. After earning a chemical-engineering degree from the University of Tulsa, he worked at an oil refinery as an engineer for Exxon, then earned an M.B.A. from Harvard Business School. After running two successful startups, the second of which Pfizer ultimately acquired, he could have retired. Instead, he began searching for an opportunity that would allow him to work on a problem he cared about, and “that would make a positive difference in the world.”

That’s when he found Indigo Ag, a company that is commercializing microorganisms that help plants grow. Indigo Ag’s scientists





Indigo Ag CEO David Perry seeks a “better way” to do agriculture.

have identified microbes that confer resistance to drought, and are developing others that reduce the need for chemical fertilizers and pesticides in five important row crops: corn, rice, soybeans, cotton, and wheat. They coat seeds with these beneficial microbes to reduce the need for irrigation, increase resiliency in drought-stressed plants, and enhance their ability to extract nutrients from the soil. Perry sees an opportunity for Indigo Ag to lead or catalyze a change in the way industrialized agriculture is done.

“I am conscious of what a big ambition that is,” he says. Agriculture is the largest industry in the world, employing a billion and a half people, “but there is a better way to do it than the way we are doing it right now.” Microbes have the potential to be a significant part of the solution.

### The Anti-Darwinian Food Revolution

AWARENESS OF the mutually beneficial relationships that plants maintain with microbes—both those in the soil and those, known as endophytes, that reside within their roots, shoots, leaves, and stems—has been growing during the past decade. In fact, scientists are just beginning to understand this anti-Darwinian world, based on evolution through *cooperation*, rather than competition. A recent article in *Arnoldia*, the journal of Harvard’s Arnold Arboretum, summarizes some of the research in this area, describing, for example, remarkable seasonal flows of nutrients between sugar maple trees and nearby trout lilies through underground mycorrhizal networks of symbiotic or mildly pathogenic fungi. Experiments in tomatoes and beans have demonstrated that plants can communicate the presence of pests through those same networks by releasing chemicals that then stimulate nearby plants of the same species to secrete protective chemicals. Oaks grown in a greenhouse and subjected to drought conditions have been shown to transfer water from their tap roots up through their root systems to associated fungal networks, sustaining these beneficial partners. The finding makes sense: some researchers believe that these fungal

networks, not roots, are the *principal* way that plants extract nutrients from the soil.

Indigo Ag was founded to capitalize on the mutualisms among plants and their endophytic, in-plant microbial partners. When Perry joined the company as CEO in January 2015, it was “just 14 employees and the technology.” (It now employs nearly 250 people in four countries.) “But it was the most interesting combination of technology and unmet need I had ever seen,” he says, “because microbiology not only potentially addresses the yield problem, but does it in a way that is fundamentally healthier and more sustainable than current technologies.”

Identifying *which* microbes are beneficial to plants, though, presented a potentially gigantic screening challenge: a single gram of soil contains billions of microbes, and only a few play a role in plant biology. Perry calls Indigo Ag’s solution to that problem “probably the key to our early technical success, that allowed us to leapfrog everybody else.” One of the company’s most important scientific insights, he explains, “was that plants have already done this experiment for us. The ancestors of these plants have been growing in this soil for 200 million years. Every single one of them has sampled those microbes and evolved ways of incorporating the ones that are helpful and rejecting the ones that are potentially harmful. And so, we can leverage those 200 million years of experiments by just looking *inside* the plant....It is a super simple insight, but nobody else was thinking about it that way.”

Instead of dealing with billions of microbes, Indigo’s scientists were left with just hundreds of microbial associates within a plant. They began by collecting tens of thousands of plant samples, many of them crops, from every continent except Antarctica, and made sure to collect species growing in extreme environments, such as deserts, seeking to identify the microbiome of plants that can live under the most challenging conditions of drought and heat. Next comes DNA sequencing, to characterize the bacteria and fungi found in or on the specimens, and then machine learning



to identify sequences likely to be beneficial, often sequences that resemble those the scientists have seen in association with other plant species growing under similar conditions.

These they test in plants. The greenhouses in the four-year-old company's Charlestown, Massachusetts, headquarters cost \$1.2 million—reflecting the need to control light, heat, and humidity identically for every plant in order to isolate the effect of the microbes being studied. Each quarter, Indigo Ag uses two-week lab assays to weed more than 1,000 candidate microbes per crop down to 100, followed by greenhouse assays to select the top 10 of that hundred for testing in the field. Once they have identified the bacteria and fungi that work best, they multiply them in a fermenter, scaling up in as little as four months from one to 2,500 liters of solution that can be used to coat seeds.

Their first product, Indigo Cotton™ (cotton seeds coated with their proprietary mix of microbes) was launched in the spring of 2016 in West Texas, and led to an 11 percent improvement in yield by protecting against drought stress. Now the company is buying their similarly treated crops—soy, cotton, rice, wheat, and corn—from growers at a premium based on improved quality of the harvest, as well as traceability and sustainability, and selling them to buyers who want those characteristics. In development are products that will reduce the need for nitrogen fertilizer, or confer pest protection. Eventually, Indigo Ag expects to “stack” its products, selling, for example, a drought-resistant corn that uses less fertilizer and also resists pests.

The potential appeal for farmers, whose costs in land, equipment, seeds, and fertilizer are all upfront, is enormous. “What they most want to avoid,” Perry explains, is “a down year that puts the farm at risk. So our ability to help these crops deal with extreme stress makes them profitable for farmers.”

**“We have the opportunity to replace at least half of the chemical fertilizer used and maybe 90 percent of the chemical insecticides and fungicides.”**

Meanwhile, Indigo Ag has potential competitors, of two sorts. One is other startups, of which there are half a dozen, including NewLeaf Symbiotics in St. Louis and AgBiome in Durham, North Carolina, both “relatively small companies...doing good science,” Perry believes. The other potential rivals are big agricultural companies like Monsanto, Syngenta, and DowDuPont, which primarily sell seeds, chemicals, and fertilizers. “But you can imagine,” Perry says, “that if this is the next most important technology, they would have an interest in it.”

He doesn't dismiss the possibility that Indigo Ag could be purchased by a large firm, and he takes seriously his responsibility to give investors the best possible return, but the company's plans are explicit that “there is an opportunity to build a big independent company here, and that we are likely to have the biggest impact on the world if we remain independent.”

Perry defines Indigo Ag's place in the big picture thus: “We need about 70 percent more food than we currently produce—or rather than we deliver—to feed 10 billion people. Some of that can be managed through reducing waste and changing eating habits, but we have got to produce a lot more—let's say 50 percent more.” As much as half of that additional production, he believes, will come from microbiology. Furthermore, he adds, “I think ultimately we have the opportunity to replace at least half of the chemical fertilizer used and maybe 90 percent of the chemical insecticides and fungicides.”

## Engineering Superior Photosynthesis

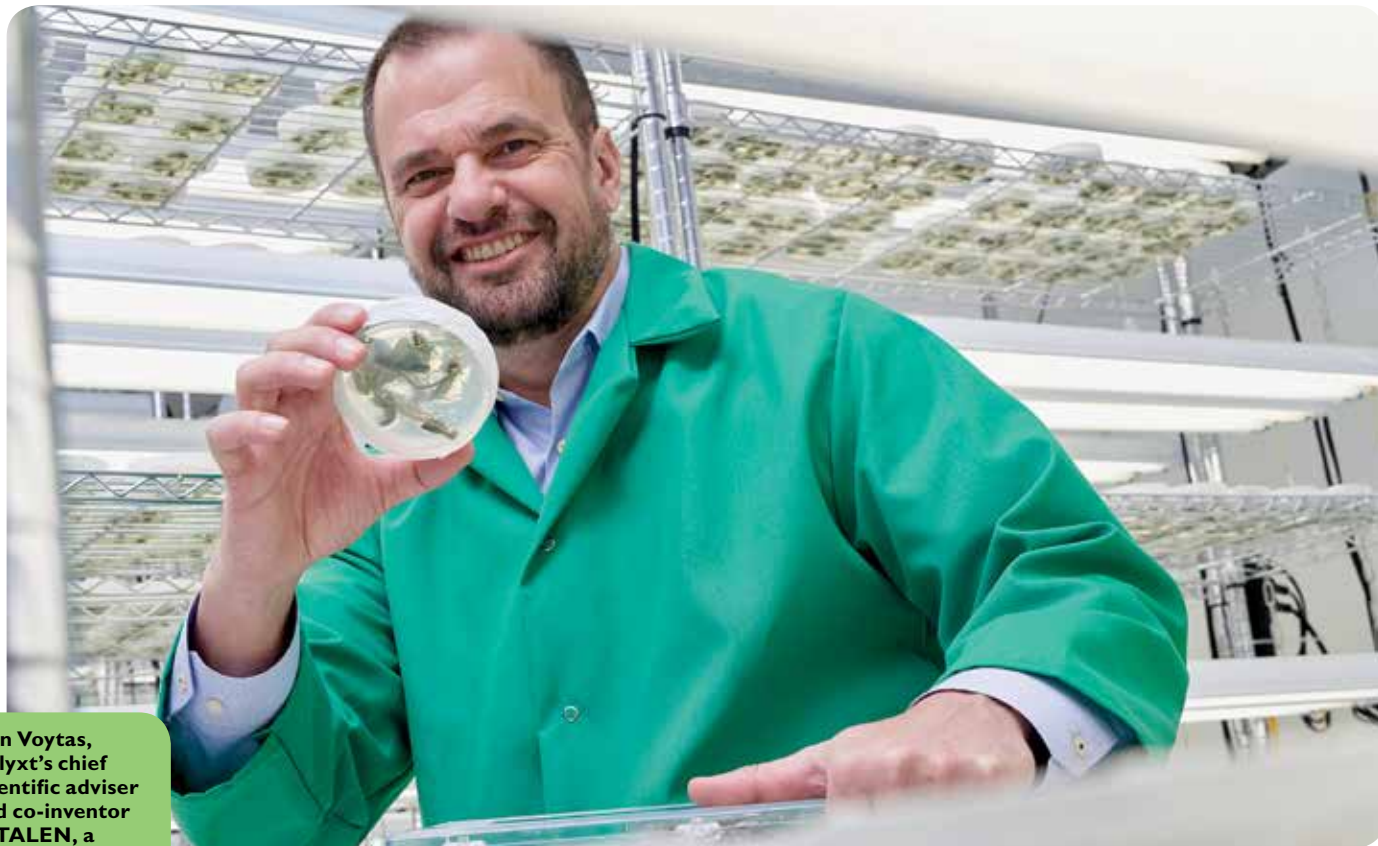
PHOTOSYNTHESIS combines sunlight, carbon dioxide, water, and minerals to make organic compounds: the food that sustains plant growth. But roughly 18 percent of the world's flowering plant-species have evolved a superior form of this process: C<sub>4</sub> photosynthesis. Such plants—corn is one example—have wreath-like rings of cells that allow them to exclude most oxygen from the chemical reactions that occur during photosynthesis, thereby making that process much more efficient under conditions of drought, high temperatures, or limited nitrogen (a key ingredient for photosynthesis that is present in both soil and chemical fertilizers).

Daniel Voytas, an expert on the genetics of plant biology who directs the Center for Genome Engineering at the University of Minnesota, and is the chief scientific officer of Calyxt, a specialty food ingredients company that edits plant genomes to enhance them (see main text), also advises an ambitious Bill and Melinda Gates Foundation-funded project to bring C<sub>4</sub> photosynthesis to rice. The project, run by the University of Oxford, aims to engineer a complex combination of changes to the plant's cellular structure in order to keep oxygen away from photosynthetic chloroplasts, and to supply the genetic instructions for carrying out the chemical reaction that produces a four-carbon molecule

(hence the C<sub>4</sub> in the name). The components necessary to achieve this exist in the plant, but require rearrangement to work effectively.

If the project succeeds, the benefits could be enormous. Rice yields could increase as much as 50 percent, or farmers could produce the same-size harvest using less water and fertilizer, an environmental benefit that also makes the plants more resilient to climatic fluctuations. That's important because rice, which grows best in a narrow temperature range, provides a large proportion of the calories in many developing countries in East and Southeast Asia, where much of future global population growth is likely to occur. Production of this staple grain has already plateaued in many of these areas, even as the river deltas where rice grows best are sinking in Vietnam, Thailand, Myanmar, and Bangladesh, leaving the fields vulnerable to inundation by rising seas.

The same technique, Voytas adds, could be applied not only to other popular foods, such as wheat, potatoes, soybeans, and apples, but also to “orphan crops” like cassava, neglected by breeders but nevertheless a staple of the African diet. His research, he says, is driven principally by a fascination with plant biology, but “It's also been very satisfying to see how the technology can be applied to address pressing problems, be they stresses induced by climate change, or the need to make better, healthier food.”



**Dan Voytas,**  
Calyxt's chief  
scientific adviser  
and co-inventor  
of TALEN, a  
gene-editing  
technique

As for the remainder of the projected yield shortfall, Perry suggests that 20 to 30 percent is likely to come from genetic enhancements of staple crops, and the final 20 or 30 percent from “digital ag.” “Every decision a farmer makes right now is suboptimal, because they don’t have enough information to make an optimal decision,” he declares. With a digital infrastructure that aggregated data from many farms, farmers could learn from one another and make data-based decisions about what crops to grow, what portfolio of seeds to use, and when and how densely to plant them, he says. Today, though, “These are decisions that farmers are more or less making based on myth and legend.”

### Reconnecting Farmers to Consumers

ONCE THERE IS ENOUGH FOOD—and Perry believes that technological solutions will meet that need—people can begin to consider the healthiest and most sustainable ways to grow food, what land it should be grown on, and what land to set aside for other purposes. “The decisions are very different all of a sudden,” he points out. “And I think we are just entering an era where that is going to become the new reality.”

He is hinting at the engine behind much of the technological change—a movement that is slowly reconnecting consumers with farmers. For most of history, he explains, farmers knew exactly for whom they were producing food: “It was them, their families, and maybe a really tight-knit community.”

Industrialized agriculture, despite its benefits, broke that link, turning crops into commodities. “Farmers got paid by the bushel of wheat or corn, and it is just an economic reality that if you pay for volume, and you are not paying for nutrition, or quality, or production method, then those will be sacrificed in order to maximize volume,” he says. “That’s the nature of commoditization.” But in-

creasingly, people care about how their food is produced. To the extent that consumers are willing to pay for those preferences, as they do with organic foods, Perry sees an opportunity to change the system for the better.

As consumers have become increasingly aware of the foods they eat, a disconnect has grown between their preferences and the commoditized agricultural supply chain that emphasizes low costs and efficiencies of scale, says Federico Tripodi, echoing Perry. As a

**The previous Green Revolution came with trade-offs. A new one may not require the same kinds of compromises.**

consequence, supermarkets have begun to offer more brands and options, so that “large consumer-package companies have lost market share to small, nimble ones.” Tripodi is the CEO of Calyxt, a publicly traded specialty-foods company; like Perry, he sees in this disconnect a business opportunity. The two companies take different scientific approaches, however. Calyxt, rather than focusing on the plant’s microbiome, makes tiny edits in plants’ internal genomes in order to achieve a specific effect. The company’s first product is a soybean that produces high-oleic oil, a healthy fat—a notable coup as government regulations force a phaseout of trans fats from the food supply this year. Because Calyxt achieved its goal by deleting a few DNA base pairs among 1.2 billion, Tripodi likens it to “taking a book and deleting a word.”

The company plans to partner with farmers, agreeing in advance to buy the entirety of the altered soybean crop, and then arranging to extract and sell the healthy oil to major food producers. The flavorless, odorless oil contains zero trans fats (please turn to page 70)



## A NEW GREEN REVOLUTION?

(continued from page 48)

and has 20 percent less saturated fat than traditional soybean oil, says Tripodi: characteristics that make it preferable to sunflower, canola, or olive oils for making products such as salad dressings, granola bars, or baked goods. Tests have also shown, he adds, that when used for commercial frying, the oil resists polymerization, so it remains stable longer in fryers.

Ultimately, Tripodi envisions a soybean that not only makes better oil, but has more protein and is herbicide-tolerant. “Maybe we work on some environmental traits that help farmers be more productive growers, and combine everything together. That’s what I think is going to happen in the next five to 10 years—a general improvement in

the quality and environmental footprint of our target crops.”

TALEN®, the technology for making such edits, was invented by Daniel Voytas ’84, Ph.D. ’90, Calyxt’s chief scientific officer, and colleagues at the University of Minnesota, where Voytas, a world-renowned expert in the biology of plants, directs the Center for Genome Engineering (see “Engineering Superior Photosynthesis,” page 47). In practical terms, the edit TALEN made possible in soybeans is the kind of change that could occur with a single random mutation, or that could be bred into a plant in five to 10 years by traditional hybridization, he explained during an interview at Calyxt’s New Brighton, Minnesota, headquarters. The soybean plant already makes the desirable oil—the change made by Calyxt merely prevents it from converting the high-oleic oil into a less desirable linoleic form. And

because this change does not involve the introduction of foreign genes from an unrelated species (transgenes), the U.S. Department of Agriculture does not consider the new variety a conventional genetically modified (transgenic) organism (GMO). The product can be planted anywhere without worry that it might introduce new genes into the natural environment.

Voytas points out that Calyxt’s initial products, including a high-fiber white flour that would bring the benefits of whole grain to white bread, are focused on the consumer. “Up to now, biotech has just been focused on the farmer,” he explains, as companies like Monsanto and DowDuPont engineered herbicide-tolerant, pathogen-resistant, or high-yield varieties of seeds for sale. Now, he says, there are “big consumer trends that could be met by genetically editing crop plants”

## The Future of Food?

A GLIMPSE of the future of food can be seen through the eyes of Andrew Ive, M.B.A. ’97. He is managing director of the world’s largest food-company incubator, Food-X, based in New York City, which helps about 170 food start-ups get off the ground each year. They range from Booster, which uses machine learning to provide farmers with dynamic, granular climatic data to help them manage their crops, to Wasteless, which uses an algorithm to lower the price of foods approaching their sell-by dates, thereby bringing improved efficiency to the food supply chain. Another Food-X startup, Freshurety, goes a step further, placing sensors in trays of produce to continuously monitor the ambient temperature and sample the gases the fruits and vegetables give off, to calculate their remaining shelf life. The data let shippers know whether their goods need to be sold locally or will remain fresh after a week-long journey.

Ive is particularly excited about Cambridge Crops, a company in Food-X’s current cohort that was co-founded by Livio Valenti, M.P.A. ’13. The company uses a technology developed at Tufts and MIT that turns a natural substance derived from silk into a powder. When mixed with water and sprayed on produce, it increases the shelf life by two to three times throughout the supply chain *without* the need for refrigeration or any kind of humidity control, he reports. This would vastly reduce the resourc-

es needed to keep produce cool—and be especially useful in places lacking refrigeration. Noting that a grower in India estimates that as much as 50 percent of the bananas he harvests never make it to consumers, Ive calculates that if that 50 percent were no longer wasted, the grower could produce the same volume for world markets with half as much water, fertilizer, and acreage—freeing the surplus for other uses, maybe even other crops.

Other companies in the Food-X ecosystem seek to address new markets being defined by millennials. Several “cellular agriculture” startups—Memphis Meats is one that recently attracted investment from Tyson Foods, Cargill, Bill Gates, and Richard Branson—are growing meat, everything from fish to filet mignon, in factories. Meanwhile, Perfect Day uses fermentation to create milk without a cow. (Cows are a prodigious source of methane, a potent greenhouse gas.) “You don’t need the dairy, and you don’t need the field,” says Ive.

Perhaps even more cutting-edge is NonFood, which aims to create “a range of really interesting, delicious products based almost entirely on algae, with a goal, ultimately, of designing a home-based bioreactor” that would allow customers to “grow their own algae and print it into a useful product: food.” Algae “are incredibly fast-growing and don’t require fertilizer,” Ive points out. “The process is quite sustainable.”

More is at stake than millennial tastes, however. “My biggest concern in all of this is that as places like India and Africa become more affluent, they will adopt Western eating habits, giving up their healthy, vegetarian-centric food systems and cultures and move towards meat,” he says. Nothing will stop that process, but “maybe these technologies around cultured meat” could be used to create foods they’d want “in a way that’s a lot more sustainable and less damaging to the environment. Humanity,” he observes, “has a really interesting way of solving problems at the last moment, and I’m hoping that all of the entrepreneurs I’m working with, and will work with, will be part of those kinds of solutions.”



**Andrew Ive,**  
managing  
director of  
Food-X

to create healthier food products. “What’s cool about plants is that we have learned a lot in the past 15 to 20 years about how their genomes function to dictate various traits. Now, we can go in and start to tweak them.”

Voytas has horticulture in his own genes. His father worked for the U.S. Forest Service, and he’s been an avid gardener and reader of horticulture magazines himself since he started a business selling bedding plants as a boy. He arrived at Harvard as a freshman hoping to study plant biology, but the closest class he could find was a graduate-level course in plant taxonomy, which he took instead. He went on to develop a strong interest in molecular biology, then in its infancy, and pursued that during his doctoral studies with Harvard Medical School professor of genetics Frederick Ausubel, who has worked extensively with *Arabidopsis thaliana* (mustard weed), a model organism that was the first plant genome ever sequenced (see “Simple Hosts,” January-February 2003, page 48).

The co-invention of TALEN came much later, in 2009. Although there are now other methods for editing genes, TALEN retains some advantages: Voytas has become proficient at targeting specific sites in plant genomes, and has helped build a large portfolio of intellectual property around TALEN and its use in plants. (The University of Minnesota has licensed TALEN to Cellectis, Calyxt’s parent company, which has already used it to cure two instances of childhood leukemia and plans to create off-the-shelf immunotherapies for the disease.)

Although Calyxt’s initial focus is consumer markets, Voytas has also developed several other products that target farmers and middlemen in the supply chain. An improved potato, for example, lasts longer in cold storage and, when cooked using high-heat oil, produces less acrylamide, a potential carcinogen. He achieved this by turning off a single gene that causes the potato to turn sucrose into glucose and fructose when exposed to cool temperatures.

And Voytas has been working with wheat to develop varieties with traits that confer resistance to both fungal diseases and herbicides. Wheat is particularly challenging to modify, he explains, because its genome is huge: 17 billion base pairs, compared to about 3.5 billion for corn (and humans). In addition, wheat is hexaploid, carrying six copies of its genome (humans carry two, one from each parent). Furthermore, com-



**Calyxt CEO Federico Tripodi stands in the greenhouse at the company's new headquarters near Minneapolis. At right, a lab technician checks on the company's high-fiber wheat plants.**



COURTESY OF CALYXT

mercial wheat varieties are sexually compatible with wild North American species. That means that if a seed company started selling GMO wheat, the pollen could affect wild species and lead to “gene flow” (which is one reason why no GMO wheat is currently being grown commercially in the United States). Voytas is developing wheat varieties that have no foreign DNA, can tolerate two different herbicide chemistries (which kill weeds, but not the crop), and produce pollen that won’t transmit herbicide tolerance characteristics to wild relatives—a feat he achieves by selectively editing just a few of the plant’s six genomes. Ultimately, all these traits, whether desirable to consumers or farmers, can be stacked, he explains: because each is controlled by a separate biological pathway, they can be combined in a single seed variety.

### A Revolution to Live With

THE PREVIOUS GREEN REVOLUTION came with trade-offs. A new one may not require the same kinds of compromises. Perry, for his part, is optimistic that new technologies focused on the health and productivity of plants will lead to an agricultural system that is better for the environment, better for humans, and better for farmers. “That is what I got into this for,” he says. “If we can solve those things, the positive

impact on the world would be enormous.” Agriculture already uses 70 percent of the world’s fresh water. Fertilizers have led to chemical pollution of aquatic environments and soil degradation. “Roughly a third of greenhouse-gas emissions come from agriculture or the products that are ultimately consumed by agriculture,” Perry says. Most of the people who live in poverty today are among the billion and half people who work in agriculture. “Those three goals—of improving human health, of improving environmental sustainability, and making farming a living wage—are three of the most important things I think we can do.” Companies like Indigo and Calyxt are not going to do that on their own, he acknowledges, “But we have got a shot at playing a really significant role.”

Jonathan Shaw ’89 is managing editor of this magazine. His feature article “Botanizing in the ‘Mother of Gardens’” appeared in the January-February issue.



# Montage

Art, books, diverse creations



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**Theresa McCulla in the archives center of the Smithsonian National Museum of American History, which houses the brewery ads, postcards, and other keepsakes pictured below**



## Brew's Clues

*A historian investigates America's beer boom.*

by BAILEY TRELA

**N**EARLY eight years ago, Theresa McCulla '04, Ph.D. '17, crouched in the middle of Mass. Ave., collecting the set of chef's knives that had fallen from its perch on the back of her bike.

She was on her way from her day job—coordinating Harvard University Dining Service's Food Literacy Project—to an evening class at the Cambridge School of Culinary Arts in Porter Square, from which she later took a degree in the professional chef's pro-

gram. McCulla has since taken a new direction in her career, shifting from the preparation of food to the history of beverages. Now she oversees the American Brewing History Initiative at the National Museum of American History. Or as the headlines had it, when she was hired a year ago: McCulla is the Smithsonian's "beer historian."

The post fits in with her longstanding commitment: "asking big historical questions through the lens of food." After earning her undergraduate degree in Romance

studies, McCulla did a three-year stint as a French and Italian media analyst at the Central Intelligence Agency, while working nights—gratis, for experience—at a D.C.-area restaurant and for a pastry chef based out of a basement in Falls Church, Virginia. In 2007 she moved back to Cambridge, and applied to direct the Food Literacy Project (see Harvard Portrait, January-February 2010, page 43). "That got me back into the



**The Smithsonian holds this proof sheet of 1970s Anchor Steam labels signed by brewery owner Fritz Maytag III, credited with starting the modern microbrewery movement.**

Harvard realm," she says, "but all the while I was working there, I knew I wanted to transition back into academia." She applied to and was accepted by the American Studies program, and wrote a dissertation (currently being adapted into a book) on the interplay between race and ethnicity and the food industry in nineteenth- and twentieth-century New Orleans.

This led pretty naturally into her work at the Smithsonian. "I've always been interested in how food and the material culture surrounding food—things like menus, recipe cards, cookbooks, even the packaging on souvenirs—convey ideas about race and ethnicity," she explains. In that vein, she adds, traditional narratives about American brewing have excluded all but a select few: "I think

for a lot of the beer-drinking public there's this very familiar history of companies like Anheuser-Busch, and immigrant German men who came to America in the mid nineteenth century. And while it's very true they made brewing a profession, up until then brewing in America had always been a domestic task. It was done by women, and especially in the nineteenth century and before that it was often the work of enslaved people."

McCulla's prime focus, however, is on the renaissance of do-it-yourself brewing culture, and the boom in craft brewing that began in the 1960s and '70s. Developing this archive entails research trips to meet the brewers and hops-growers, the old guard and the present-day innovators, who helped create the craft-beer industry we know today—and, of course, asking for objects and documents they'd be willing to contribute to the museum's collection. Last year, for example, she visited Northern California, the cradle of the American craft-beer surge, where companies like Anchor and Sierra Nevada helped revitalize brewing culture. She conducted oral-history interviews with figures such as Michael Lewis, an emeritus professor of brewing science at UC Davis who brought the academic discipline to the States in the 1960s. During a later trip to central Colorado, she spoke with Charlie Papazian, the godfather of American homebrewing ("If you brew at home, you have

his books on your shelves") and also sat down with Twila Soles, an artisan maltstress providing gluten-free grains like spelt and oat to regional operations.

Conducting such interviews underscores a central challenge of her beer-history research—namely, its recentness. "It's been a new experience for me as a historian," says McCulla. "How do you work with people who are still very much in the midst of their careers? How do you get them to think about their life stories as historical?"

Similarly, her work brings her into contact with objects that might not, at first blush, strike the layman as having obvious historical importance. Seemingly mundane documents, like business records or bulletins circulated among homebrew clubs before the rise of the Internet, are "really a kind of goldmine for a historian who wants to look back and see who's talking to whom and what kinds of ideas are being exchanged."

A single dated entry can contain the germ of a massive cultural shift, spotlighting, for instance, the shift in Americans' interest from light lager beers to porters and stouts and other new formats. "What newsletters and brewing logs are recording is kind of an evolution in taste," McCulla explains. "If you're able to look at a log and say, 'Oh, this is the first time this person brewed this kind of beer,' what that really tracks is a new taste for the American consumer."

## Comedy Compulsion

TV writer Nell Scovell looks back on *All the Funny Parts*.

by SOPHIA NGUYEN

**N**ELL SCOVELL '82 went wherever they'd let her be funny. Her early writing career can be seen as a progression of bigger, freer venues where the bosses would let her crack wise: first the sports sections of *The Harvard Crimson* and *The Boston Globe*, then the glossier pages of *Spy* and *Vanity Fair*. At the latter, a colleague gently suggested, "Nell, I don't mean this as an insult, but I think you could write for TV." And so she found the

medium where she could really act on her comedy compulsion.

But when Scovell set about drafting her memoir, *All The Funny Parts*, she was nagged by a different need—the sense that, as she puts it, "If I don't say something, no one will know I was there." *There* meaning the staffs of the Smothers Brothers, Bob Newhart, and David Letterman shows, or awards ceremonies and the White House Correspondents' Dinner, or just showbiz itself. "I want my



Nell Scovell

Photograph by Robert Trachtenberg





Take any job that comes your way. Don't mistake sexual power for real power. Sometimes sincere trumps snarky. (In an interview, she offers a few more, on the spot. "Comedy is always easier when we're with familiar characters"—so, in a first episode, "Every line not only has to move the plot forward, it also has to illuminate the character.") There's also something to be learned from the one-liners embedded throughout her narrative like razor apples. If a new colleague asked if she had kids, she'd blithely reply, "I've got two sons, but I'm blanking on their names right now." Recalling a misogynistic former boss, she writes that they never met again, then tosses off, "It's unlikely we will since I don't get to Branson, Missouri, much." It's these moments that really show how Scovell made it in enter-

tainment: thick skin, secret steel, and the ability to parry.

Yet hers is not a straightforward growth narrative. Instead, it zigzags from triumph to disappointment. A "Job Timeline" lists every single project she ever worked on, including the unshot and unaired, each rewrite and every rejection. Then there are the lists of jokes that didn't make it, a chapter all about shows that she narrowly missed working on—it's like a movie made of outtakes, as if she stitched a narrative from what she's swept up from the cutting-room floor. "I have cried in every parking structure in Hollywood," Scovell confides.

In the book, she quips that the flipside to that William Goldman chestnut, "Nobody knows anything," is the helplessly hoping, "You never know..." Even to her,

Hollywood remains baffling, a system operating on variable rewards. Hopefuls are lured in by intermittent reinforcement, like gamblers playing the slots, or caged rats. "Pressing the lever may lead to insanity," she writes, "but how else are you gonna get a pellet?"

Scovell admits that she sometimes chafes against the suggestion that she must give herself over to mentoring young women. After all, she still has aspirations of her own. She's working on a pilot about a divorced one-percenter who moves in with her school-teacher sister and her school-nurse brother-in-law. She might like to run a show again. She would love to direct another movie. "I'm not done. And I don't want to admit that it's over just yet. I want one more shot!"



THE MUSEUM OF MODERN ART, NEW YORK, STUDY COLLECTION

## Time in Space

*Renée Green's new art, embedded in the Carpenter Center*

by LILY SCHERLIS

**M**ANY WHO WORK in and around the Carpenter Center for the Visual Arts have a weird relationship with the French modernist architect who designed it. Le Corbusier is a mythic figure for Harvard's art students: his notoriety, when combined with the loudness of his architecture, means that making art able to hold its own in the building feels like shouting over a lawnmower.

Artist, filmmaker, and MIT professor Renée Green has been making work at the Carpenter Center during a two-year resi-

dency—enough time to get to know the space intimately. She has set up colorful modular viewing stations for displaying videos, installed grids of images of California infrastructure, and presented essay films, ephemera, sound works, and print publications. Throughout, "I've used spaces that I wouldn't ordinarily imagine would be used," she says, "more interstitial spaces"—under the stairs in the basement, in the vertical vitrines, in a corner of what is now the bookstore at the top of the building's ramp. She's excited about her final exhibition, "Within Living Memory" (on view through April): she gets the whole place to herself. The culmination of her residency, it contains works made in the past decade and spanning many media. Gravitating around



While at the CCVA, Renée Green set up viewing pods for her installation *Media Bichos* (top), and grids of images for *Code Survey* (left), among other projects.

**While at the CCVA, Renée Green set up viewing pods for her installation *Media Bichos* (top), and grids of images for *Code Survey* (left), among other projects.**



themes of habitation and displacement, the show highlights projects reflecting her attention to modernist architecture.

Before her time at Harvard, Green's last encounter with Le Corbusier was in 1993, when she ventured to Firminy, France, to live in a half-deserted housing unit that had been part of his multi-site modernist residential concept, *Unité d'habitation*. She reflects on that (literal) residency in *Secret*, a rarely shown trio of videos on view in "Within Living Memory"; her new moving-image work, *Americas: Veritas*, premiering during the exhibition, considers the Carpenter Center alongside his only other built structure in the Western hemisphere: Casa Curutchet, in La Plata, Argentina—5,404 miles away. The pairing feels, in her words, "oddly peripheral" in contrast with Le Corbusier's imaginings. Green is fascinated by the wide gap between his dreams for the Americas—re-doing entire cities—and what he actually managed to build.

Green has a long-term interest in modernist architecture: her essay film *Begin Again*, *Begin Again*, also on view in the exhibit, is an attempt, in her words, to "think with"

the eponymous West Hollywood house built by the Austrian-American architect R.M. Schindler in 1922. Designed to facilitate an experimental and communal lifestyle, the building gave rise to the California strain of modernist architecture. The film begins with a deep rumble of a voice announcing, "Begin again. Begin again. Begin again," where every "again" is a little more electric and each beginning has a little more weight. Teal seawater tumbles over the camera. The voice tallies every year from Schindler's birth in 1887 until the film's own making in 2015; shots of the house and surrounding na-



A still from Green's film *ED/HF*, on artist Harun Farocki (top), and another from her installation *Secret*, about her residency at Le Corbusier's housing complex in Firminy, France

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RENEE GREEN/FREE AGENT MEDIA

ture are punctuated by archival footage of twentieth-century commercial and military activity. Green makes the past feel strangely close. How, the film asks, are Schindler's words and buildings differently experienced 60 years after his death? How can time dilate lives?

Another recent work continues this line of inquiry into how ideas, people, and built struc-

**A still from *Begin Again, Begin Again* (2015)**

tures move across time and space. Green's 2017 essay film, *ED/HF*, engages with the life of German filmmaker Harun Farocki, whose work explicitly reflected on the medium's political potency. The script of *ED/HF* is a collage of both Farocki's and Green's writings on lived space, migration, and the creative process, interspersed with quotations from poets Rainer Maria Rilke and Paul Celan, among others. But all this is voiced by a single narrator: hearing the uncited audio, it's difficult, if not impossible, to tell where Farocki ends and Green begins. They share a single set of

## Off the Shelf

Recent books with Harvard connections

**Without Precedent: Chief Justice John Marshall and His Times**, by Joel Richard Paul, J.D. '81 (Riverhead, \$30), offers an accessible portrait of a giant from the third branch of government. The author, of the University of California Hastings Law School, in San Francisco, observes of his subject that no founder "had a greater impact on the American Constitution," and "no one did more than Marshall to preserve the delicate unity of the fledgling republic." More like him, please?

**Can It Happen Here? Authoritarianism in America**, edited by Cass R. Sunstein, Walmsley University Professor (Dey St./Morrow, \$17.99, paper). The indefatigable Sunstein (profiled in "The Legal Olympian," January-February 2015, page 43, and last heard from in *Impeachment: A Citizen's Guide*, published in October), imagines a post-terrorist-attack, President Trump-led America, and then gathers perspectives in essays by legal and other scholars from Chicago, Harvard, Yale, and elsewhere (among them, Martha Minow on the Japanese internment in World War II as a precedent for mass detentions). In the same vein, **How Democracies Die**, by Steven Levitsky, Rockefeller professor of Latin American studies, and Daniel Ziblatt, professor of government (Crown, \$26), scans experiences in Europe and Latin America to explore the fateful question, "Are we living through the decline and fall of one of the world's oldest and most

successful democracies?"—and if so, what to do about it.

**The People vs. Democracy**, by Yascha Mounk, associate of the department of government (Harvard, \$29.95). In a populist era, Mounk finds, popular will and individual rights collide. Monied campaign contributors advance rights without democracy, and populists, in effect, advance democracy without rights—collectively endangering the liberal democratic order, from India and Europe to the United States.

Of related interest, in legal and historical perspective: **Habeas Corpus in War-time**, by Amanda L. Tyler, J.D. '98 (Oxford, \$85), is a Berkeley law professor's comprehensive analysis—"from the Tower of London to Guantánamo Bay," as the subtitle puts it—of a subject of current relevance in an era of terrorism and the political responses to it. **Moral Combat: How Sex Divided American Christians and Fractured American Politics**, by R. Marie Griffith, Ph.D. '95 (Basic, \$32), examines a century of Christian debate about sexual morality and gender roles, and its political consequences. The author directs the Danforth Center on Religion and Politics at Washington University.

Biomedicine, then and now. **Vanishing Bone**, by William H. Harris, Gerry clinical professor of orthopaedic surgery emeritus (Oxford, \$21.95), is a medical mystery: why hip-replacement patients began suffering severe bone loss. Harris recounts how he and colleagues figured out the molecular biology, and moved toward substitute ma-

terials for hip prostheses, eliminating the affliction. **Bioinspired Devices**, by Eugene C. Goldfield, associate professor of psychology in the department of psychiatry (Harvard, \$45), is a demanding overview of the work pursued at the Wyss Institute for Biologically Inspired Engineering, where the author is a faculty associate working on a modular robotic system for toddlers at risk for cerebral palsy. Lay readers may find that skimming the work helps bring into focus the applied science being derived from nature's systems of assembly and repair.

**The Biological Mind**, by Alan Jasanoff '92, Ph.D. '98 (Basic, \$30). The author (who is professor not only of biological engineering, but also of brain and cognitive sciences and nuclear science and engineering at MIT), looks beyond tissue to explore "how brain, body, and environment collaborate to make us who we are" (the subtitle). His formidable credentials aside, he is accessible and inviting, beginning, "What makes you you? Wherever you come from and whatever you believe about yourself, chances are that...you know your brain is the heart of the matter."

The China scholars have been busy, adding to readers' understanding of the roots of the modern nation with which the United States now has its most consequential, if muddled, relationship. **The Art of Being Governed: Everyday Politics in Late Imperial China**, by Michael Szonyi, professor of Chinese history (Princeton, \$35), vividly explores families' relationship to the state in fulfillment of their obligation to man the army. The director of the Fairbank Center for Chinese Studies brings the Ming



vocal cords. Green, who calls the piece “a film as a conversation,” says, “I wanted it to be blurry.”

She and Farocki exhibited together until his unexpected death in 2014. He wanted to be a writer, and so she sought out his personal writings as source material for the script. “When a person is dead you can imagine what you like,” says the narrator of *ED/HF*. “You can also review what they left, if you can find it.” The process of writing the script seems like a kind of verbal knitting: she wove his voice into her own.

“Both *ED/HF* and *Begin Again, Begin Again*

are about considering a lifespan,” she says. Modernist buildings like the Carpenter Center, she notes, were not built to last longer than 100 years—not that much longer than a human life. She’s fascinated with what will happen if they last longer.

Green’s creations are sensitive not only to longevity, but also to how quickly “right now” becomes “just a moment ago.” Her work articulates a desire to be attentive to the passage of time. She’s titled her residency “Pacing,” suggesting how the work of these two years has been cumulative. Each project overlaps its predecessor, and all of

them address the Carpenter Center: “I can do [the work of the residency] over time in different ways, minimal, maximal, whatever, in between.”

As for the shadow of Le Corbusier himself, Green is unfazed. She’s very aware of his glossy notoriety: “He was very engaged with creating his archive, and having some kind of trace of everything he ever did,” she says. At the same time, she adds, he had failures and false starts and a list of projects he didn’t get to. She’s interested in the architect—as with Farocki and Schindler—as a human being.

roots of organization and authority to life. **China at War**, by Hans van de Ven, Ph.D. ’87 (Harvard, \$35), is a University of Cambridge historian’s reinterpretation of the Sino-Japanese war and the brutal civil conflict between Nationalists and Communists—underpinning the People’s Republic’s founding legends and its leaders’ quest for control over a fractious society. **The Contentious Public Sphere**, by Ya-Wen Lei, assistant professor of sociology (Princeton, \$39.50), explores how authoritarianism today involves attempts to control the media, the realm of digital dialogue, and China’s alternately rambunctious and cowed civil society. Finally, **The China Questions**, edited by Jennifer Rudolph and Szonyi, (Harvard, \$27.95), scans the major issues associated with “a rising power.” Thirty-six experts (many from Harvard) contribute essays on history and culture, the economy and the environment, international relations, society, and China’s internal political contradictions.

**When Grit Isn’t Enough**, by Linda F. Nathan, adjunct lecturer on education (Beacon, \$26.95). The founding head of the Boston Arts Academy tackles the “false promise” that high-school graduation alone ensures comparable preparation and success in college. She digs into the underlying assumptions about hard work and equal opportunity and focuses attention on the harder realities of poverty, race, class, and parental educational attainment that make for vastly unequal playing fields in America.

**A Literary Tour de France**, by Robert Darnton, Pforzheimer University Professor and University Librarian emeritus (Ox-

ford, \$34.95). A towering historian of the book, Darnton continues his scholarly work by examining publishing in France before the Revolution. Through the records of a Swiss publishing house, he reveals a world where print still seemed revolutionary, and had to contend, not with Kindle e-readers, but with censors, tax officials, piracy, and more.

**Design Thinking for the Greater Good**, by Jeanne Liedtka, M.B.A. ’81, Randy Salzman, and Daisy Azer (Columbia Business School Publishing, \$29.95). Liedtka, at the University of Virginia’s Darden School, and her coauthors try to apply “design thinking,” associated with buzzy products, to innovating in the social sector (healthcare, education, agriculture, etc.), where vexing problems and rigid bureaucracies block progress.

The focus is on collaboration, prototyping, and similar processes. The invitation to fresh approaches is welcome.

**We Wear the Mask**, edited by Brando Skyhorse and Lisa Page (Beacon, \$18, paper), gathers 15 essays on “passing in America.” Harvardians will be affected by “Passing Ambition,” in which Sergio Troncoso ’83 recalls the mishaps, racialized slights, and kindnesses that accompanied his

*The Pursuit* (1771-72), from Jean-Honoré Fragonard’s series *The Pursuit of Love*, designed for a chateau belonging to Mme. Du Barry, mistress of Louis XV

undergraduate attempts to have a meaningful internship in Washington, D.C.

**A Life in Cybernetics**, by Norbert Wiener, Ph.D. 1913 (MIT, \$50, paper). A one-volume edition of the celebrated autobiography, *Ex-Prodigy: My Childhood and Youth* and *I Am a Mathematician: The Later Life of a Prodigy*. That youth figured prominently in this magazine’s January-February feature, “Prodigies’ Progress,” by Ann Hulbert.

**The Painter’s Touch**, by Ewa Lajer-Burchard, Boardman professor of fine arts (Princeton, \$65). A searching material analysis of the oil paint, brushwork, and textures of eighteenth-century masterpieces by Boucher, Chardin, and Fragonard. Sumptuously illustrated.



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# Can Science Justify Itself?

Steven Pinker defends science from modern-day foes.

by ADA PALMER

IT IS NOT INTUITIVE that a case needs to be made for “Reason, Science, Humanism, and Progress,” stable values that have long defined our modernity. And most expect any attack on those values to come from the far right: from foes of progressivism, from anti-science religious movements, from closed minds. Yet Steven Pinker argues there is a second, more profound assault on the Enlightenment’s legacy of progress, coming from within intellectual and artistic spheres: a crisis of confidence, as progress’s supporters see so many disasters, setbacks, emergencies, new wars re-opening old wounds, new structures replicating

old iniquities, new destructive side-effects of progress’s best intentions. Pessimism doubts whether progress will deliver on its promise of a better tomorrow, while cynicism questions whether today is truly better than our ancestors’ yesterdays. Do science and technology genuinely make our lives better, or fill them with new problems as we are dragged, like Charlie Chaplin, by the unstoppable machine of *Modern Times*?

These questions are not new. Jean-Jacques Rousseau asked them in Enlightenment Paris, the Romantic movement did the same in the chilling wake of the French Revolution, and Sigmund Freud asked them when

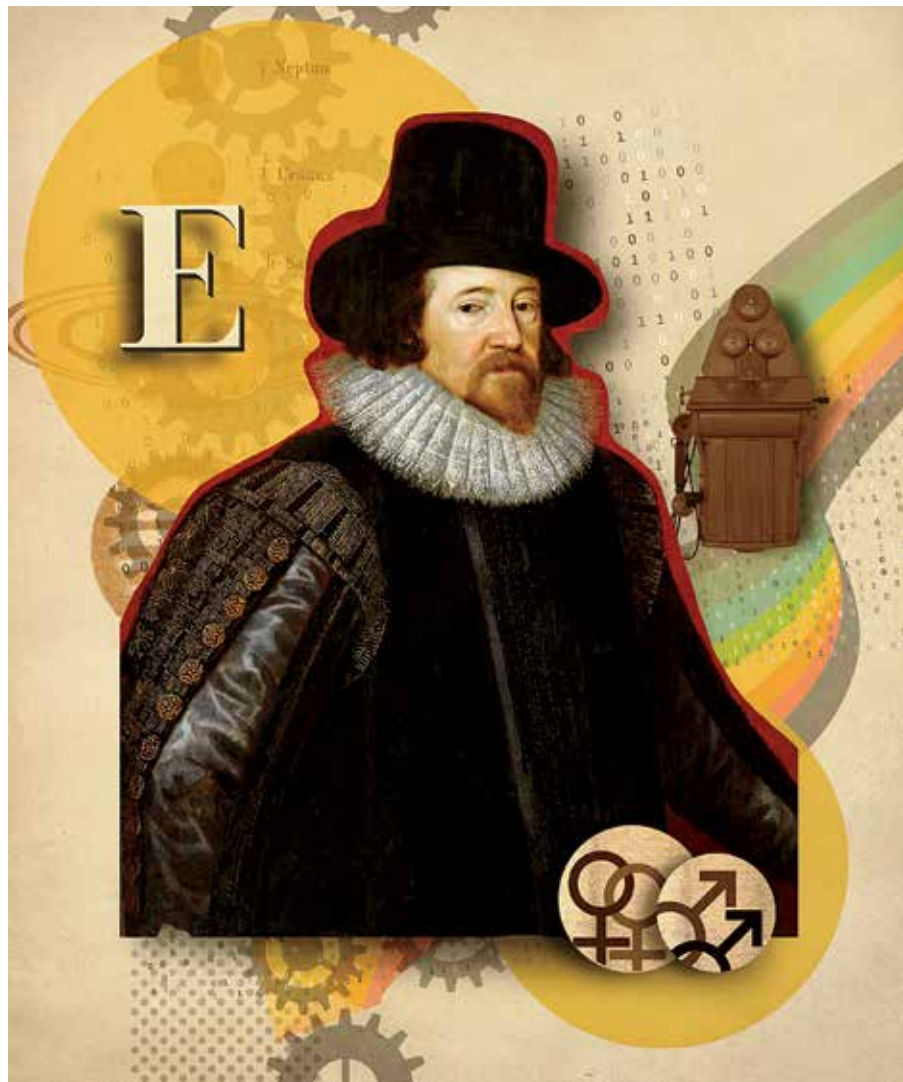
reflecting on World War I. But especially in the last few years, they are being asked again, and in new ways.

So Harvard’s Johnstone Family professor of psychology sat down to answer them, to defend the thesis that we have made progress, that our present is better than our past, and that our future—through our efforts—can surpass this present. As Pinker puts it: “The Enlightenment principle that we can apply reason and sympathy to enhance human flourishing may seem obvious, trite, old-fashioned. I wrote this book because I have come to realize it is not.”

Pinker’s volume moves systematically through various metrics that reflect progress, charting improvements across the last half-century-plus in areas from racism, sexism, homophobia, and bullying, to car accidents, oil spills, poverty, leisure, female empowerment, and so on. Unexpected among his charts of changes is one suggesting that atheism is increasing and religiosity decreasing in the United States. Charts are easy to niggle at: a chart of declining war deaths per annum beginning in 1945 might look very different had it started in 1600. But if one reads them fairly, the majority of the data and analyses Pinker provides are convincing, painting a repetitive and unrelenting portrait of improvement.

Repetitive and unrelenting are rarely positive qualities in a book, but here they genuinely are, because the case Pinker seeks to make is at once so basic and so difficult that a firehose of evidence may be needed—optimism is a hard sell in this historical moment. Pinker borrows David Deutsch’s characterization of optimism as “the theory that all failures—all evils—are due to insufficient knowledge....” Acknowledging nineteenth-century Romanticism as the first major counter-Enlightenment movement, Pinker credits the surge in such sentiments since the 1960s to several factors. He points to certain religious trends, because a focus on the afterlife can be in tension with the project of improving this world, or caring deeply about it. He points to nationalism and other movements that subordinate goods of the individual or even goods of all to the goods of a particular group. He points to what he calls neo-Romantic forms of environmentalism,

Steven Pinker, *Enlightenment Now: The Case for Reason, Science, Humanism, and Progress* (Penguin Random House, \$35)





not all environmentalisms but specifically those that subordinate the human species to the ecosystem and seek a green future, not through technological advances, but through renouncing current technology and ways of living. He also points to a broader fascination with narratives of decline, a declinism or apocalypticism that foresees the end of our era either through nuclear war or some other technological annihilation, or through the hollowing and degeneracy of modern society.

To these decades-old causes, one may add the fact that humankind's flaws have never been so visible as in the twenty-first century. We face enormous challenges on many fronts: health, poverty, equality, ecology, justice. These are not new problems, but our failures are more visible than ever through the digital media's ceaseless and accelerating torrent of grim news and fervent calls to action, which have pushed many to emotional exhaustion. Within the last two years, though not before, numerous students have commented in my classroom that sexism/racism/inequality "is worse today than it's ever been." The historian's an-

swer, "No, it used to be much worse, let me tell you about life before 1950..." can be disheartening, especially when students' rage and pain are justified and real. In such situations, Pinker's vast supply of clear, methodical data may be a better tool to reignite hope than my painful anecdotes of pre-modern life.

AFTER THE data deluge, the book concludes with three chapters defending the three major human tools Pinker advocates: reason, science, and humanism. In the section on reason, he names political prejudice and polarization as major new threats to the exercise of reason, including what he calls the politicized "liberal tilt" of academia. Arguing against the assertion that humans are fundamentally not rational, he points out, rightly, that Enlightenment thinkers claimed only that we are *capable* of exercising reason, not that we always do, and that exercising reason is useful and beneficial. Here (and in the chapters on equal rights and the future of progress) Pinker offers his most substantial examination of Trumpism and related issues, but here, too, he is positive,

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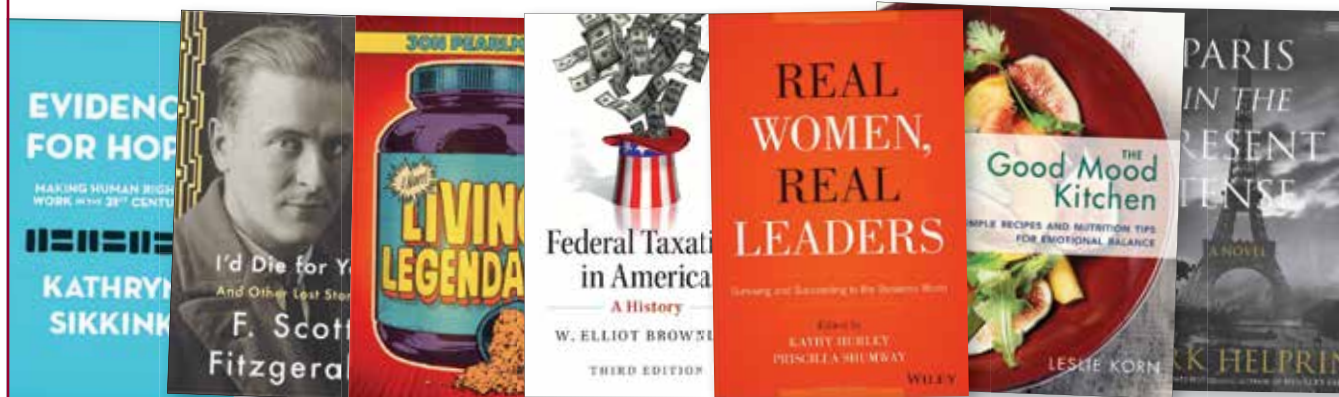


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urging advocates of rationality to resist the cynicism of calling this a post-truth world. Facts and logic have a cumulative persuasive force, he argues. Stories that expose false-

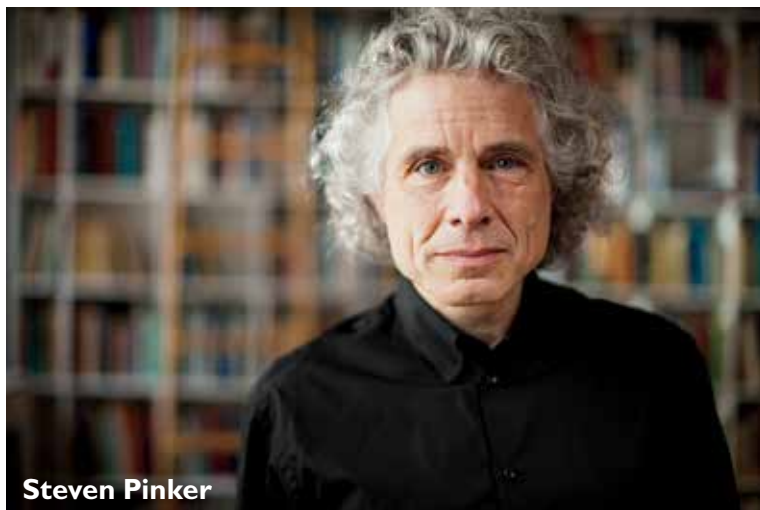
# Calling All Harvard Authors!



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Steven Pinker

STEPHANIE MITCHELL/HPAC

out God.” He associates this humanism with the earthly, world-improving values of the American Declaration of Independence, and with Enlightenment and post-Enlightenment ideas of human rights. Pinker reviews what he sees as humanism’s intellectual adversaries, such

self-defeating: as soon as they attempt to justify themselves, the very act of providing reasoned arguments for their beliefs admits that reasoned arguments are the strongest grounds for belief. Yet, as I reflect on this argument, I am reminded how science, during a critical moment in its history, was self-defeating in much the same way.

Progress in the modern sense, as an intentional and human-driven process, was first fully articulated by Francis Bacon early in the seventeenth century, when he suggested that a collaborative community of empirical inquiry would uncover useful truths that would radically transform human civilization and make each generation’s experience incrementally better than that of the generation before. This was not the easy sell it seems, since Bacon had no evidence that this unprecedented project could wield such power—and even if he had found evidence, one can’t use reasoned evidence to prove that reasoned evidence can prove things. New discoveries were frequent—the moons of Jupiter, the magnification of insects, the circulation of the blood—but practical benefits were slow in coming.

As Harvard professor of history James Hankins once put it, it was the nineteenth century that finally paid Bacon’s IOU: if his peers poured fortunes and lifetimes into science, they would receive in return wealth and technologies that would improve the human condition. As Bacon puts it in his *New Atlantis*, knowledge of the causes and secret motions of things would extend the bounds of human empire to the achievement of all things possible. Yet Bacon did succeed in awakening a groundswell of enthusiasm (and funding) for reason and science, through an argument that often surprises my students: he appealed to the personality

hoods have proven excellent clickbait, he observes, and are on the rise in number and popularity—and editors have spotted this trend.

Pinker’s celebration of science is no holds barred: he calls it an achievement surpassing the masterworks of art, music, and literature, a source of sublime beauty, health, wealth, and freedom. His survey of anti-science rhetoric focuses on movements that try to limit science to the material and technological realms, and regard with suspicion scientific attempts to inform ethics, values, or culture. He is particularly critical of arguments blaming science for social evils, stressing the need to distinguish between science itself and moments when science has been twisted to bad ends, be those social Darwinism or gender inequality. His attack on the value of bringing gender and social-justice lenses into science studies is problematic, but he correctly suggests that social-justice movements can benefit by approaching science as a potential ally rather than presuming it an enemy.

But science can easily be twisted to serve injustice or destruction. Pinker’s solution to this risk is humanism. It can prevent science from being an enemy of progress and happiness, he argues, by keeping science’s power to do *anything* from actually doing terrible things.

Humanism has many definitions, but Pinker’s is what we may call modern secular humanism, which he defines as “the goal of maximizing human flourishing—life, health, happiness, freedom, knowledge, love, richness of experience,” adding that it “doesn’t exclude the flourishing of animals” and that it “promotes a non-supernatural basis for meaning and ethics: good with-

as those who caricature it as cold utilitarianism, those who suggest that humans have an innate need for spiritual beliefs, and the classic accusation, ubiquitous in the Renaissance and Enlightenment, that there cannot be good or virtue without God. For some readers, it will be frustrating that 350 pages of useful and cheering data, the majority of which one could call faith-neutral, culminate in the declaration that only triumphant atheism can ensure that scientific progress will help instead of harm. But Pinker’s secular humanism is less militant than that of many contemporary atheist voices; he focuses on the benefits of caring about the earthly world, rather than on condemning religion. His conclusion, that progress simply requires us to value life over death, health over sickness, abundance over want, freedom over coercion, happiness over suffering, and knowledge over superstition, is one numerous theisms can and have embraced.

Pinker briefly reviews efforts to value other factors—love, passions, feeling—above reason, but declares such efforts

## Chapter & Verse

Correspondence on not-so-famous lost words

**Michael D. Robinson writes,** “Years ago, I read a quotation: “Every time a physician is called a provider and a patient is called a consumer, an angel dies.”

The Internet offers vague allusions to a novel and a columnist, but I couldn’t find a source that includes both parts of the quotation. I have vague memories of the

late Uwe Reinhardt, a healthcare economist, as the author, but my Internet search doesn’t support that. Please advise.”

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



of God, arguing that a good Maker would not send humans out into the wilderness without the means to achieve the desires implanted in us. Thus, because reason is God's unique gift to humankind, it must be capable of all we desire.

From time to time, particularly in the aftermath of the French Revolution, champions of secularized science have been embarrassed by this comment from Bacon—worrying what would happen if their atheist followers realized that science, at its inception, had no secular evidence to support its own faith in the power of evidence. One cannot help but wonder how Bacon's world would have responded to an

Reason, science,  
humanism, and  
progress have made  
our present better  
than our past.

avalanche of data similar to what Pinker offers. Bacon himself might weep for joy to see his project's future so affirmed. But with Pinker's entire book in hand, Bacon would also have felt the tension between two arguments running through it: the inclusive argument that reason, science, humanism, and progress have made our present better than our past, and can make our future better still; and the less inclusive argument, however eloquently and intelligently presented, that the humane and empathetic humanism capable of turning our powers to good and away from evil must be secular.

Pinker is no more successful than Bacon at justifying science and reason without a recursive appeal to science and reason. Yet for those already confident in the persuasive force of evidence, it would be hard to imagine a more encouraging defense than Pinker's of the reality and possibilities of progress. ▢

*Ada Palmer, Ph.D. '09, is an assistant professor of early modern European history at the University of Chicago and an award-winning science-fiction novelist. She is the coauthor, with James Hankins, of The Recovery of Ancient Philosophy in the Renaissance: A Brief Guide, and the author of Reading Lucretius in the Renaissance, published in 2014 by Harvard University Press.*



## WHY I JOINED THE HARVARD CLUB OF BOSTON

There are many different reasons to join the Harvard Club of Boston. Amy Norton is a graduate of the Divinity School at Harvard, and here's why she joined.

"I joined the Harvard Club of Boston as a graduate student to meet new people and network. While I was job-searching in Boston after graduation, I was on a very tight budget, yet I maintained my membership because the Club had become a place where I felt like I belonged. It was a place where I could just go to read, to have some food or a drink, and to see friends. It was a place where I had nothing to prove. I met people at the Club who would become my closest friends, and who helped sustain me through that challenging year. Now, I'm trying to give back by serving on the Member Engagement Committee, and co-chairing the Younger Member Committee. The Harvard Club has become my community."

**-Amy Norton '16**

For more information regarding membership, please call 617-450-4444 or visit [harvardclub.com](http://harvardclub.com).



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# Tuning In to Urban Noise

*Erica Walker aims to put “tools and data into the hands of people who can use them.”*

by NELL PORTER BROWN



indicated that noise, even at low frequencies, negatively affected heart-rate variability (the changes in the intervals between each beat, as distinct from heart rate, which is the average number of beats per minute). Higher variability, she explains, “typically means that the body has a strong ability to tolerate stress.” Lower variability is associated with health risks such as heart attacks, strokes, and diabetes.

Based on those data, Walker spent much of 2015 biking throughout Boston, measuring and logging urban sounds, especially their range of frequencies, at 400 sites. She then developed noise-exposure predictive models that

**P**IGEONS COO. Bells ring at St. Paul Church. A car honks. During a walk through the soundscape of Harvard Square, noise researcher and activist Erica Walker, S.D. '17, hears it all. Even footfalls on the brick sidewalk intrigue her: “Sometimes they’re wearing high heels and it’s ‘click, click, click,’” she says, “or those thick boot heels, ‘chunk, chunk.’” She stops short, homing in on a store’s thrumming HVAC system, then spies an MBTA subway grate—the source of another buzzing vibration. “Can you *imagine*,” she says. “The people who have to live by these generators that are humming louder than this, 24/7...”

After eight years of capturing urban sounds at hundreds of locations across Greater Boston, Walker is the first to admit she’s hyper-sensitive, even to low frequen-

cies: “I hear buses, I *feel* buses,” she says, pointing out their diesel engines idling in Harvard Square. She’ll do a little complaining, but mostly she’s busy mounting a battle against what she considers the aural onslaught that American city-dwellers contend with, at the risk of their physical and mental health. As a young scholar, Walker is actively contributing to a body of epidemiological work. But at the same time, she’s figuring out how to quickly *apply* her research: to measure and raise awareness of noise as a multi-faceted problem and offer ways to more effectively address its impact.

As a doctoral student, Walker initially played computer-generated atonal sounds at high and low frequencies for healthy males, to measure the effects on their cardiovascular and stress-response systems. Her results

she calls “promising tools” for future urban-noise assessments and epidemiologic studies. “We can now examine associations between sound and negative health outcomes beyond a sound’s loudness only, as has been typically done,” she adds.

Harvard was a time for “great exploration,” and Walker is especially grateful that her adviser, Harvard Chan School of Public Health professor of environmental epidemiology Francine Laden, S.D. '98, “gave me a large amount of time to figure out what was meaningful in my professional life.” Recalling a painful early experience in which her seminar presentation on air pollution “got ripped to shreds,” she says it taught her that, “I don’t want to do anything I am not passionate about,” given the amount of effort and scrutiny involved. In her spare time, she took photography classes; on road trips with



a friend, she mostly captured quiet landscapes: reservoirs, farmland, and lush green tracts in New Hampshire and Vermont.

For one of her favorite courses, “Survey Research Methods in Community Health,” Walker developed the Greater Boston Noise Survey to elucidate not only loudness levels and frequency composition, but also the qualitative aspects of urban noise: respondents’ perceptions of common environmental noise nuisances. By 2016, she had collected more than 1,200 survey responses, then combined that information with her Harvard research into the comprehensive Greater Boston Noise Report, accessible on her website, Noise and the City. She’s also developed the free NoiseScore app, with a \$15,000 grant from the Radcliffe Institute for Advanced Study’s Academic Ventures program, as a tool for citizen science. Users can record and document anything from tranquil urban oases to roaring hot spots, and upload their data to her live, evolving national soundscapes map. “I see myself as a problem-solver,” she says. “I’m putting tools and data into the hands of people who can use them.”

GROWING UP in Jackson, Mississippi, Walker lived near a highway, a park with popular basketball courts, and a rail line. She noticed when neighbors were hard of hearing or irritable, when they complained of not being able to sleep because the trains rolled by. But because she “grew up poor,” she says, “noise was just not a priority.” Walker studied math and economics at Simmons College, graduating in 2001, but then started a furniture-making and book-binding business, noting that she enjoys “anything constructive, where you can pull it apart and put it back together.” The quiet, time-intensive work was fulfilling but unremunerative, and in 2009 she turned to another interest, the dynamics and development of cities, enrolling for a master’s in economics and urban planning at Tufts.

That same year, while living in a Brookline apartment building, she encountered “the little children upstairs” who changed the course of her life. They were often awake and tearing about by 6 A.M. Their footsteps, dropped toys, and crying were not as loud as nearby traffic, but what really jangled her nerves was the unpredictability of these “unwanted sounds” that reverberated even through earplugs. “After about three months,” she recalls, “I noticed

a pretty significant decline in both my mental and physical health due to lack of sleep and a feeling of a loss of control over my life.” Pleas to the parents were met with shrugs and “They’re kids, you have to deal with it.”

Walker did. She began recording and logging not only the decibel levels and types of noises, but how she subjectively experienced the sounds, developing data, documents, and spread sheets. Then, in researching these issues online, she found that others were suffering “from road traffic, leaf blowers, airplanes, horns, HVAC equipment, restaurants, and barking dogs,” as well as noisy neighbors. “Suddenly, this became bigger than myself.”

She moved to a new apartment (where she still lives, underneath medical residents

who are rarely home) and switched her focus at Tufts to studying the impact of noise, specifically in the section of Somerville’s Ten Hills neighborhood that sits at the confluence of McGrath Highway and Interstate 93. “Major highways, in bad condition,” she says, “so you hear all this *ka-doink, ka-doink*, and roaring of cars and trucks going by. It’s horrible.”

This “noise work,” she says now, is a passion. “It allows me to balance who I am, essentially—both scientific and artistic,” to work with numbers and metrics—and communities and human problems, too. “I believe, on a spiritual level, that the situation with my neighbors happened to me for a reason. Before that encounter, noise was never on the radar.”

## A Special Notice Regarding Harvard University’s 367th Commencement Exercises

Thursday, May 24, 2018

[commencement.harvard.edu](http://commencement.harvard.edu)

**SINCE 1642**, with just nine graduating students, Harvard’s Commencement Exercises have brought together the community unlike any other tradition still observed in the University. Degree candidates with family and friends, faculty and administrators who supported them, and alumni from around the world are anticipated to participate in our 367th Commencement Exercises this spring. To accommodate the increasing number of people planning to attend, we ask that any interested readers carefully review the guidelines governing ticketing, regalia, security precautions, and other important details, which are available online at <https://commencement.harvard.edu/ticket-information>.

### Commencement Day Overview

**THE MORNING EXERCISES** begin when the academic procession is seated in Tercenary Theatre. Three student orators deliver addresses, and the dean of each School introduces the candidates for their respective degrees, which the president then confers. Toward the conclusion of the ceremony the graduating seniors are asked to rise, and their degrees are conferred on them as a group by the president. Honorary Degrees are then conferred before the Exercises are adjourned.

**DIPLOMA-GRANTING CEREMONIES AND LUNCHEONS:** Graduates and their guests return to their respective undergraduate Houses or graduate and professional Schools. Harvard and Radcliffe College alumni/ae who have celebrated their 50th Reunion are invited to join the Tree Spread luncheon, while all other alumni may pre-purchase tickets for boxed lunches at the Alumni Spread in Harvard Yard.

**THE AFTERNOON PROGRAM** features an address by Harvard President Drew Gilpin Faust and the Commencement speaker. Officially called the Annual Meeting of the Harvard Alumni Association, this program includes the Overseer and HAA director election results, presentations of the Harvard Medal, and remarks by the HAA president.

— *The Harvard Commencement Office and The Harvard Alumni Association*

WHY WOULD IT BE? Noise pollution in the United States, Walker says, is an under-reported, under-studied issue; it has not really been addressed as a national public-health problem since the 1970s. The Noise Control Act of 1972 established the Office of Noise Abatement and Control within the Environmental Protection Agency, and epidemiological studies were funded, expanding data and the academic field. But when the Reagan administration effectively shut down federal noise research (the abatement office was closed in 1982), regulation became a decentralized, local issue.

Walker says that noise-exposure studies in the '70s, and many more recent studies as well, generally measured noise and its impact on health using A-weighted decibels, which emphasize loudness levels in terms of the frequencies that the human ear is most explicitly sensitive to. On the decibel scale Walker cites, breathing is typically a 10, subway trains a 95, and live rock-music concerts around a 120, a pain threshold. Research has revealed that a decibel level of 70—a vacuum cleaner, or even a loud workplace—can be experienced as “annoying,” she explains; that level has also been linked to hypertension and ischemic heart disease, hearing impairment, and diminished cognitive performance.

**“It’s overwhelmingly the *littler* noises—that may not register high on decibel readers—that people are affected by and complain about.”**

Transport, construction sites, and industrial/HVAC/power-generating equipment typically produce the loudest sounds. Such data have led to government regulations and policies aimed at protecting human health. Now, Walker says, a growing number of both epidemiological and occupational research studies “suggest that in addition to a sound’s loudness, its frequency profile is also an important characteristic to consider.”

For example, a study focusing on raw decibels would not necessarily capture *infrasound* and other low frequencies that people sense in their bodies and that can trigger physiological responses such as “fight or flight.” Walker was surprised by the intensity, and often frustration, expressed in the responses to her Greater Boston Noise Survey: “I feel like it’s impacting my health”; “I feel like even if I complain about it, nothing will be done about it,” she recounts. “If you didn’t know they were talking about noise, you might think

they were describing some sort of assault.” On an individual, experiential level, she adds, “we do know these sounds are bothering us, because when we hear a neighbor’s bass beat in their car going by we get pissed off. But we also rationalize it because it’s an issue that’s not taken seriously. Maybe we don’t want to acknowledge it’s serious. But it is. Our bodies know that”: hearts start racing, stomachs clench, or people can’t focus on a task at hand.

She has found, through her recordings around Boston, her survey, and her Noise-Score app, that “it’s overwhelmingly the *littler* noises—that may not register high on decibel readers—that people are affected by and complain about.” Restaurant noises—from customers and music systems—“don’t show up in any epi-centered study,” she says, yet “living around a restaurant is a problem for a lot of people.” A barking dog may not violate a city’s noise ordinance, or appear in research studies. Yet little yapping creatures can “get under someone’s skin,” and louder

## HAA Honors Alumni Clubs and SIGs

THE HONORS, awarded at the Harvard Alumni Association’s winter meeting in February, celebrate both alumni and shared interest groups (SIGs) that have organized exceptional programs.

Established in 2015 to “create a strong, connected, collaborative community of Harvard University alumni who are practitioners, researchers, and leaders in the field of Education,” Harvard Alumni for Education (HAEd) has grown to include 1,200 members in chapters representing Boston, Washington, D.C., New York, and San Francisco, as well as Greater China, India, and Sub-Saharan Africa. HAEd has drawn on partnerships across the University and within the broader field of education to engage alumni across the globe and drive communications and programming, from a blog, quarterly newsletter, and a new podcast on startups to virtual events, happy hours, and networking gatherings.

Volunteers have successfully revitalized and expanded membership in the Harvard Club of India through initiatives that include revising club bylaws, upgrading technological communications, and enhancing programming. Events have ranged from Global Networking Night to gatherings with distinguished alumni. The club has also built trust and fostered engagement by making its election process more transparent. Moreover, to ensure University-wide outreach, the club’s executive commit-

tee has appointed liaisons to represent 10 schools at Harvard and eight cities throughout India.

A driving force behind the reinvigoration of the Harvard Club of Washington, D.C., club president T.K. Yang ’98, of Herndon, Virginia, has nurtured a collaborative and engaged board of directors, and recruited new board members. He has provided guidance regarding IT, policy, and operating procedures, spearheaded a members’ survey, and assisted with enrollment and troubleshooting—all of which has yielded a significant rise in club membership and in revenue. Club events include dinners, a public-service-award luncheon, events focused on community service and recent graduates, and behind-the-scenes tours featuring renowned speakers and foreign dignitaries.

Rebecca Dubowy Posten ’95, of Dallas, is a longtime leader of the Harvard Club of Dallas. A past president and treasurer, she now chairs the club’s board of directors and is in her second term as co-vice president of the programs committee. Posten and co-vice president Marlene Ingraham, A.L.B. ’90, have led activities for more than 550 members, including monthly luncheons with speakers, and programs for the Dallas “all-Ivy” community, such as an evening with Harvard professor of Indo-Muslim and Islamic religion and cultures Ali Asani. As HAA director for Clubs and SIGs in Texas, she has also helped strengthen the volunteer community and advised alumni on issues ranging from nonprofit filings to club launches.



barking can reverberate in someone's chest. A dog's erratic barking is akin to the disruptive pinging and buzzing of electronic devices, the mindless music broadcast in public spaces, or even overly loud talking on cell phones (which Walker sees as a rising negative trend). All of them can aggravate or erode concentration.

As part of her larger mission to educate people about noise issues, Walker began working in January with the Cambridge Public Health Department on a pilot project to map the city's soundscapes. That includes gathering community responses and site-specific information using the NoiseScore app, integrating archival and geographic information system (GIS) data, and developing soundscape walks, lectures, and case studies. She is also working with community groups that have approached her for help in addressing noise concerns in four Boston neighborhoods: the Seaport, Mission Hill, Grove Hall, and Fenway.

She's aware she's "battling an attitude. Noise is often viewed as an affluent problem," or the price humans pay to live in cities. But it's not, and it shouldn't be, she adds. Cities will never be quiet, but they could be *quieter*—or civic leaders could use her noise data to create more serene public spaces. She praises Boston's efforts along these lines: the Kevin W. Fitzgerald Park in Mission Hill, a short walk from Walker's former classes at the Harvard Chan School of Public Health (HSPH), is "incredibly peaceful," as are many green spaces in the South End. "Falling water, any natural sounds of water," can foster calmness. She finds solace when "I'm in an elevator and it closes and there's this pocket of quiet. I'm like, 'Can I just stay in here, please?'"

So far, all Walker's website and neighborhood work is unpaid, although she's not completely alone; a few volunteers are also dedicated to the Noise and the City project. She does have two postdoctoral positions, one as a research affiliate with MIT's Sensable City Lab and the other with the Center for Research on Environmental and Social Stressors in Housing Across the Life Course (CRESSH), at Boston University. That study is co-led by Francine Laden and BU professor of environmental health Jonathan Levy '93, S.D. '99. Walker's work includes applying the noise-exposure models developed through her doctoral work to determine if, and if so, how, sound levels and frequencies are linked to cognitive-function out-

## Overseer and HAA Director Candidates

THIS SPRING, alumni can vote for new Harvard Overseers and Harvard Alumni Association (HAA) elected directors. Ballots (mailed out by April 1) must be received at the indicated address by 5:00 P.M. Eastern Standard Time on May 15 to be counted. 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. Eligible voters may go to [www.harvard.edu/board-election](http://www.harvard.edu/board-election) for more information. (The deadline for all petitions was February 1.)

The HAA Nominating Committee has proposed the following candidates in 2018.

For Overseer (six-year term):

**Geraldine Acuña-Sunshine '92, M.P.P. '96**, Manila, Republic of the Philippines, and Boston. President, Sunshine Care Foundation for Neurological Care and Research.

**Philip Hart Cullom, M.B.A. '88**, Gaithersburg, Maryland. Vice Admiral (retired), U.S. Navy.

**Catherine A. Gellert '93**, New York City. Director, Windcrest Partners.

**Meredith L. "Max" Hodges '03, M.B.A. '10**, Boston. Executive director, Boston Ballet.

**Marilyn Holifield, J.D. '72**. Miami. Partner, Holland & Knight LLP.

**John C. Lechleiter, A.M. '80, Ph.D. '80**, Indianapolis. Retired president, CEO, and

chairman, Eli Lilly and Company.

**Diego A. Rodriguez, M.B.A. '01**, Palo Alto. Executive vice president, chief product and design officer, Intuit Inc.

**Yvette Roubideaux '85, M.D. '89, M.P.H. '97**, Washington, D.C. Director, Policy Research Center, National Congress of American Indians.

For elected director (three-year term):

**Eric R. Calderon, M.B.A. '13**, Houston. President and CEO, L-K Industries.

**Collette Creppell '82, M.Arch. '90**, Providence and New Orleans. University architect, Brown University.

**Sid Espinosa, M.P.P. '00**, Palo Alto. Director of philanthropy and civic engagement, Microsoft.

**Natosha Reid Rice '93, J.D. '97**, Atlanta. Associate general counsel, real estate and finance, Habitat for Humanity International; associate pastor, historic Ebenezer Baptist Church.

**Krishnan Namboodiri Subrahmanian '03**, Minneapolis. Attending pediatrician, Hennepin County Medical Center and the University of Minnesota; maternal child health specialist, Partners in Health (COPE Program).

**Rita Pang '96**, Hong Kong. Co-founder and counsel, Bridgeway Prime Shop Fund Management Ltd.

**Matthew Temple '86**, Los Angeles. Director, alumni career and professional development, Kellogg School of Management, Northwestern University.

**Bella T. Wong '82, Ed.M. '91**, Weston, Massachusetts. Superintendent/Principal, Lincoln-Sudbury Regional High School.

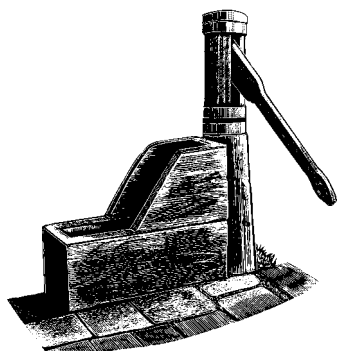
**Rashid Muhammed Yasin, S.B. '12**, Nashville. Ph.D. student, Vanderbilt University.

comes, a project called the Children's Health Watch at Boston Medical Center. She's also seeking ways to measure how sounds infiltrate Massachusetts homes, and will develop community-engagement programs and protocols that will likely include use of the NoiseScore app.

The app would prove useful even in Harvard Square. Toward the end of her stroll, Walker focuses on a construction vehicle in Radcliffe Yard that's backing up, emitting that piercing "beep-beep-beep" that feels like an attack on her eardrums. And

there's no need for it here, she points out: "They've blocked off everything, there are no people or other cars around." The workers, at least, likely have hearing protection thanks to Occupational Safety and Health Administration regulations. Government and industry officials "know on some level that this ain't good," she says. "But the rest of us aren't required to wear it." Sure, the impact on biological health likely depends on degree and proximity of exposure, "But, still," she continues, "the sound is affecting all of us." ▢

# Law of Large Letters



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

A CAPITAL CAMPAIGN often changes the look of a campus—especially Harvard's current one, with its pronounced emphasis on bricks and mortar (and glass and steel and...), from undergraduate House renewal to the Business School's Klarman Hall "convening center" (see page 18) and the (as-yet-unnamed) science and engineering complex across Western Avenue. New or renovated structures apart, the appearance of the place also changes as donors avail themselves of what development officers call "naming opportunities." Shown here, a few refulgent reminders



of this especially fruitful fundraising drive, writ large and meant to carry the memory of contemporary Harvard forward unto the many campaigns undoubtedly to come, "in the Age that is waiting before."



EACH SPRING, the University plunges into its Commencement rites: convincing proof that the place practices ritual at a very high level. Less often, it pulls out the stops to welcome a new leader. By the time you read this, the twenty-ninth Harvard president since 1636 may have been anointed, setting in motion the preparations for that other ritual, her or his installation. Commencement has a regular director, whose office is in the suitably venerable Wadsworth House, just across the hall from that of Harvard's Marshal: commandant for the May hoopla, and, typically, the organizer/officiant at other similar University extravaganzas freighted with symbolism and meaning. Whoever organizes the installation will likely consult the playbook for Drew Faust's, in 2007; the fat binder is practically a foot thick.



THE GAME features football, of course, but its real attraction for many occasional fans of the sport is the opportunity to reengage with friends or acquaintances near familiar, hallowed grounds—as often those surrounding the Stadium or the Bowl, where the tailgating is first class, as the turf within. So it came as something of a surprise in November when Harvard Athletics and Fenway Sports Management announced that the 135th edition

will take place at Fenway Park. Historic the home of the Boston Red Sox may be, but it is junior to the Stadium (1912 versus 1903), and in a dense urban setting not conducive to spreading out a picnic before (and during) the action on the gridiron. *The Harvard Crimson* editorially lamented "A Lapse in Tradition"—particularly for the fiftieth anniversary of the stunning 29-29 "Harvard Beats Yale" contest.

Happily, tradition will be served, no matter the venue. About the time that the site switcheroo became public, George Howe Colt '76 delivered a manuscript with the working title *The Game: Harvard, Yale, and 1968* to Scribner, about that game and the context of its times. The book will appear in October: the perfect thing for armchair fans, wherever they may find themselves this November 17.



FROM THE MEMORIAL MINUTE on Lee Rainwater, the late professor of sociology, presented to the Faculty of Arts and Sciences on December 5:

"His book *Poor Kids in a Rich Country*, co-authored with Timothy Smeeding...compare[d] the economic status of children in the United States to those in other rich countries. They found that children in the U.S. were far worse off and substantially more likely to be living in poverty...than their counterparts in other countries. Importantly, they showed that this was not primarily due to cross-national differences in demographics, such as the share of children in single-parent households or their ethnic or racial composition. Rather, it was a function of country-level public policies. In essence, the high levels of child poverty in the United States were the result of decisions made by American policymakers."

~PRIMUS VI



# The Benton Gospels

*Rare and beautiful, then and now*



*minuscule bouletée* is a rare script used in Greek manuscripts that's typified by large, round lettering, reduced strokes, and the presence of dots (*boules*, "balls" in French) on the ends of certain letters. The Benton codex is written in an even rarer subset of this script, *bouletée élancée*, featuring elongated strokes.

Nadezhda Kavrus-Hoffmann, a Byzantine manuscript specialist who has written a paleographic study of the codex to be published by Dumbarton Oaks, stresses the rarity of the calligraphy—found only in some three dozen surviving manuscripts—and the intrinsic beauty of the text. The letters, though issuing from a practiced scribal hand, are enlivened by their rounding and the occasional flourish of a *boule*.

The manuscript lacks three of its four illustrations (they were likely removed and sold individually), but its remaining headpiece exemplifies another atypical trend in manuscript production. Gospel headpieces ordinarily took the shape of an arch, but this one shows a ciborium—a permanent canopy above a church altar. "There was a short period of time when the ciborium was used, so it's extremely rare," Kavrus-Hoffmann explains. The use of *bouletée élancée* was similarly time-stamped, she says; the script appeared and disappeared within the tenth century. One factor in its demise: the ebullient strokes took up more parchment than more compact scripts.

Part of Minuscule 669's scholarly value lies in the opportunity it offers for comparative studies. Dumbarton Oaks holds five Byzantine illuminated manuscripts from the eleventh, twelfth, and thirteenth centuries; manuscripts from the tenth century cast trends in Byzantine illumination and calligraphy in stronger relief. In Kavrus-Hoffmann's words, "That's where it all started." —BAILEY TRELA

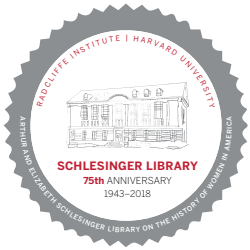
**M**ORE THAN a century and a half ago, the Reverend George Benton, lately an Episcopal missionary on the island of Crete, returned to the United States. In his baggage was a book that was old even then. In succeeding decades, the tome moved in and out of private collections until it was acquired last year by the Harvard-affiliated Dumbarton Oaks Research Library and Collection in Washington, D.C.

Minuscule 669, or, more colloquially, the "Benton Gospels," is an early tenth-century Greek codex featuring partial text of the four Gospels of the New Testament. One of the first Greek manuscripts to arrive in the United States, it's also likely the oldest Byzantine gospel book in the country, its weathered pages displaying a number of stylistic quirks, both in words and images.

Notice the script. First identified and named by French paleographer Jean Irigoin,

Photograph courtesy of Dumbarton Oaks Research Library and Collection.  
Manuscript acquired with assistance from the B.H. Breslauer Foundation

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**1**

Is the nation's foremost archive on the history of women, gender, and sexuality—the only Harvard library (of 70+) dedicated to these topics

**2**

Collects materials from across the political spectrum



**3**

Hired Harvard's first curator for race and ethnicity and recently acquired the papers of Angela Y. Davis

**5**

Houses the papers of Elizabeth Blackwell—the first woman to receive a US medical degree—who was once told she could attend medical school only if disguised as a man



**4**

Enriches our understanding of history by preserving often fragile primary source materials, including a diary written on toilet paper in a homeless shelter

**6**

Preserves e-mail and other digital materials and makes many high-demand collections freely available online

**7**

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