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# HARVARD

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# HARVARD

MAGAZINE

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On the cover: Imaging of human neurons implicates the gene *C4* (in green) in excess pruning of synapses, a process linked to schizophrenia. Image courtesy of Heather de Rivera/Steven McCarroll Laboratory



## Cambridge 02138

*Academic class gaps, "Fair Harvard," final clubs*

## LINGUISTIC SIGNS

I READ "A Language Out of Nothing" (by Marina Bolotnikova, May-June, page 50) with great interest. I was thrilled to see that ASL has returned to Harvard, and that the University embraces what has always been obvious to me: ASL is a language. That idea was once treated with hostility. While an undergraduate student at the University of Maryland in the late 1970s, I debated my linguistics professor over the validity of her pronouncement that hearing children of Deaf parents "suffer from retarded language development." As none of the CODAs (Children of Deaf Adults) I knew (including my sister, my three cousins, and numerous friends) suffered from "retarded language development," I pressed for the empirical evidence in support of her statement. She admitted she had none; she had deduced it must be so because, in her mind, ASL was not an actual language. To some, her statement could be viewed as one born of sloppy scholarship. To me, it reflected the same unfortunate and uninformed bias against and condescension toward Deaf people I had witnessed my entire life.

I have tried on occasion to explain the beauty of ASL to those who see only hands waving aimlessly in midair, but it is as difficult as explaining to my mother what Celine Dion sounds like. ASL conveys the sublime in ways the written and spoken word cannot. My mother could not read aloud to me, but her hands, her facial expressions and her body movements wove a moving tapestry that none of my less fortunate childhood friends (those with hearing parents) could understand. When her hands flung



wide, she was shouting with joy. When they pulled in tight, she was whispering furtively. I didn't hear what happened as the story unfolded, I lived through it.

The fact that ASL is entirely visual certainly distinguishes it from spoken languages, but does not make it any less a language. ASL's differences should be studied,

not denigrated. I'm glad Professor Davidson, with Harvard's support, has chosen to do so.

ANDY SHIPLEY, J.D. '84  
Vienna, Va.

I READ WITH interest about the emergence of Nicaraguan Sign Language, but I question one passage: "[R]esearchers from linguistics and other fields have come to doubt that a language instinct even exists, pointing out, for example, that it takes children years to successfully acquire a language, and they pick up the rules piecemeal, not systematically." That ran counter to what I wrote about [then Lindsley professor of psychology] Roger Brown for the magazine in the September-October 1990 issue.

Brown was the first to study in a systematic way how children learn language. He and a group of his graduate students recorded the speech of three children ranging in age from 18 to 27 months, one of them for 11 months, the other two for several years. The three children, from different social and economic backgrounds, exhibited a similarity in the way they acquired language that Brown likened to the biological development of an embryo. In a book titled *A First Language* he described and explained what the recordings revealed. I quote from the article:

He identified fourteen morphemes

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# The March for Science

**E**arly on a chilly Saturday morning in April, I gathered in Cambridge with a hearty band of Harvard scientists and supporters of science to help launch the March for Science, an international demonstration of support for scientific discovery and its extraordinary potential to better our lives. Colleagues in Longwood were assembling at the same time, and our students, faculty, and staff joined more than a million people at hundreds of sites around the world—some 70,000 of them on Boston Common—to celebrate research that provides a foundation for our health, our prosperity, and our possibilities. The event was, for me, a very powerful reminder of the scope and scale of work that happens every day across our campus, of efforts that drive economic growth, improve human lives, and protect the planet.

Our future depends upon the future of science, and evidence and fact-based reasoning must continue to provide the basis for policies that guide our society and our world. These ends are not achievable without a strong partnership between America's research universities and its federal government, an alliance that has propelled discovery, growth, and prosperity in our country since it was established just after the end of the Second World War. I have devoted a significant amount of time this past semester to making the case for continued federal commitment to support for basic and applied research with members of Congress from across the country, many of them alumni of the University. Members on both sides of the aisle in the House and the Senate have been excellent partners in advancing the argument that science teaching and research supplies us with the tools to build a better world, and their advocacy has helped secure important sources of funding through this fiscal year. But significant challenges lie in the budgetary battles ahead. And I have shared with them the importance of pursuing ideas not just to reach particular ends, but also to support the power of curiosity, to develop deeper understanding—and ultimately greater outcomes—than anyone could have imagined.

Research undertaken at Harvard and funded by the Defense Advanced Research Projects Agency, the National Institutes of Health, the National Science Foundation, the Department of Energy, and other government agencies illustrates the power of a longstanding and fruitful partnership. During the 2014 Ebola epidemic, for example, Harvard geneticists and their counterparts around the world quickly sequenced the genome of the virus, creating opportunities for greater understanding of its transmission and spread, as well as possible targets for diagnostics, vaccines, and therapies. Meanwhile, new battery technologies are making the storage of renewable energy cheaper and safer; engineered organs-on-chips are revolutionizing clinical studies and reducing reliance on animal testing; illuminated neurons are driving targeted therapies for specific subtypes of child-



hood epilepsy; and soft exosuits are increasing human endurance and strength—and making rehabilitation possible for children and adults limited by devastating movement disorders. Award-winning work to understand the DNA-damage response, a mechanism that informs a cell of DNA damage, triggers repairs, and prevents mutations, offers a promising path forward for cancer prevention, and implantable vaccines designed to reprogram immune cells may advance cancer treatment. Stem cell science, once tenuous, fraught, and uncertain, is on the edge of helping humanity conquer blood diseases with the creation of immune-matched blood cells—and may one day lead to interventions that will slow the effects of aging.

Science at Harvard and elsewhere encourages progress and invites innovation; research universities are essential to these purposes. If we care about the well-being of our society and about the future of life on the planet we share, we must continue to make the case forcefully and frequently for the meaning and value of our efforts. We must continue to create knowledge, convene experts, and champion partnerships across sectors to spur discovery. We must remind our friends and neighbors—our fellow citizens—of the extraordinary value and ubiquitous good of scientific research, and we must work together, now and always, to ensure that science marches on at Harvard, in Massachusetts, and across the country.

Sincerely,

that children learning English acquire essentially in the same order, ranging from the present progressive (-ing) and the prepositions in and on, which are the earliest to appear, through the past tense, the possessive, and the definite and indefinite articles (a, the), to auxiliary verbs, at first uncontracted (as in “that is”),

then contracted (as in “that’s”).

To Brown there was no doubt that we are born with a language instinct. How else to account for the remarkable similarity in the ways children acquire English? Brown’s research methods have been applied to children learning other languages, with similar results.

JOHN DE CUEVAS ’52  
Cambridge

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## 7 WARE STREET

# Trump to Research: Drop Dead

PRESIDENT Donald J. Trump’s initial spending plan for the fiscal year beginning October 1, “America First: A Budget Blueprint to Make America Great Again,” unveiled in mid March (and its May elaboration), proposed much more money for the Pentagon, and much less for diplomacy and environmental protection. In the succinct view of Office of Management and Budget director Mick Mulvaney, “You can’t drain the swamp and leave all the people in it.” But legislators noted that they would have something to do with determining the nation’s priorities; according to Senator Marco Rubio, the Florida Republican, “The administration’s budget isn’t going to be the budget.”

If “swamp” is used in a different sense—the miasma of the unknown, the source of diseases and other threats to human well-being, or your metaphor of choice—the budget would impose a disaster on universities and all who benefit from the research conducted there, likely hobbling long-term economic growth as well. One headline figure: Trump proposed chopping National Institutes of Health funds by \$5.8 billion, or 18 percent.

Health and Human Services secretary Tom Price subsequently testified before Congress that that sum could be saved without damaging research per se by trimming, or eliminating, overhead reimbursements to research institutions—so-called “indirect costs.” *Direct* grants pay for the scientists and staff members who do the experiments. *Indirect* reimbursements pay for the structure within which they work: institutional operating costs, buildings, libraries, and so on. Do away with the latter, and good luck conducting the former en plein air, so to speak.

The sums are not trivial. The rates of reimbursement, based on each institution’s costs, are negotiated every several years. In the fiscal year ended June 30, 2016, Har-

vard received \$435.8 million in direct support for federal sponsored research—and an additional \$161.5 million in indirect support: about 37 percent beyond the direct research costs, or 27 percent of *total* federal support. But “wet lab” research already operates at a loss; Harvard compensates with endowment funds and other revenues. Higher-education advocates point out that curbing or eliminating indirect-cost payments would decimate many public universities’ research: they simply could not cover the resulting losses—not a particularly populist outcome.

This upending of research is unlikely to survive congressional scrutiny. (Indeed, in the near term, Rubio was right: the congressional budget for funding through September 30 *increased* NIH’s fisc by \$2 billion.)

But the deliberate, or inadvertent, targeting of indirect costs as expendable frills ought to be doubly troubling. As a political message, it may resonate among audiences unschooled in how research is paid for, or unsympathetic to the researchers who conduct it.

Closer to home, places like Harvard, renowned for making consequential discoveries, but at high costs (some schools’ nominal indirect-cost rates approach 70 percent—but generate less in practice), need to speak up in support of research, of course, but also to be acutely aware of expenses. The Trump budget is another challenge, among several, to University revenues—a frequent topic for Harvard’s leaders. The new science and engineering complex arising in Allston (a billion-dollar project, in which Harvard hopes productive research will proceed, and be reimbursed, for decades) is described as more efficient and cost-effective than the four-building design originally envisioned. In a much more challenging environment for research funding, that kind of value engineering needs to become gospel across the institution. That is even more the case for disciplining administrative expenses—now, and perhaps for decades to come.

~JOHN S. ROSENBERG, *Editor*





For additional letters on class, final clubs, and more, visit [harvardmag.com](http://harvardmag.com).

THANK YOU, Marina N. Bolotnikova, for your article. How true that “The study of language has shown that there is no need to discriminate against people who use signed languages.”

How sad that this message is not widely understood. The default paradigm is that everyone hears, or should hear, and signed languages, although fascinating, are associated with “impaired” people.

Professor Davidson’s work, her hope that ASL can be “a more natural part of what’s going on,” promises to chip away at Audism, which spawns discrimination leading to police brutality, denial of communication access in health care, employment, education, or lack of access to the arts, cinema, and a plethora of other situations.

We inherit a longstanding practice of linguistic and cultural oppression, where the powerful seek to limit language and cultural expression other than their own, and force assimilation—in this case, auditory-vocal over visual-gestural. ASL signers form what can be thought of as a large country without borders. Distinct sign languages in other parts of the world mirror this position, though Harvard excludes them all equally.

Absurdly, ASL does not meet Harvard’s foreign-language requirement. This foreclosed my option about 15 years ago to pursue a degree as a staff member part time in the Extension School. My credits in ASL from Northeastern University could not be transferred, my study of linguistics stalled, as further years becoming proficient in another language was impractical.

Let us hope ASL will be soon be honored as a foreign language thanks in part to the initiative of Davidson and her department.

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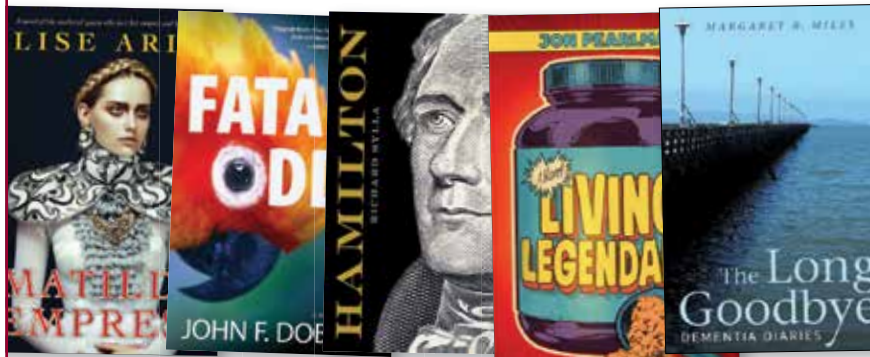
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courses and events were classes taught by visiting scholar Marie Jean Philip, a Deaf woman who was studying for her Ph.D. in cultural anthropology at Boston University while teaching ASL courses at Harvard in the early 1990s. She was an ambassador from the country of the Deaf, much loved and honored by Harvard students. Philip was a credit to the University; with her passion for teaching, academic ingenuity as a cultural anthropologist to promote understanding of culture as well as language, and her staunch defense of Deaf children's right to learn ASL.

RACHEL HERMAN  
General cook, Lowell House  
Billerica, Mass.

I COME FROM a family of genetic and cultural deafness that has worked for generations to advance the rights of the Deaf community. Marina Bolotnikova's article on linguistics and American Sign Language was simply superb. Her article and the research she describes will go a long way toward promoting justice for and recognition of the Deaf community. Linguists since William Sto-

koe have long discovered what some in the medical community have not yet accepted; that for the educational advancement of the Deaf community, Deaf children need to be exposed to American Sign Language and Deaf culture early in addition to any other approach.

JACOB BUCHHOLZ '09  
Pomona, Calif.

#### ACADEMIC CLASS GAPS

BEING ONE OF the college-educated (and then some) whites who voted for Donald Trump, "Harvard's Class Gap" (by Richard D. Kahlenberg, May-June, page 35) was all I expected it to be from the first paragraph to the last. The worldview of the author and the other self-proclaimed "elites" for whom he speaks has virtually no similarity to mine, which is shared by roughly half of those who voted in the election.

The condescending conviction of the "elites" in the vast superiority of the "elite" worldview is astonishing. The "class gap" is a misnomer. Those who voted for Trump are not a "class." We are not all white, we are not all blue collar, we are not all poor, and

we are not all without college educations. The "gap" is not a gap, but an unbridgeable gulf between the progeny of Burke and Adams, and the progeny of Rousseau and Marx. A better name for the "elites" is the utopians. All utopians begin on the left and eventually move to the totalitarian right. Inside every utopian is a religious zealot. Unfortunately, the utopians now control our entire educational system and can convert the vast majority of their students (80 percent at Harvard!) to their faith in a free lunch, without opposition from those who have experienced otherwise.

The utopians' iron hand in velvet glove revolution faced a conservative counter-revolution in 2016. The United States are no longer united, and we are no longer one country. We are a house divided against itself in which a civil war is unfolding. Not being utopian and zealous, and being opposed by all ivory tower dwellers, the conservatives are likely to lose, while the utopians seize total control of the house and enforce uniform obedience to their mythology. There goes the last best hope. Too bad. I'm glad I didn't entirely miss that won-

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derful historical anomaly of freedom and democracy.

STAN PROWSE, J.D. '73  
Carlsbad, Calif.

I APPLAUD Kahlenberg for chronicling "Harvard's Class Gap." Harvard needs to take affirmative action to fix this appalling lack of diversity. The gap extends beyond class and politics. I noted in the same issue ("Yesterday's News," page 22) that 40 percent of freshmen in 1952 were enrolled in ROTC. Today, less than one half of 1 percent of the graduating class serve in the military. The nation suffers when Harvard students eschew and left-leaning, elitist

#### SPEAK UP, PLEASE

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faculty members discourage careers in the armed forces. The result: Harvard's influence is largely absent in the development of military strategy and operations, a major instrument of national power that has life and death consequences.

LAWRENCE SPINETTA, M.P.P. '95  
Austin

I TAKE vehement exception to the article's calling America's white working class "Donald Trump's 'forgotten' Americans." They deserve far better than to be labeled his. They aren't his. To get elected, he conned millions of them. Now, with policies that favor the wealthiest Americans, he is screwing all of them. You could say that he has forgotten them...but, then, he had them in mind only very briefly and only for his benefit.

JAMES PARRY '64  
Darien, Conn.

THE MOST significant article I've read in any Harvard publication since graduation from the Law School. Everyone, especially the political elites as well as the rest of us know-it-alls, should take Kahlenberg's

points to heart or we will not be able to save our democracy. How easy it is to live smugly in a bubble these days.

FREDERICK STERNS, J.D. '54  
Plymouth, Mass.

I DO NOT AGREE with Kahlenberg's premise that universities such as Harvard should don hair shirts for failure to be interested in admitting more students from working-class families. The fundamental purpose of financial assistance for undergraduates is to include students who are qualified and well motivated but cannot afford to attend without aid. This includes students from working-class families. How many more students from working-class families must Harvard and other universities admit to prevent another Trump from becoming president?

ROBERT W. RAYNSFORD, Ph.D. '66  
Washington, D.C.

#### "FAIR HARVARD"

THE LAST THING that anyone could expect to find in Harvard Yard in 2017 is a living, breathing Puritan. And yet the very word, or idea, of (please turn to page 73)



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at Yale

## LETTERS

(continued from page 7)

such a being is apparently too much for today's Harvard to endure. The news [see page 68] that Harvard would be holding a contest to change the last line of "Fair Harvard," which includes the phrase, "Till the stock of the Puritans die," raises the school, its students, and its administration to a new level of caricature.

I have to wonder how, as a scholar of history, President Drew Faust can sanction with ease the editing of a song written over 180 years ago, and also the eradication of the school's founding sect from collective traditions. The line simply notes an optimism that the institution will last throughout history—indeed, as recipients of a Harvard education, every student and graduate is an intellectual heir of those original founders. Shall we disregard them now simply because they were white, or Christian, or "intolerant" by twenty-first century standards?

Furthermore, where do we stop? If we can edit music, why not literature? Why not art? Shall we paint over undesirable faces

represented in hallway portraiture across campus? Shall we tear out pages from books assigned for classroom reading, when the content doesn't square with modern norms?

Please, Harvard, get a grip, before you begin to do exactly what you've always professed to stand against.

WILLIAM E. PIKE '95  
Greencastle, Ind.

## FINAL CLUBS

YOUR MAY-JUNE John Harvard Journal prioritized the "Social Club Saga" as the lead article (page 18). I want to share a few thoughts about the larger issue that led to sanctions on students belonging to single-gender organization.

Times have changed since I graduated in 1972. The club I belonged to (The Fly) was no more a bastion of male privilege than the two sports teams I participated on, which in spite of coeducation today, still function as single-gender programs. The surveys whose responses referenced club membership as correlated with sexual assault, also pointed to athletic team participation being correlated. Judging by recent headlines across the

country, sports teams are getting at least as much negative exposure for bad behavior as fraternities. Yet there is no casual mention at Harvard of single-gender sports teams being "odious" [to quote the authors of the article] and no larger effort to eliminate them.

In 1972 the Fly Club was as diverse as the all-male university we attended. We had several black members and international boys from Mexico, France, England, Hong Kong, and Liberia. Through the club, I got to know law students and lawyers, business students and business people, future politicians, authors, journalists, capitalists, and others. I paid for my club dues with my summer earnings and had little left over to spend, but it was worth it. It was a unique class leveler.

Girls were allowed in the club only as visitors to a tiny guest room inside a separate entry, where they had to be signed in and out during restrictive hours. For social life with women, we were drawn back to Harvard's Houses, where there were no restrictions on overnight guests or parties that I recall.

In a recent conversation with under-

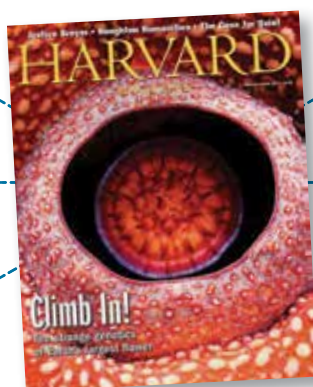
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graduates at the club, I came to understand that socializing in the Houses has been cramped—if not stifled—by virtue of the number of undergraduates now housed. This resulted in more liberal use of club facilities for co-ed functions. I have no doubt that social functions at the Fly Cub are now better controlled than many or all that students have attended at Harvard: guest lists are strictly enforced, bartenders, bouncers, and strict codes about alcohol consumption cut off anyone inebriated and provide chaperones to make sure those who've had too much to drink get home safely. Learning to drink alcohol responsibly is something that may not happen outside such a structured environment.

I expect that what brought the University's initial focus and wrath on to final clubs—sexual assault—is not now a problem as a result of the Fly Club. No surprise that, having targeted final clubs as a large contributor to the sexual assault problem, the dean and the president expanded their complaint with clubs to be one they thought that popular opinion would embrace: *exclusivity* and *male privilege*.

The issue of *male privilege* needs to be seen in the context of changing times. Fifty years ago, George W. Bush at Yale could amuse himself with pranks and dice and secret rituals, expecting that after four years of loafing and partying his family name and connections would get him where he wanted to be. Today, employment recruiters are screening potential candidates by their numbers: GPAs.

As for exclusivity, all elite institutions, their courses, and their extracurriculars are selective. Most of the country sees this as elitism, regardless of what Harvard says it is. Club members are selected on the basis of character and personality. One does not need wealth or privilege to become a member in a final club. Many clubs are able to help students who can't afford the full dues.

The fact that the authors of the article allowed a balanced article to include this phrase—"a gender-exclusive social club may be odious"—says much about the broad-scale characterization which the University has drifted into making about organizations which for over a century have served Harvard students and graduates, some of whom who have gone on to become celebrated U.S. presidents, senators, representatives, and governors, including a living governor of our state, Massachusetts

## Trying to make gender separation on campus go away completely is not going to help this generation meet the challenges of this decade.

[who later resigned]. And let's not forget former Harvard administrators....By virtue of membership alone, are these leaders and the many others to be lumped together with founding fathers who owned slaves?

Trying to make gender separation on campus go away completely is not going to help educate this generation to meet the challenges of this decade, let alone this century. I believe that males need to come to understand the unearned privileges of "maleness" in our culture. I also believe women need to understand the important role their gender plays and has played in our culture. But I don't believe this kind of understanding is inhibited by virtue of choosing to spend some time in the company of others of their gender. It might even be helped. There will be problems, and attitudes will need to be adjusted. Sanctions are not the way to accomplish this.

EDWARD R. DEVEREUX '72, Ed.M. '78  
Needham, Mass.

THE PUSH by the administration to penalize students who join final clubs is despicable. As a Jew who graduated from a public high school, I could not have joined a final club even if I had wanted to. I did have close friends who found such membership a valuable part of their undergraduate experience. To deny students that possibility is typical left-liberal tyranny. Remember the principle: I can disagree with what those students want to do while defending vigorously their opportunity—indeed, their right—to do so.

JOHN P. BLASS '58, M.D., Ph.D.  
New York City

AS AN ALUMNUS of a final club, I appreciate the latest article and wish to comment on the position of Professor David Haig. Not incidentally, of my most lasting friendships from Harvard, many are club alumni.

The whole idea of a loyalty oath of any kind being mandated by the administration is a travesty. Had I known of such a thing when I was 18 and applying for admission, it would likely have sent me to Dartmouth (heaven forbid) or Berkeley. This is not Nazi Germany.

America has freedom of expression I be-

lieve; it is impossible (and unnecessary) to force anyone into practicing politically correct gender balance.

I applaud Haig's objections and hope he and his colleagues can kill this cancer before it spreads.

BERTRAM G. WATERS III '60  
Brookline, Mass.

I WAS MOVED to respond by the independent reporting during the past year on the USGSO [unrecognized single-gender social organization] social-club saga. As a member of AD Club and a participant in University organized sports, lacrosse and hockey, I am dismayed at the way the University/College administration has handled this.

I read with interest and admiration the piece on "Exclusivity from the Inside" [The Undergraduate, May-June, page 27] by Lily Scherlis which addresses this broad topic, but leaves the question open for debate (contrary to the College's actions).

The very notion of an oath to be administered to undergraduates as a requirement to participate in University organizations horrifies me. Did we not learn from the McCarthy era?

JOE PRAHL '64, S.M. '68, Ph.D. '68  
Cleveland Heights, Ohio

### INSIDE THE ADVOCATE

I HAVEN'T seen anything as deliciously chilling as Lily Scherlis's vivid report on life inside the *Harvard Advocate's* "crumbling white clapboard home on South Street" (The Undergraduate, "Exclusivity, from the Inside," May-June, page 27) since I read Kenneth Grahame's account of how the stoats and weasels behaved after occupying Toad Hall.

PAUL ALKON '57  
Los Angeles

C'MON HARVARD, lighten up! So Harvard has clubs for men only! Horrors! The dean is leaning over backwards so far his feet are off the ground. How about a little *laissez-faire*? You remind me more of our early, bossy Puritan forefathers than twenty-first-century liberals

(or is “liberal” a bad word now?). Down with deanly meddling and purity oaths.

To top this off, *The Undergraduate*, by Lily Scherlis, writes with guilty feelings three pages about the clubbiness of *The Advocate* and scarcely mentions publishing a literary magazine. One would like to think that literary talent would be their aim. A non-Harvard person would be left wondering what function *The Advocate* served. I suspect than an undergraduate who had serious literary ambition would ignore *The Advocate* altogether. Time will tell.

Wanna bet?

SHANE RIORDEN '46  
Newtown, Pa.

#### FAN MAIL

THE MAY-JUNE 2017 issue was so outstanding...The thorough coverage, fine range of all important and interesting topics, writing and editing...really top flight. Will file for reference.

DIANE B. WUNNICKE '62  
Denver

I JUST WANTED to say that your one-page brief lives section has been my favorite in

the magazine for 40 years. I never skip it. Sometimes it's the only thing in an issue I read. I think it could be a pretty interesting book that assembled them all together under one cover.

DAN FLATH, PH.D. '77  
St. Paul, Minn.

#### ERRATA AND AMPLIFICATIONS

**Curatorial correction:** The May-June Treasure (“Anthropology Anew,” page 80) misspelled the name of Peabody Museum curator Diana Loren; we apologize for the error.

**Author's alterations:** Daniel Ziblatt, whose book was reviewed (“Making Liberal Democracies,” May-June, page 64), wrote to advise that the title changed in production; the correct title is *Conservative Parties and the Birth of Democracy*.

**Theatrical credits:** Conn Nugent '68 wrote to point out that the profile of James Bundy '81 (“Dual Dean,” May-June, published on page 68, as it happened) failed to identify John Weidman—whom Nugent identified as “collaborator with [Stephen] Sondheim on *Pacific Overtures*, with Susan Stroman on *Contact*; Tonys, Emmys, commendations gal-

lore”—as a fellow member of the College class of 1968. Weidman was profiled himself in “Storytelling with Sondheim” (January-February 2011, page 15).

**Designer's data:** In case any readers were confused, Justin Lee (profiled in “How Buildings Move People,” May-June, page 60) is an architect in practice in Somerville, Massachusetts, who designs exhibitions for the Harvard Art Museums. He is not a member of the museums' staff.

**Date of death:** Elahieh Kheirandish, Ph.D. '91, noted that Alhazen's date of death falls post c. 1040-1041, rather than the 1039-1040 given in the catalog for the Houghton Library exhibition covered in “An ‘Enchanted Palace,’” March-April, at page 40.

**At sea:** Jonathan Kutner, M.B.A. '59, of Dallas, which lies a goodly distance southwest of Cambridge, writes to note that Brevia (May-June, page 25) rendered Yale afloat (“stirrings to the southeast”); recent fact-checking conducted on foot confirms that New Haven remains terrestrial—and even if climate change raises the sea level a lot, it will still remain southwesterly of Harvard.

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# Right Now

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## The Rise of Vegan Culture

**D**ISTANT are the days of *Annie Hall*, when Woody Allen resigned himself to a plate of alfalfa sprouts and mashed yeast. Over the years, vegan eating has gone from tasteless to trendy to making inroads into the mainstream. One sign of the times: in 2016, Tyson Foods, the largest meat processor in the United States, bought a 5 percent stake

in the plant-based protein producer Beyond Meat. (The company's best-known product, the Beyond Burger, is pinkened with beet extracts and reportedly sizzles when grilled.) No longer fettered by associations with hippie kooks or radical politics, veganism has ascended to the astral plane of aspirational living. These days it keeps mixed, and more glamorous, company: famous bod-

ies belonging to the likes of Tom Brady and Beyoncé have been fueled by vegan diets.

Sociology graduate student Nina Gheihman is researching social aspects of veganism's spread. Veganism was at first closely bound to the ideology of the animal-rights movement, she explains, which initially aimed at a range of targets, like wearing fur and testing products on animals. Once activists shifted focus to farm conditions and food, veganism took on the features of what scholars call a "lifestyle movement." Over time, it's become more closely associated with general environmental concerns and a "healthism" mentality, bound up with notions of perfecting the body. Trust-

worthy numbers on how many people identify as vegan are hard to come by, says Gheihman, but a growing number practice veganism in some way: incorporating meat and dairy substitutes in their meals, or restricting their diets at certain times of day or for a period of weeks.

Social scientists have studied veganism as it relates to animal-rights activism, but there's been less research into the current lifestyle movement's mechanisms and structure. Gheihman is especially interested in analyzing leading figures whom she's provisionally termed "lifestyle advocates," arguing that they have changed the nature of lifestyle activism. They usually come from fields not typically associated with activism, she says, especially entrepreneurship—and the "cultural work"



they do isn't strictly defined by their official occupations. This work has expanded veganism beyond its ideological core, enabling a greater variety of people to participate even if they don't conform all aspects of their lives to all its tenets.

Gheihman sorts these players into three categories. Some lifestyle advocates create opportunities for consumption—for example, by starting a vegan meal-kit subscription service, opening a restaurant, or stocking plant proteins in their grocery stores. Another group works in what she calls “knowledge production,” creating the educational resources—films, books, and blog posts—that people circulate to share culinary tips and advice, or to persuade others to change diets. Third, and most abstract, is the kind of advocacy involved in what she calls “meaning production” or “interpretive work.” These figures change the cultural associations of veganism: “the symbolic essence of what veganism means,” as Gheihman puts it. Brady is a striking case: by lending his name to a line of meal-kits from vegan start-up Purple Carrot, he links veganism with the macho physicality of pro football. (“TB12 Performance Meals”

claim to help “athletes and active individuals stay at their peak” and “maximize your performance on the playing field” for \$78 a week.)

Gheihman plans to conduct field research and interviews to examine the evolution of veganism in two other national contexts. The first is France, “the obvious place to study a food movement, because it is so central to the notions we have around what makes good food, or proper food.” The country’s *cuisine* might seem inimical to cashew cheese, or chickpea runoff (called “aquafaba”) as an egg-white substitute, but the hierarchical structure of its food *culture* could pave the way for dramatic change. In recent years, haute cuisine chefs, catering to a high-end international clientele, have had to experiment with vegan menus and pastry-making. Their trickle-down influence has been amplified by a network of vegan food blogs and cookbook writers—even as other institutions resist the spread of this lifestyle. The French ministry of health, Gheihman points out, warns that following a *régime végétalien* will result in nutritional deficiencies and long-term health risks, and the government’s nutritional standards for school cafeterias

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mandate a dairy product with every meal.

The second case is Israel, where by some estimates, nearly 5 percent of the population is vegan; Tel Aviv has earned a reputation as one of the vegan capitals of the world. The Is-

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raeli Defense Force even provides animal-free menus in mess halls, and leather-free boots and helmets to vegan soldiers. But beyond the numbers, Israel provides an interesting contrasting example, Gheihman explains, in part because veganism there remains firmly rooted in animal-rights concerns, and is practiced across the political and the religious spectrum. She is also interested in how the vegan

lifestyle has evolved within Israel's cultural context, undergirded by national symbolism surrounding land and water usage, and informed by the country's farming traditions and Mediterranean diet.

Gheihman's own vegan lifestyle, meanwhile, reaches well beyond the radius of her individual plate. She's involved with the Council for Sustainability, the Harvard

Vegan Society, the Ivy League Vegan Conference, and the Boston Plant-Based Millennials, which hosts monthly potlucks. "There's one this Sunday, actually," she adds, not quite casually.

—SOPHIA NGUYEN

NINA GHEIHMAN WEBSITE:

<https://scholar.harvard.edu/ninagheihman>

#### THE ON-CALL CALAMITY

## How U.S. Companies Stole American Jobs

**T**HIRTY OR 40 years ago, companies like General Motors and Chase Manhattan Bank hired their own janitors and clerical staff, not just top executives and engineers. Today, low-skilled jobs are often outsourced, with effects that are rippling across the American workforce.

Throughout the 2016 election cycle, immigrants and globalization proved politically popular scapegoats for the disappearance of American jobs. But according to Allison

professor of economics Lawrence F. Katz, erecting physical walls or championing protectionist legislation won't staunch the losses. The truly responsible parties, he says, are American companies that subcontract jobs in areas such as security, custodial services, and dining. And complicit in this mounting problem of eroding job opportunities are American workers themselves, who are increasingly moving toward "alternative work arrangements" as temps and freelancers.

Although traditional labor statistics

suggest that self-employment and multiple-job holding are in decline, the increase in tax filings indicating sole proprietorship and multiple sources of income during the past few years led Katz to doubt this. He and Alan B. Kruger, Bendheim professor of economics and public affairs at Princeton, teamed up to conduct their own research, examining data from February 2005 to late 2015. They documented a 4.9 percent increase in workers engaged

in alternative work arrangements: comprising not only those who are either on-call or placed through a temporary help agency, but also contract workers and freelancers. More than one in five of those individuals worked in health services or education; only 2.6 percent found manufacturing jobs that had been contracted out.

Katz believes that making these "alternative" jobs more meaningful and rewarding—both in compensation and career development—is the key to building a robust workforce today. "We're just not going to bring back 1950s production jobs and manufacturing," he says. "And even if we did, no one wants to buy black-and-white TVs or drive Studebakers, which is essentially what we'd have to be doing to produce jobs like that."

The "alternative work arrangement" spectrum encompasses very different experiences for the workers themselves. Freelancers are theoretically able to choose their own hours, set their own rates, and accept work that challenges or intrigues them. But for on-call or temporary workers, the situation is far less desirable: "Theirs is a much more precarious situation where they don't get the same benefits," says Katz. "And the nontraditional schedules of on-call workers cause [them] a lot of dissatisfaction." Somewhat surprising to those unfamiliar with the labor market, the alternative workforce does *not* consist predominantly of young people with full-time jobs who want to make a few extra dollars on the side. Katz finds that in reality, the niche provides ample opportunities for those of retirement age. The one group with rising labor-force participation, he says, are those over 55, "and it doesn't seem to be that...they're desperate for work.... This is a way to combine activities like caring for grandchildren, but still doing work and staying involved."

Involuntary displacement—being fired or laid off—is another key reason for people to turn to alternative work engagements, of course. Katz has found that workers are



roughly three times as likely to transition into such arrangements after a job loss, and that 76 percent to 80 percent of these involuntary temp workers desire permanent jobs. In contrast, 80 percent of those Americans who find themselves in the alternative workforce as freelancers and independent contractors value the flexibility and agency they gain by doing so.

Yet challenges abound for the 16 percent of the U.S. workforce engaged in alternative work arrangements. “The way our labor laws are written,” Katz explains, “a lot of issues... arise from the use of freelancers and contractors.” He cites Uber as a popular example of a company that has resisted calling drivers “employees,” because doing so would give them collective-bargaining rights; instead, all Uber drivers are independent contractors. “There are cases in which Uber *and* drivers

would both be better off if they could pool for some kind of insurance,” he points out, “but the current legal environment means it makes no sense for Uber to want to do that.” To rectify the situation, Katz envisions the government supporting a portable-benefits system that would allow workers to pay into a fund for necessities like health insurance or retirement benefits, regardless of how an employer classified them.

His recent research has left Katz somewhat skeptical about the potential to reduce inequality in the United States. Employers are placing an ever higher premium on education, he says, and those with college degrees are almost certain to earn more, enjoy more job security, and have steadier access to benefits than someone with a high-school diploma, regardless of location. As one palliative measure, he calls for

a more generous earned-income tax credit to expand the safety net for Americans who currently reap fewer of its benefits, such as young people without dependent children or older workers whose children have left home. “We’re trying to test whether [making] work pay will help make work for more people,” he says, referring to a related survey he is currently conducting among low-income Americans in New York City and Atlanta. But expanding the earned-income tax credit alone is insufficient to even the playing field for all workers. The real challenge, Katz says, lies in finding ways to make alternative work engagements higher paid and more meaningful. ~OSET BABÜR

LAWRENCE F. KATZ WEBSITE:

<https://scholar.harvard.edu/lkatz/home>



**Faced with many candidates from the same party, as in the 2016 Republican primary, voters tend to choose celebrities.**

or not is heavily influenced by the electoral system.

The general assumption among political scientists, he stated, has been that name recognition matters only in “low information elections,” in which voters know or care little to nothing about candidates’

policy platforms. The idea is that if voters are concerned about candidates’ stands on the issues, or their incumbency or ideology, they won’t cast their vote based on “a simple cue like mere recognition. But we know from extensive studies in psychology and decision theory,” Reeves said, that people don’t always use the most relevant information to make decisions. In certain circumstances, they gravitate toward the *least* intellectually demanding approach.

Because individuals experience a kind of cognitive overload when faced with many choices that are hard to tell apart, Reeves hypothesized that when many candidates from the same party are running against each other, mere recognition would be more likely to affect the outcome of elections. Faced with a plethora of indistinguishable choices, many voters may abstain; those who

## EIGHT IS ENOUGH

# Star Power in Politics

**W**HY DO PEOPLE vote for celebrities? When surveyed, voters say that they prefer elected representatives who are *not* famous for reasons unrelated to politics. Yet actors, sports figures, TV commentators, and authors, for example, frequently win elections. Because nothing is more fundamental to democracy than casting a vote, the question of how voters choose among candidates—and the extent to which name recognition influences that choice—is both important and poorly understood, says Justin Reeves, a postdoctoral

fellow in the program on U.S.–Japan relations at the Weatherhead Center for International Affairs (WCFA).

Candidates often “dedicate considerable resources to getting their names out in public using flyers, yard signs, and stickers”—outreach that is “often totally devoid of policy content,” said Reeves, who has written about electoral reform in advanced democracies, and is currently studying the causes and consequences of celebrity engagement in politics. In a lecture this spring, he argued that even such simple name recognition can, in fact, boost support for a candidate—but whether it does



do vote may be influenced by name recognition or even irrelevant details such as ballot order. If his theory is true, one reason to care about it, he said, is that such circumstances occur frequently in U.S. primaries (the 2016 Republican presidential slate, for example), and are even more common in countries such as Japan, Finland, Brazil, and Greece, where electoral rules can lead to elections with slates of 50 to 200 candidates.

Using data from Japan spanning from 1962 to 2013, Reeves found that when celebrities ran for seats in the upper house in national legislative elections (which have high levels of intraparty competition), they won *more than half* the time. But in elections for the same office run at the local (prefectural) level, which are held under different electoral rules involving fewer candidates and greater competition between parties, celebrities won less than a third of the time. When surveyed, Japanese voters overwhelmingly reject celebrities in the abstract, so the data, Reeves said, suggest “a disconnect between what voters say they want and what they end up doing in the voting booth.” Electoral rules that lead to large numbers of candidates

## “Even a modest increase in cognitive demand can influence the way people make ballot decisions.”

from a single party, Reeves argued, create the conditions that favor the famous—thus “leading to outcomes that are at odds with voters’ own stated preferences.”

To see if his findings would hold up in other democracies with long ballots of like-minded candidates, Reeves analyzed election data from Finland from 2003 to 2011. There, too, he found that celebrity candidates enjoyed a significant advantage in a crowded field. He then tried an experiment, asking Japanese survey subjects to participate in a hypothetical election in which all the candidates came from the party they most frequently supported. One group received a ballot with just three candidates, including one celebrity. The second group received a ballot with nine names, including one celebrity. For each candidate, Reeves supplied a photograph and educational and occupational background information. In his two corresponding control groups, he replaced the celebrity with a different name and face,

but identical background information.

Celebrity status, he found, did not influence the results on the short ballots. But on the long ballots, celebrities not only did better than all their opponents, they received triple the support of their control-group counterparts with identical backgrounds. And among the voters, Reeves found no differences by gender, age, and levels of education, income, and political engagement in people’s willingness to support celebrity candidates. “This suggests,” he said, “that even a modest increase in cognitive demand can influence the way many people—not just those who are less politically sophisticated—make ballot decisions.” And it suggests that, in democracies around the world, electoral reforms that allow voters to choose among smaller numbers of candidates might lead to more thoughtful outcomes.

—JONATHAN SHAW

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# Extracurriculars

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From left: Frank Stella's *Star of Persia II* (1967), at the Addison Gallery of American Art; from *"(It's) All About the Atmosphere Invitational Exhibition,"* Harvard Ceramics Program; a Japanese No theater costume (1800-1850), at RISD

## Ceramics Program

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

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## MUSIC

### Harvard Summer School Chorus

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

The ensemble performs Mozart's *Requiem*. Sanders Theatre. (July 28)

## FILM

### Harvard Film Archive

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

In response to uncertain political times, **Summer Cinema of Resistance** aims to spark discussion with guest speakers and screenings that include Luis Valdez's *Zoot Suit*, Jean Renoir's *Life Is Ours*, and Spike Lee's *Do the Right Thing*. (Through August 6)

**Saturday Matinee** offers a wonderful set of family-friendly films, like Hayao Miyazaki's *Howl's Moving Castle*, the environmental tragicomedy *WALL-E*, and *The Little Fugitive*—the classic 1953 American tale of a seven-year-old Brooklyn boy who reacts to a prank played by his brother by fleeing to Coney Island. (Through August 19)

## NATURE AND SCIENCE

### Tower Hill Botanic Garden

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

Live music and tattoo demonstrations, food trucks, artisans, drawing activities, and garden tours abound at the inaugural **Botanical Tattoo Weekend**. (July 8-9)

### Arnold Arboretum

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

Weekend walking tours with, or without, themes, like **From Seed to Tree** (August 5), along with family-focused events, such as **Let's Get Buggy! Exploration of Insect Pollinators**. (July 8).

## EXHIBITIONS & EVENTS

### Cooper Gallery of African and African American Art

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

Anchored by photographer Dawoud Bey's series "Harlem, USA" (1975-1979) and "Harlem, Redux" (2015-2016), **Harlem: Found Ways** also includes mixed media and installation art that explore one of New York City's most dynamic and historically influential neighborhoods. (Through July 15)

### Harvard Museum of Natural History

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

**World in a Drop: Photographic Explorations of Microbial Life** features granular and instructive images by photographer, writer, and biologist Scott Chimileski, a postdoctoral fellow at Harvard Medical School. (Opens August 26)

### Harvard Art Museums

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

**The Philosophy Chamber: Art and Science in the Teaching Cabinet, 1766-1820**. Artifacts, artworks, and specimens that have played a crucial role in research and teaching at Harvard, and beyond. (See "The Lost Museum," May-June 2016, page 42.)

### Addison Gallery of American Art

[www.andover.edu](http://www.andover.edu)

**Frank Stella Prints: From the Collections of Jordan D. Schnitzer and His Family Foundation**. The retrospective offers more than a hundred works by the meticulous abstract artist. (Through July 30)

### RISD Museum

[www.risd-museum.org](http://www.risd-museum.org)

**Designing Traditions Biennial V: Student Explorations in the Asian Textile Collection** reflects both new pieces by emerging artists and traditional woven, knitted, printed, and other handmade objects. (Opens August 11)

### New Britain Museum of American Art

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

Cubism and abstract expressionism collide with "sun-drenched, laid back, fetishistic Southern California" car, surfer, and drug cultures in the alluring exhibit **California Dreaming: Ed Moses, Billy Al Bengston, & Ed Ruscha**. (June 23-October 15)

### Peabody Essex Museum

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

Nearly 200 works, from paintings and models to furniture and textiles, explore **Ocean Liners: Glamour, Speed, Style**. Co-curated with London's Victoria and Albert Museum. (Through October 9)

Events listings are also accessible at [www.harvardmagazine.com](http://www.harvardmagazine.com).

## STAFF PICK: Capturing New England

From skyscrapers to stormy seas, "New England on Paper," at the Boston Athenaeum, offers 56 contemporary works. They reflect "responses to the region's built, natural, and cultural environment," says Catharina Slautterback, curator of the library's 100,000 prints and photographs. Using the Japanese *hanga* technique, New Hampshire wood-block artist Matt Brown '81 created *Moon Over Mt. Desert Island* (2010, at right). Three impressions of the image hang as a triptych because Slautterback loves how, in "relating to one another, they show the passage of time." All of the works were bought with help from a print fund for regional artists that honors Francis Hovey

Boston Athenaeum  
[www.bostonathenaeum.org](http://www.bostonathenaeum.org)  
Through September 3

Howe '52, Ed.M. '73. (The art collector and Athenaeum member was also an early-childhood educator instrumental in

forming Harvard's first daycare centers.) Slautterback clearly seeks a diversity of styles. Eric Goldberg's poignant etching *Deep in the Valley* (2006), pairs expansive Connecticut River valley farmlands with an intimate view of a woman reading a letter. Realist painter Kate Sullivan used pastel and watercolor in *End of the Line, Cleveland Circle* (2012, at left). "It all results in a loud cheerfulness," the artist wrote in the wall label, "and a distinctive sense of place." ~N.P.B.



COURTESY OF THE BOSTON ATHENAEUM (2)





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# Reflections on a River

*Paddling the Merrimack in Lowell and Lawrence*

by NELL PORTER BROWN



**From left: Lone paddlers take in the sunset; the UMass Lowell Kayak Center (above) rents boats and runs classes and trips; kayakers explore Stony Brook and a historic canal; a bird's-eye view of an urban stretch of the Merrimack Valley**

COURTESY UMass LOWELL KAYAK CENTER

HARVARD MAGAZINE/NPB

**I**N MAY, 15 UMass Lowell seniors, graduation day in sight, push off from the city's Bellegarde Boathouse for an afternoon of kayaking on the Merrimack River. Here the waterway, first harnessed to power textile mills in the 1800s, is about a thousand feet wide and smooth, thanks to the Pawtucket Dam. Paddling upstream, toward New Hampshire, the group soon turns off to duck, single-file, under the granite arches of the historic Stony Brook Railroad Bridge, in North Chelmsford.

They enter a calm section at the confluence of river and brook, surrounded by reedy banks and sun-dappled trees. A great

blue heron perches on telephone wires. Bird songs fill the air. Everyone stops to listen. "This is a great time to be here," says trip leader Kevin Soleil, assistant director of outdoor and bicycle programs at the university's recreation department. "The water is really high because of all the rain, and the birds are migrating through. It's also a great time to find a piece of trash and pick it up—like those cans and plastic bottles floating over there."

There are wilder sections of the Merrimack. At 125 miles, it snakes through 30 cities and towns: from rural Franklin, New Hampshire, down into the former industrial

hubs of Manchester and Nashua, then swings east into Massachusetts through Lowell, Lawrence, and Haverhill to Newburyport and the Atlantic Ocean. (To the north, the Contoocook River Canoe Company offers scenic river outings from the town of Boscawen, New Hampshire.)

Two urban stretches in Massachusetts hold a different sort of fascination: in Lowell, it's the six miles from the boathouse to Tyngsborough; in Lawrence, it's a paddle that begins near the Great Stone Dam. There the Merrimack is "'beautiful river meets urban development.' A real mixed bag," says Soleil, who grew up in Nashua, another former mill city. His Irish and French-Canadian ancestors were among the thousands of immigrants who flocked to the Merrimack





JAMIE BOUDREAU AIRGOZ AERIAL PHOTOGRAPHY



COURTESY UMASS LOWELL KAYAK CENTER

Valley for work, first in the water-powered factories, then in those fueled by steam. “My grandmother grew up in Lowell and worked as a teen in the mills of Manchester,” he says. “And yet you go up hiking in the White Mountains in the Pemigewasset Wilderness, and you drink from Pemigewasset River headwaters—and that’s this water,” he says, gesturing out over the Merrimack. “It’s an urban waterway, but it’s connected to these places we think of as pure wilderness. And then you’ve got the history. This was the birthplace or cradle of the American industrial revolution.”

In Lowell and Lawrence that legacy still dominates the downtown landscapes. For paddlers on the river, architectural artifacts—smokestacks, railroad crossings, and dams—can loom large. At the same time, roving the river’s creeks and crannies reveals a “vibrant ecosystem,” Soleil reports. Hawks and eagles, beavers, turtles, woodchucks, deer, and foxes live here, too, despite the array of pollutants—industrial and household waste, raw sewage, cars, tires, TVs, and furniture—that have continuously endangered the river for more than two centuries.

Nevertheless, many people increasingly seem to view the river as an asset, as something to be enjoyed—and protected. The few urban parks are well used. More public access points and trails are planned, and houses and condominiums along the river are coveted, many marketed as “riverside.” A rising number of visitors (last year more than 2,000) are taking trips on boats from the UMass Lowell Kayak Center at the Bellegarde Boathouse, which rents kayaks, canoes, and stand-up paddleboards through September 5. Soleil and his staff also give boating lessons and run guided paddling tours for families, along with outings at sunset or by moonlight. A Saturday 11 A.M. shuttle carries paddlers and their gear from the Lowell boathouse to a launch in Tyngsborough: the trip back downstream takes between two and four hours. “People are often surprised when they get out on the water that the river’s as beautiful as it is,” says Soleil. “They’re expecting all the bad things an urban waterway can have, but it can be very peaceful, serene.”

On their spring outing, the UMass Lowell students paddle farther up Stony Brook, then squeal and holler as they pass through a nearly pitch-black tunnel that runs under congested Middlesex Road and below a red-brick building. Built in 1897, it was once the storehouse for a mill complex that produced thousands of pounds of worsted yarn per week (for which the brook produced power via a canal). Turning around and traveling back to the pond-like section, everyone looks up and watches a Pan Am Railways

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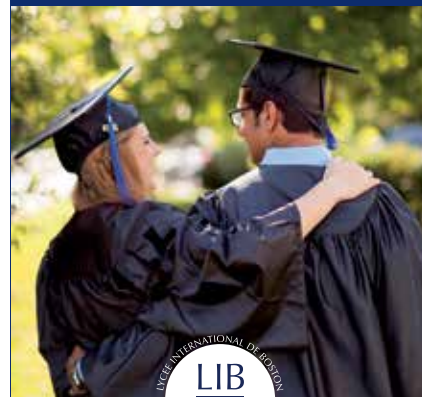


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**The Ayer Mill clock tower, restored in 1991, still presides over Lawrence. Each summer, thousands of Merrimack Valley children participate in the Greater Lawrence Community Boating program.**

freight train rumble by on the old tracks. At such close range, the rush of locomotive power is exhilarating. It also sounds as if the world is ending.

"Do you swim in the Merrimack?" one young man asks Soleil. The answer is yes—and no. "Much of the time it's okay," Soleil answers. "But in the summer, *E.coli* can form." Tangible trash is still routinely dumped in the water, although the nonprofit Clean River Project has hauled out more than 100,000 tons of garbage, including 73 cars and more than 8,000 tires, in the last

13 years. But there's more insidious pollution as well, which is likely the main source of the bacteria that threaten public health. Parts of the sewer systems in the older, most populated cities along the river are "combined," meaning rainwater runoff, sewage, and industrial waste are funneled through a single pipe, according to Robert "Rusty" Russell, J.D. '82, the new executive director of the Merrimack River Watershed Council (MRWC).

Established in the wake of the Federal Water Pollution Control Act Amend-

ments of 1972 (later dubbed the Clean Water Act), MRWC's mission is to "protect, improve, and conserve" a watershed—the fourth-largest in New England—encompassing 214 communities with 2.5 million residents. "When it rains a lot or you have a big snowmelt, the [combined sewer] system gets overloaded; the treatment plants



## WHY I JOINED THE HARVARD CLUB OF BOSTON

There are many different reasons to join the Harvard Club of Boston. Kay Foley, 28, is a Harvard alum and former co-captain of the Harvard varsity women's swimming and diving team. Here's why she joined:

"My time spent at Harvard was the best 4 years of my life so far. When I graduated, I wanted to maintain a connection to the tremendous people I had met and a connection to the College. I joined the Harvard Club of Boston to do just that. The Harvard Club has become my go-to spot in Boston. I go to the club for social events, to meet with people, and now to work out as well. It's a great feeling to have a place in the heart of the city to connect with existing friends and to make new ones along the way." - **Kay Foley '10**

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**Dennis Houlihan's narrated river tours benefit the Clean River Project.**

that the Merrimack is the second-largest surface-based source of drinking water in New England after the Quabbin Reservoir. Both are subject to the same laws that theoretically safeguard the water quality, "but

can't handle [the volume]," he says. To avoid flooding the treatment plant or nearby pipes, safety valves exist that divert overflow—essentially raw sewage and whatever else gets washed into street drains—directly into the river.

More than 600,000 valley residents drink Merrimack River water. That number is rising with housing and commercial development, especially in southern New Hampshire, Russell notes. Many people don't realize, he adds,

with different expectations," says Russell. "Quabbin must remain pristine; not so the Merrimack. And therein lies the problem": every developed surface—paved roads and driveways, building foundations, even lawns with packed soil—prevents natural filtration of precipitation. The Environmental Protection Agency cites polluted storm-water runoff as the primary threat facing the Merrimack over the long term.

As it pushes for increased land protection

and consistent, coordinated water testing, the MRWC also reaches out to valley residents and visitors, offering more than 15 paddling adventures this year throughout the watershed. A "Trash Patrol" gathers in Nashua on September 2, and there's an easy-to-moderate river trip in and around Lawrence on September 16 (see the website for other trips, details, and registration.) Also of interest: the National Park Service runs a 90-minute "Working the Water" boat tour of the Pawtucket Canal that formed part of the mill complex in Lowell.

Other small groups are also working to improve the river and protect dozens of endangered fish, birds, and other wildlife species across the watershed. New Hampshire contractor Rocky Morrison founded the all-volunteer Clean River Project because he was fed up with seeing the Merrimack trashed. "People just pull over by the side of the river and throw out their TVs and tires because they don't want to pay the recycling fee," he says. "In Haverhill, we have a place we call Tire Cove because we found more than 4,000 there alone."

So far, Morrison's effort has relied on

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grants and donations, and people like Dennis Houlihan. He lives on the river in Methuen and runs pontoon-boat tours: each passenger's \$20 goes directly to the project. He takes passengers toward Lawrence, and explains the valley's industrial history this way: Francis Cabot Lowell, A.B. 1793, "learned about the mills from England, came back to America, and built and opened one in Waltham." Other entrepreneurial businessmen followed suit, building a mill complex in Lowell, and then more in New Hampshire. Lawrence developed later, in the 1840s, as a more comprehensive planned metropolis, with canals running along both sides of the river to maximize the water power.

The Clean River Project covers only the 15 Massachusetts river communities—about 44 river miles—and has requested municipal funding to hire staff and expand operations. Out on a spring boat tour, Jed Koehler, executive director of the Greater Lawrence Community Boating Program, points out Clean River's yellow booms bobbing near the shore after his boat clears the foundations and steel girders of the Interstate 93 bridge. "Trash floats down the river like tumbleweeds in the old frontier towns," he says, applauding the group's efforts.

A cleaner river is important to his program's success. It's the largest public boating program in the Merrimack River Valley, and serves about 2,200 kids a week in the summer. They learn about water safety and how to row, sail, and paddle, and do other day-camp activities; the majority of them are on full scholarships, and 42 percent live in single-female households. "The parent is often working one to three jobs," says Koehler. "The boathouse is a safe place for their kids to be."

But anyone can join the program for the season and take out boats, or purchase a day pass. Launching from the Lawrence dock, paddlers can travel about an eighth of a mile downstream, toward the Great Stone Dam, on Bodwell's Falls, which is on the National Register of Historic Places. When completed in 1848, it was the largest in the world, and is so solidly constructed that it's never required significant repairs, and is still used for hydroelectric power.

Beyond the dam, and visible from a boat, stands one of the city's still-ubiquitous red-brick smokestacks. It's part of the Pacific Mills power plant, according to Jim Beauchesne, the Lawrence Heritage State Park visitor-services supervisor—one of

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the factories that manufactured fabric for military uniforms for the Civil War through World War II. And there's the Ayer Clock Tower. Built in 1910, it's still one of the world's largest; its four glass faces are only slightly smaller than those on Big Ben. The heritage park's museum, located in a restored 1840s mill-workers' boarding house, lays out the city's history and is well worth a visit.

Yet industry came at a stiff price. Koehler, whose father ran the boathouse during the

1980s and 1990s, says his older board members tell stories of how the river used to "run in colors"—most often vivid green—from vats of dyes dumped by textile firms. "In the 1950s and 60s, the parents would check behind their kids' ears to see if they'd been swimming in the river," he explains, "because the kids would wash themselves off in front of a mirror, and never remember to get out the ink or dye behind their ears."

Today, "the river is cleaner than it used to

be," he says. Steering away from the dam, up the river, he turns into a creek and touts the wildlife: American bald eagles, deer, nesting Canadian geese, dam-building beavers. Turtles lay eggs in the boathouse's yard. Once the hatchlings have emerged and "are trying to make their way to the water, across the backyard where a hundred kids are about to run around," he, the staff, and the children gently move them to the shore of the creek. For city kids, Koehler notes, the riv-

## ALL IN A DAY: A Rural Retreat

**Just 19 miles** from hot and congested downtown Boston lies the bucolic town of Lincoln. Even before postwar suburbia arose, Lincoln's leaders and residents eschewed sprawl. As a result, more than 38 percent of the community is protected land. Eighty public trails, some of which begin at the MBTA commuter-rail station, skirt Walden Pond and wind through farmland, woods, and meadows.

The star cultural destination is the 30-acre **deCordova Sculpture Park and Museum**, dotted with 49 works. Jonathan Gitelson's existential billboard asks: *Are You Here?* (2016). Visitors walk right into Dan Graham's *Crazy Spheroid—Two Entrances* (2009), a half-circle of two-way mirrored glass, and they play *The Musical Fence* (1980), a vertical aluminum xylophone by Paul Matisse '54. Easy walking paths lead to a café, picnic spots, and shady lawns; the museum's stone terrace overlooks Flints Pond. On exhibit inside, through September 17, is "Expanding Abstraction: New England Women Painters, 1950 to Now," celebrating contributions by Natalie Alper, Reese Inman '92, Katherine Porter, and Barbara Takenaga, among others.

Not far away is a modernist enclave anchored by the **Gropius House**, the former family home of Bauhaus architect and influential Harvard Graduate School of Design professor Walter Gropius. It's now owned by Historic New England, and open for tours, as is the **Codman Estate** nearer to the town center. Beautiful gardens



A summer exhibit at the deCordova Sculpture Park and Museum (above) highlights abstract art, including the atmospheric *Untitled* (1979), by Jeanne Leger. Clockwise, far left: the formal Codman Estate; Gropius House; and Codman Community Farms



surround a Georgian mansion built by judge and politician Chambers Russell, A.B. 1731, A.M. '66 (who left it to a Codman relative). Russell also was instrumental in the founding of Lincoln in 1754; it's named for his ancestral home in Lincolnshire, England—not for the American president.

A short trail walk leads to the town-owned **Codman Community Farms**. Visit the barnyard, take classes, volunteer to work, or buy eggs, meats, produce, and flowers. Nearby, on a larger scale, Mass Audubon's **Drumlin Farm Wildlife Sanctuary** runs an animal farm and Community Supported Agriculture (CSA) program, along with year-round events and workshops. For food and drinks, head to Lincoln's only commercial cluster, next to the train station. Dip into **Donelan's Market** or the **Trail's End Café** for picnic fare, or sit down for a meal at **Lincoln Kitchen**.

—N.P.B.

The Lincoln Land Conservation Trust and Rural Land Foundation  
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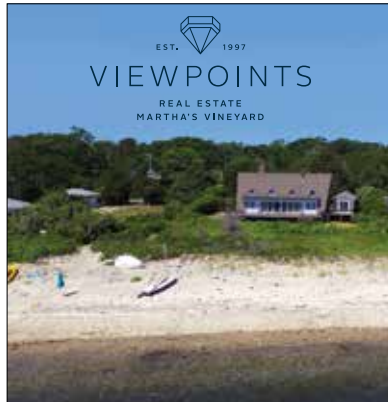
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## HARVARD SQUARED

er is often their primary contact with nature—and plenty of adults, he adds, don't realize what a respite it offers. "Every evening, the orange sun sets—right there!" he says, pointing upstream from the boathouse. "Right down the center of the river, every night. It's like Aruba!"

About three-and-a-half miles upriver from the Lawrence boathouse are places to pull in and explore. People walk and picnic on a finger of land called Pine Island, owned by the MRWC. Koehler says the island was once home to a hermit who had a "little shack and a rowboat he used to get back and forth from the shore." Long before, archaeological evidence shows, the island hosted a Penacook Indian settlement.

The Penacooks once moved freely along the Merrimack River, hunting and fishing. "During the last quarter of the seventeenth century, the Penacook Indians were feared by the residents of Andover," according to the Andover Village Improvement Society (AVIS) website. "In 1675, the Indians attacked from the north, crossing the river, killing some settlers, and taking others hostage."

Adjacent to Pine Island is the 131-acre Deer Jump Reservation, owned by AVIS. Its banks run about four feet high, but paddlers can travel up side streams, tie boats to a tree, and scramble ashore. A riverside trail offers easy hiking, and the land is home to hemlock groves and a meadow, an AVIS warden reports, along with fisher cats, otters, wild turkeys, foxes, coyotes, and skunks.

Back in Lowell, Soleil agrees the river offers "a real connection to nature that people are not expecting." At the end of their trip, the celebrating seniors pull up to the docks and pull out their kayaks. It's 5:30 P.M. Everyone is a bit wet and wind-blown. The mood is convivial as they thank Soleil for a fun time before bounding away to other evening activities.

"It is what it is," he says, almost shrugging when pressed to say more about the Merrimack's "mixed bag." "My position is that the more people we can get out to experience the river, the more people would care about it, and the better off it would be." ▽



COURTESY OF THE CLEAN RIVER PROJECT

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HARVARD  
MAGAZINE



# The Eating Is Easy

*A summer sampling of Massachusetts countryside restaurants*



COURTESY OF CANTINA 229 (2)

COURTESY OF CARTER AND STEVENS FARM (2)



**S**UMMER IN New England is a time to relax, eat well, and have some fun. Restaurants, from the eccentric to the refined, offer the chance to do just that, while showcasing local produce and products in verdant settings.

Cantina 229, on five pastoral acres in New Marlboro, is a beautiful post-and-beam barn-style space with glass walls. Eat inside or out. Picnic tables sit on the grass, where “kids run around and visit the pigs, and free-range chickens come right up,” says Emily Irwin, who opened the restaurant last year with her chef-husband Josh Irwin. Lawn toys—Frisbees, horseshoes, and “corn hole” gear (a.k.a. bean-bag toss)—help foster schmoozing within a gustatory crowd that often includes the Irwins’ parents and friends. The menu has an Asian twist, thanks to Josh Irwin’s year of traveling in India, Thailand, and China. Korean *bibimbap* and *pa jun*, a pancake filled with leeks, scallion, and chives, are mainstays, along with a hefty cheeseburger topped with grilled onions and turmeric pickles. Tuesdays are Taco Night. (Entrées \$15-\$28; [www.cantina229.com](http://www.cantina229.com))

To the west, past Great Barrington, is the lovely John Andrews Farmhouse Restaurant, set on a homestead site dating to the

late 1700s. There are three small dining rooms, a tight-knit bar, and a simple terrace with views of woodlands, perennial gardens, and old stone walls. Chef/owner Dan Smith follows a locavore ethic, cooking whatever’s freshest, with no showboating about it. One night that was Wolfe Spring Farm’s asparagus (grown in nearby Sheffield). Crisp and tasting of minerals, it was tossed with organic greens, tart chèvre, and toasted pistachio nuts. The roast chicken breast entrée, faintly sweet with a perfect garlic confit, came with fennel and a handful of polenta fries. The restaurant sits just four miles from Mount Washington State Forest: go for a hike there, or a trip to Bash Bish Falls, before tucking in for drinks and dinner. (Entrées \$28-\$38; bar menu, \$13-\$25; [www.johnandrewsrestaurant.com](http://www.johnandrewsrestaurant.com))



COURTESY OF DREAM AWAY LODGE

**Dusk dining at Cantina 229, and a dish of its Cambodian pork belly and noodles; Carter and Stevens Farm (top) runs a summer BBQ shack that serves fresh meat with all the works; a glimpse of the Dream Away Lodge’s charming country eclecticism**

Back toward Boston, in the town of Becket, is the un-pigeonhole-able Dream Away Lodge. For 90 years, this magical spot on the edge of the October Mountain State Forest



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## HARVARD SQUARED

has attracted fine artists, musicians, showpeople, and anyone else devoted to the creative spirit. In 1997, the restaurant was bought and re-birthed by trained actor and "theater-maker" Daniel Osman. There are live bands, art shows, and performances—of cabaret, poetry, and plays. The oft-changing menu, devised by veteran Berkshires baker and chef Amy Loveless, is a tasty

mix of basic, affordable fare (burgers, mac and cheese, spinach salad) and more elevated entrées (tarragon chicken, seared scallops, rack of lamb). It tends to fill up, especially on weekends, so call for a table. "My thought is that when driving into the middle of the forest for dinner, you should always make reservations," Osman says, with a good laugh. And avoid using GPS to find this gem: real directions are on the website. (Entrées \$12-\$28; [www.thedreamawaylodge.com](http://www.thedreamawaylodge.com))

Perhaps even more casual are the wood-fired BBQ stand and new Stone Cow Kitchen and its brewery, at the Carter and Stevens Farm in Barre. "It's nontraditional because the menu is always changing," says Molly DuBois, part of the fourth generation to run this spectacular 1,000-acre hilltop farm. "Last week we did tacos with our own micro greens, and at the brewery we grow our own ingredients for the beer as well." The restaurant, open until 6 p.m., serves a range of salads, soups, and sandwiches, but the real draw seems to be the BBQ shack. People travel for the farm's own grass-fed beef burgers and hot dogs, smoked ribs and chicken, and piles of hot, hand-cut French fries. Meals are served outside every Friday and Saturday evening in July and August. And sometimes there's live music. (BBQ menu, \$2.99-\$16; [www.carterandstevensfarm.com](http://www.carterandstevensfarm.com))

Enter The Oregon Club, and step back into an older, more relaxed era. On a summer evening, diners can sit at an outdoor table on a country road in the Ashland Town Forest and look out at a peaceful green field across the street. Eating and drinking also happen indoors in cozy rooms (where a fireplace crackles in winter). Although only five minutes off Interstate 90 (near Framingham), the restaurant's ambiance recalls a 1920s roadhouse, which is exactly what it



**The John Andrews Farmhouse Restaurant, not far from Great Barrington, balances comfort and elegance.**

was in 1922 when Giuseppe Briasco founded the Briasco Inn, a rooming house and speakeasy that served spaghetti and steaks. Now rechristened The Oregon Club, the menu offers well-prepared homey classics (chopped salad, steak, lamb shanks) plus its signature spicy mushroom soup. (Entrées, \$18-\$28; [www.theoregonclub.com](http://www.theoregonclub.com))

Far more orchestrated is the dining experience at Just Right Farm, in Plympton, on Boston's South Shore. Up to 36 diners may arrive as early as 6 p.m., tour the gardens, and sip drinks before being ushered into a tasteful cottage where the walls are all screens, at 7 p.m. A five-course, prix-fixe menu is served; dining takes about three hours. The \$140 per person tab, paid in full when the reservation is made, does not include tax, tip, or booze. But patrons can bring their own; the menu goes online a few days ahead, with recommended wine pairings.

"We are an authentic, 300-year old Cape house on a 10-acre farm with ash trees you can't reach around," says Kimberly Russo. She owns the property with her husband, Mark, a veterinarian, and runs the restaurant with Elaine Murphy and Marilyn Browne. "We grow 80 percent of the produce we serve," she adds, "which is started from seeds in our greenhouse." She also constructed the 10-foot-long ash tables shared by all during what she thinks of as a large "dinner party." A chocolate tart often concludes the meal. The trio serves it, taking time to talk with guests before bidding them good night. Diners stroll back along a tree-lined way to their cars, and if it's clear, the stars are shining bright overhead. ([www.justrightfarm.com](http://www.justrightfarm.com)) ~N.P.B.



# JOHN HARVARD'S JOURNAL

## COMMENCEMENT 2017



### Family Spirit, Wetly

CAP AND GOWN: check. Poncho, coat (if available), gloves, scarf, hat (ditto): check. In 2010, when Harvard's deciders moved Commencement forward from early June, they focused on the delights of late May (and were rewarded with 92-degree heat midweek, leading Baccalaureate supplicants to beg for an air-conditioned Memorial Church—a prayer answered this spring). This year, they got April.

On Thursday, the rain began shortly after 7:00 A.M., and intensified; the temperature never broke the mid 50s. At the Chief Marshal's luncheon, Alumni Association executive director Philip Lovejoy joked that the relocation from the Lamont Library lawn to Widener Library, effected in 2015, was then welcomed because the new venue was air-conditioned; this year, it provided dry shelter and warmth.



After a rain delay (and a merciful shortening of the formalities), the afternoon exercises proceeded with President Drew Faust speaking in a black coat and scarf (see page 22); one wag suggested that the next speaker, newly minted Dr. Mark Zuckerberg, natty in blue suit, white shirt, and tie, revert to form and be provided with a Harvard hoodie. His address, streamed live, was always going to play to a larger audience online; with the physical one dramatically reduced (but loyally including his wife, Priscilla Chan '07—on hand for

**Wet, dry, loud (clockwise from upper left):** Haiyang Zhao, LL.M. '17, adjusts a rain poncho from the Law School; Medical School standard bearer Erica R. Kiemele, M.D. '17, honors her Blackfoot and Taiwanese heritage with handmade attire and the crimson stole of Harvard's Native American Program; Dins (from left) Jacques Berguig '18, Brian Rolincik '18, and James Baskerville '18 salute John Williams; and imminent Ed.M.s Keya Wondwossen, Sara Trail, Rashaida Melvin, Dorothy Mrema, Kidus Mezgebu, Alysha English, Vic Quintanar, Monique Hall, and Tiffini Hyatt take part in Black Commencement.

**HM** Visit [harvardmag.com/commencement](http://harvardmag.com/commencement) to read additional coverage of all the events mentioned in this article.

MIDDLE RIGHT: JON CHASE/HAPAC. BOTTOM RIGHT: KETH BEDFORD/THE BOSTON GLOBE VIA GETTY IMAGES





rains on Harvard Commencement—even when it rains.” For a champion of *Veritas*, it seemed a shocking attempt to spread fake news. The meteorologists had not hedged: the official forecast for Thursday read “Chance of precipitation is 100%,” and the scientists clearly won out. Even so, the candidates got their degrees. The venerable rites were plenty festive: Winthrop residents, this year’s campus refugees as their House is being renewed, seemed to have a fine time celebrating with their families, in close quarters, under the tent on Lamont’s lawn (helpfully vacated by the Chief Marshal’s spread to accommodate just this use). So Faust’s larger truth was borne out: mere rain could not drown the spirit of Harvard’s parade.

Nor did it obscure the unusual character of this 366<sup>th</sup> Commencement. The University always throws a world-class fête during its graduation gala. Rarely, amid the hoop-

**Clockwise from top left: Umbrellas were Thursday’s accouterments of choice; new masters of public health Ashley Cheng, Trush Patel, Namit Choski, and Anu Ghuman exult; Ph.D. recipients Adam Stack (anthropological archaeology), Nancy Khalil (social anthropology), and their fellows cheer; Priscilla Chan ’07 applauds her husband, Mark Zuckerberg ’06, LL.D. ’17; Class of ’17 marshals Jarrod Wetzel-Brown, Rebecca Ramos, and Taylor Carol (at left) and Eliot House members Ashley Collins and Rachel Stein, honoring diversity, were among those joining the “fellowship of educated persons.”**

la, does it also display its academic essence: identifying big ideas and great challenges, advancing debate. This year, at a divided moment across the wider world, Harvard pursued celebrations *and* fruitful conversations about consequential issues.

THE FIRST THEME of these campus conversations arose, *de facto*, in the first formal

her tenth reunion, too—gamely coping in a plastic poncho; see above), the ratio was even more skewed. Friday morning dawned even worse: the overnight deluge tapered to wind-driven rain, but the temperature had fallen to 48 degrees. At least the faucet was turned off for the Radcliffe Day tent luncheon.

WEDNESDAY EVENING in Annenberg Hall, ending the dinner for honorary-degree recipients, Faust had, hopefully, repeated the old chestnut for the assembled glitterati: “It never

TOP LEFT AND BOTTOM LEFT: ROSE LINCOLN/HPAC; MIDDLE LEFT: STEPHANIE MITCHELL/HPAC



event of the week. Phi Beta Kappa (PBK) orator Sherry Turkle, who probes the effects of emerging communications media, spoke about her generation's embrace of digital technology (see page 18). She certainly had

the political context in mind (she talked about reclaiming "our communities, our democracy, and our common purpose"). But her deepest argument was about the corrosive effect of "efficient," carefully curated

social-media posts and e-discourse on the efficacy and empathy engendered in, you know, actually talking with other humans.

These issues were certain to be joined once Facebook CEO Zuckerberg was named

## Honoris Causa

Six men and four women received honorary degrees at Commencement. University provost Alan M. Garber introduced the honorands in the following order, and President Drew Faust read the citations

(two, fittingly, in iambic pentameter). For fuller background on each, see [harvardmag.com/honorands-17](http://harvardmag.com/honorands-17).

**Hawa Abdi Diblawe.** A physician humanitarian who has sheltered and cared for tens of thousands of refugees in her war-torn country, Somalia. Doctor of Laws: *Confronting the ravages of war and famine, offering succor to those in dire need, she fearlessly faces the forces of darkness and keeps aflame the light of hope.*

**Walter E. Massey.** Past director of the National Science Foundation, past president of the American Association for the Advancement of Science and of his alma mater, Morehouse College, now chancellor of the School of the Art Institute of Chicago. Doctor of Laws: *Traversing two cultures as an academic leader, advancing useful knowledge as a citizen of science, a splendid mentor always poised to open doors for others, a model man of Morehouse—steadfast, honest, true.*

**Michael O. Rabin.** Pioneering computer scientist, Harvard's Thomas J. Watson Sr. Research Professor of computer science, winner of the Turing Award. Doctor of Science: *Prime aficionado of algorithms and automata, high-capacity hard drive of Harvard computer science, whose impact is as incalculable as his intellect.*

**Michael O. Rabin**

able as his cryptosystems are uncrackable.

**Dame Judi Dench.** Winner of eight Olivier Awards for outstanding acting on the British stage—more than anyone—and 10 awards from the British Academy of Film and Television Arts.

Doctor of Arts: *With fair Titania's powers of enchantment and Cleopatra's plenitude of charms, a venerated queen of screen and theater with whom we feel a fond familial bond.*



**Norman R. Augustine**

Past chairman and CEO of Lockheed Martin, a global leader in aerospace and technology, chair of a National Academies commission that advocated support for basic research, and a trustee at Princeton, MIT, the University of Maryland, and Johns Hopkins. Doctor of Laws: *Energized by the promise of the endless frontier, devoted to science in the nation's service, a tiger of industry with a zest for adventure; be it ideas or rockets, he has an eye for what will fly.*

**John Towner Williams.** The composer of music for more than 100 movies, who has been nominated for more Academy Awards

than any living being, terrestrial or extra-. Doctor of Music: *The Superman of music for the movies whose scores of scores propel great stories skyward; his melodies dwell deep inside our memories, his harmonies induce our hearts to soar.*

**Sandra Mortola Gilbert.** Poet and pioneering feminist lit-



**Dame Judi Dench**

erary critic, co-author of *The Madwoman in the Attic* and the three-volume *No Man's Land*, on nineteenth- and twentieth-century literature, respectively. Doctor of Laws: *Casting novel light where shadows shrouded women's writing, crafting poignant poems that both inspire and enlighten, a pioneer of feminist studies for whom the personal is the political as well as the poetical.*

**Huda Y. Zoghbi.** A medical researcher who has discovered the gene associated with Rett syndrome and teased out clues to autism, Parkinson's, and Alzheimer's. Doctor of Science: *From dauntless young woman who never lost nerve to eminent expert on the nervous system's workings, she patiently translates the language of life so that patients might realize the promise of life.*

**James Earl Jones.** Renowned actor on stage and screen, winner of the National

Medal of Arts and lifetime awards from the Screen Actors Guild and the American Academy of Motion Picture Arts and Sciences. Doctor of Arts: *An actor of inimitable power whose roles bespeak his singular resources; when he a round unvarnished tale delivers, there's never any doubt with whom the force is.*



**James Earl Jones**

**Mark Elliot Zuckerberg.** CEO of Facebook and, with his wife, pediatrician Priscilla Chan '07, founder of the Chan Zuckerberg Initiative, addressing disease, education, community, and opportunity worldwide. Doctor of Laws: *Genitor maximus Libri Facierum ["Great creator of the book of faces"]; from a whiteboard in Kirkland House to One Hacker Way, he has forged a transformation through the power of connection and set his sights on how bold new ideas can serve the world.*

STEVE SENNE/ASSOCIATED PRESS

the guest speaker at the Thursday afternoon exercises. Introducing him at the honorands' dinner, Faust uncontroversially said Facebook "has changed how the world works." In his address, Zuckerberg spelled out his optimistic and expansive vision of "building community across the world" (see page 22) in ways implicitly enabled by his software platform (and presumably others). Related issues, like privacy, are grist for Harvard's Berkman Klein Center for Internet & Society, whose faculty director, law and computer-science professor Jonathan L. Zittrain, served as the honored guest's escort.

On Friday morning, the Radcliffe Day panel, on "(Un)Truths and Their Consequences," was the latest in a series of campus symposiums on fake news (perhaps the most popular subject of concern for such sessions during the spring). Although not specifically Facebook-focused, the social-media channels for disseminating rumor, opinion masquerading as fact, and outright falsehoods (or even more abhorrent material) are clearly implicated. And so, in its informal way, the University managed both to honor an interesting, and globally important, former student while paying him the further tribute of taking what he has wrought very seriously.

A second theme—internally focused, on matters of diversity and inclusion within the University—arose repeatedly. On Tuesday morning, as the venerable PBK exercises celebrated brilliant Collegians, a group of graduate students launched Harvard's first Black Commencement; at day's end, the third LatinX graduation ceremony took place. (Kente-cloth and *Clase del 2017* stoles were proudly evident during Thursday's conferring of degrees; see pages 14 and 15.)

In her Baccalaureate address Tuesday afternoon, President Faust got laughs with a joke (this works only at Harvard, and only this year) aimed at the "Final Report of the Implementation Committee for the Policy on Membership in Single-Gender Social Organizations"—a reference to the ferocious debate about the sanctions to which the freshmen who enroll this August and their successors will be subject should they join a final club or similar entity. Those disagreements pit inclusion (opposing groups that discriminate on the basis of gender) against free association, professors' authority to enact policy for students, and the basis on which academic recommendations are made. (In his talk, Zuckerberg gave a

shout-out to "the incredible Harry Lewis"—the professor in his first Harvard lecture, Computer Science 121, and former College dean who informally led opposition to the sanctions policy during the faculty's as yet inconclusive debates.)

As all those currents swirled, the president's Task Force on Inclusion and Belonging presumably toils along, aiming next year to recommend ways Harvard can build on increased demographic diversity to achieve real inclusiveness among all members of the community. (One of its ideas is discussed in *The College Pump*, page 68; co-chair Danielle Allen—Conant University Professor and a political philosopher very attuned to equality and the quality of discourse—was on the Radcliffe journalism panel.) Faust touched on some of the hard issues facing Harvard in her Thursday afternoon address, on free speech (see page 21).

FROM AN interior focus on diversity and inclusion, it was a small pivot (via fake news and the communities mediated online) to opposite concerns in the wider world beyond: border walls, immigrant bans, and the



**Selfie presence:** At Class Day, featured speaker Joe Biden, former U.S. vice president, summoned College dean Rakesh Khurana for a photo op. (Biden also adorned the event media credentials.)

like. And indeed, the third through-line of this Commencement week was the United States and its global village pre- and post-November 8.

Some of this was subtle. The PBK poet,



## Commencement Highlights

Find more in-depth coverage of Commencement week from across Harvard's schools at [harvardmagazine.com/commencement](http://harvardmagazine.com/commencement).



### What's Worth Fighting For: Former Acting Attorney General Sally Yates Speaks at Harvard Law School

The former Justice Department leader explains why she defied President Trump.  
[harvardmag.com/commyates-17](http://harvardmag.com/commyates-17)



### "Bravery, Not Perfection"

Reshma Saujani, founder of Girls Who Code, addresses Education School graduates.  
[harvardmag.com/commsaujani-17](http://harvardmag.com/commsaujani-17)



### "There's Nothing Beyond Our Capacity"

In his Class Day address, the former vice president urged graduating seniors, "You have to engage."  
[harvardmag.com/commbiden-17](http://harvardmag.com/commbiden-17)

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FROM TOP: HERATCH EKMEKIAN/COURTESY OF HARVARD LAW SCHOOL; HARVARD GRADUATE SCHOOL OF EDUCATION; JIM HARRISON



Mark Doty, nodding toward New York real-estate developers who assume other roles, crafted a new, political work, riffing on “precious glitter,” titled “Air Rights.” Senior English speaker Auguste (Gussie) Jennings Roc ’17 drew on her experiences on 9/11 and during the Visitas weekend disrupted by the Boston Marathon bombing manhunt to affirm that “love and courage trump hate and destruction”—even in a world where there is “fear of deportation, fear of walls and bans” (see page 21). Graduate English speaker Walter Edward Smelt III, M.T.S. ’17, drew upon the authority of “Rumi, an immigrant from what is now Afghanistan to what is now Turkey, an immigrant from the thirteenth century to our own, a Muslim mystic” (see page 21). And one of the honorands, Hawa Abdi Diblawe, is herself a brave humanitarian from Somalia—a geographically inconvenient fact that made it more than a little difficult to gain her access to this country, in the wake of President Donald Trump’s (contested) executive orders banning immigration from six predominantly Muslim nations. Zuckerberg choked up while talking about an undocumented high-school student whom he is mentoring—whose identity he felt compelled to protect.

Some of it, inherent in the guests’ identities, was very direct. College Class Day speaker Joe Biden, the former vice president, assured the students that “this condition is temporary,” and summoned better all-American angels: “We’re a nation that has always thought big, not small. I’m so tired of both political parties talking about incrementalism. America has always thought big, and boldly! What has *happened* to us?” (see page 21). Sally Yates, dismissed from her leadership of the Justice Department for refusing to defend the first executive order on immigration, counseled the lawyers-to-be to be prepared “to decide who you are and what you stand for.” Former secretary of state John Kerry, addressing the Harvard Kennedy School just days before the centennial of the late president’s birth, said that his recent travels had revealed to him a global community “unsettled about the leading nation of the free world...walking away from a century of thoughtful, carefully conceived economic and strategic leadership.” And in Longwood, former Environmental Protection Agency administrator Gina McCarthy told the public-health graduates that citizens hunger for facts and scientific truths, and that when people “speak with very clear

conviction in this country, policymakers and politicians—albeit many of them reluctantly—they will listen,” making it imperative for experts to communicate with the public at large.

THERE WAS plenty of fun as well. The morning exercises featured two made-for-video entertainments (a signature of Faust-era graduations). When the provost made to introduce John Williams, he cut his text short so the Din & Tonics could perform an animated a cappella medley of the composer’s famous film scores—an interlude that extended the conferring of honorary degrees to nearly 40 minutes, but probably took the crowd’s collective mind, briefly, off its collective wetness. And after Pusey Minister in Memorial Church Jonathan L. Walton offered the benediction, he then wished, especially for the class of 2017—while ceding to James Earl Jones of the famous voice—“May the Force be with you.” As was noted more than once, Zuckerberg had a *Star Wars*-themed bar mitzvah, so this alignment of honorands was kismet, or cosmic, or *something*.

The students were not the only people commencing. Ending, law dean Martha Minow presented her gavel-wielding throng for their degrees for the last time. Beginning, medical and public-health deans George Q. Daley and Michelle A. Williams (identifying herself as “the freshman dean”) performed their formalities for the first time.

At the luncheon in Widener, the Chief Marshal—Massachusetts attorney general Maura Healey ’92—gave Zuckerberg the Kirkland House directory for his entering

year, claiming for it the inspiration for his subsequent activities. And then, in a dubiously legal but inspired bit of computer craft, hackers disrupted *The Harvard Crimson*’s website at the hour appointed for the afternoon exercises, posting contents that were, um, not respectful of the honored guest speaker.

ZUCKERBERG HIMSELF—speaking without a prompter, and seemingly without resorting to his text—began by aiming a number of sharp arrows in his own direction before turning to an expansive exhortation to “create a world where everyone has a sense of purpose” (see page 22). Acknowledging that this is an “unstable” time, he pushed back against “the forces of authoritarianism, isolationism, and nationalism.” In the sweep of his ambitious vision, and the detailed, emotional precision of his anecdotes, he sounded—despite their differences of origins, age, experience, and means—more akin to Joe Biden than to any other speaker on campus this week.

And perhaps that dialogue across generations was exactly the right thing for the University during Commencement—in 2017, or any other year. Thursday morning, in the gathering drizzle, Law School career-services staffer Paula Garvin, on duty as a monitor guiding her charges to their seats, surveyed the scene thus: “All the rest of the year, it’s just the Yard, but today it has a different pulse. It’s thrilling. People come from all over—the medical school, the law school...it’s like a family coming together. And everyone fits in.” It would take a lot more than rain to wash that Harvard spirit away.

—JOHN S. ROSENBERG

## Commencement Talk 2017

### Oratorical highlights

#### Reclaiming “What We Know about Life”

MIT’s *Mauzé* professor of the social studies of science and technology, Sherry Turkle ’69, Ph.D. ’76, a critic of social media, titled her Phi Beta Kappa oration “How Technology Makes You Forget What You Know about Life.” “Curated” conversations by social media and email, stripped of the “boring bits” and the frustrations of human discourse, may be technologically efficient, but they are shorn of human efficacy and empathy,

she argued. “For the failing connections of our digital world,” she said, “conversation is the talking cure.” From her conclusion:

We need to reclaim what we know about life. When we reclaim our attention, our solitude, and our friendship, we will have a better chance to reclaim our communities, our democracy, and our shared common purpose. We had a love affair with a technology that seemed magical. But like great magic, it worked by



Sherry Turkle

# Commencement Confetti

## Familiar Paths Trod

*The Harvard Crimson's* senior survey (to which 790 students, about half the class, responded) reveals that among graduates heading for a paycheck, "In keeping with past classes, most working graduates will join the consulting, finance, or technology industries, which have drawn 18, 18, and 16 percent," respectively: 52 percent of those about to begin employment. That brings to mind the meme (described by *The Undergraduate*, on page 29) of the Harvard-bound baby's first word: "M-m-m... McKinsey and Company." Separately, among survey respondents "23 percent reported having cheated in an academic context at Harvard" (up from 17 percent, 19.5 percent, and 21 percent in the prior three classes)—a depressing tally that provided some context for the *Crimson's* reports about a large Honor Council investigation into alleged academic misconduct among students enrolled last fall in the popular Computer Science 50 course.

## Family Ties I

President Faust having conferred M.B.A.s on the Business School candidates, their dean, Nitin Nohria, added a shout-out from the Commencement platform to his daughter, Reva, minutes from receiving her bachelor's. Provost Alan Garber, who leads the degree-conferring continuity, refrained from similarly embarrassing/delighting his son, Ben. Other parents with College class of 2017 progeny in-

cluded dean of science Jeremy Bloxham (son William) and senior associate vice president Robert Cashion, effectively the chief fundraiser for the Faculty of Arts and Sciences (son Nicholas).

## Family Ties II

Lissa Muscatine '76, a 1977 Rhodes Scholar (the first cohort to include women), and now co-owner of Washington's Politics & Prose Bookstore with her husband, Bradley Graham, saw daughter Wynne Muscatine Graham, of Currier House, get her A.B.—in philosophy, and *summa cum laude*, no less. A big week for the family: Wynne's twin brother, Cole, graduated from Swarthmore. (Lissa's former employer—senator, secretary

of state, and U.S. presidential candidate Hillary Clinton—was the commencement speaker at *her* alma mater, Wellesley, on Friday.)

## The Wired Yard

Among the innovations this year were brighter, higher-resolution video screens for the throng seated farther back during the Morning Exercises (Harvard retained a new audio-video vendor), and a question-provoking device attached to one of the video-camera stands in Tercentenary Theatre: a security cam? a Facebook Live device? Nothing so exotic: merely a new robotic camera for Harvard's AV/news team, capturing panoramic images. Next year, e-tickets, anyone?

**STALWARTS:** The fiftieth-reunion class of 1967 is, characteristically, studded with successful leaders, some of them importantly involved with alma mater, including two Corporation members: Joseph J. O'Donnell and Jessica Tuchman Mathews. Also attending the festival rites were Harvey V. Fineberg (and M.D. '71, M.P.P. '72, Ph.D. '80!) past dean of public health and Harvard provost, and actor John A. Lithgow, Ar.D. '05, honored this year for founding and leading *Arts First*. But it is a safe bet that none of them can match the long Harvard service of Bill (okay, William R.) Fitzsimmons '67, Ed.D. '71, dean of admissions and financial aid since 1986 (left), who has known thousands of undergraduates from before they were undergraduates; and Thomas A. Dingman '67, Ed.M. '73, who as dean of freshmen has settled the newbies since 2005—the latest post in 44 years of study and administration here during the past half-century.



**TRADITIONS NEW AND OLD:** In its tenth year of elevation from a division of the Faculty of Arts and Sciences, the cutting-edge School of Engineering and Applied Sciences got its own, very traditional, orange/gold crow's-foot device for master's degree students' gowns this year. And honorary-degree recipients' triple crow's feet were restored after an inexplicable three-decade-plus omission. Commencement aficionados can learn more at [harvardmag.com/regalia-17](http://harvardmag.com/regalia-17). Departing from tradition, all Harvard Law graduates won a one-year dispensation to wear puffy tams rather than mortarboards, to mark the school's bicentennial; that headgear is typically the prerogative of Ph.D.s and equivalent degrees like the S.J.D. (law), D.B.A. (business), and Ed.D. (education).







HARVARD MAGAZINE/IC

**A PLACE FOR PRINT:** As any newspaper or magazine publisher knows, Alphabet (Google) and Facebook vacuum up most of the new digital advertising (and a good deal of clients' former print dollars as well). But physical product promotions live on, if only in banner form, as attested by this welcome from the Harvard Alumni Association to graduate- and professional-school students queueing in Sever Quad for the morning exercises.

### By the Numbers

The University awarded 7,066 degrees and certificates on May 25. Among the notable figures were 1,541 degrees in the College and 362 Ph.D.s. The Business School conferred 930 M.B.A.s; there were 857 diverse Extension degrees; 720 degrees, principally at the master's level, in the Graduate School of Education; 561 degrees from the Kennedy School; 781 in law (including 602 J.D.s); 378 in engineering and applied sciences, and 353 in design; 233 in medicine and 640

in public health. The bicentennial divinity candidates earned 106 degrees, and the sesquicentennial dentists totaled five dozen plus one.

### The Power of Connections

Harvard boasts of the human connections it enables. Despite their combined 12 decades or so of acting, honorands Dame Judi Dench and James Earl Jones reportedly met for the first time at Commencement.

### Victors and Vanquished

To Latin Salutatorian Jessica (Jessi) Rachael Glueck '17 fell the happy and sad obligation of reminding her classmates of their triumphs and tragedies: *Arma virosque canimus, qui primi longas per noctes cum Scientia Computatoris Quinquaginta vel Scribendo Expositoris vel Oeconomis Decem certaverunt; qui postea, iactati maximis laboribus, theses difficillimas superaverunt.... Sunt etiam illi in corpore validi, lusores nostri pedifollis. Ut in*

*Troia olim Achaici, sic in hoc anno Elienses indigne illos vicerunt....* ["We sing of arms and heroes, who first fought through long nights against Computer Science 50 or Expository Writing or Economics 10; who afterwards, tossed about by the greatest labors, defeated formidable theses.... There are also those who are strong in body, our football players. The Yalies unjustly conquered them this year, as the Greeks conquered unfairly at Troy long ago...."]



Jessi Glueck



ROSE LINCOLN/HPAC

**CELEBRITY SIGHTINGS:** Notable guests at Commencement included Uganda prime minister Dr. Ruhakana Rugunda and his wife, Jocelyn Rugunda, present for son Kwame's M.P.A., and New York governor Andrew Cuomo, whose daughter Cara Kennedy-Cuomo (a government concentrator!) got her A.B.

### Zapping Zuck

On Thursday, when it came time to confer degrees, Graduate School dean Xiao-

Li Meng, the rare statistician known for his humor, departed *considerably* from the script. Having paused to elicit Ph.D. candidates' cheers and applause, then thank them for their efforts, he

said, "To return the favor, I want to double-check with each of you whether you really want this degree, because many of you realize this is your last chance to be a Harvard dropout"—a sly reference forward to Mark Zuckerberg, one among many zingers directed at the honorand and afternoon speaker (who made several sharp jokes at his own expense, too).

**BUNDLED AND UN-:** During the afternoon exercises, Wellesley and Duke president emerita Nannerl O. Keohane, LL.D. '93, demonstrates proper late-May attire; she is concluding a dozen years of service on the Corporation—24 years after the conferral of her own Harvard honorary doctorate. Provost Alan Garber employs a little body language to diminish the wind's chilly, wet impact. Former vice president for policy Clayton Spencer, now president of Bates College, standing to receive her Harvard Medal, braves the elements. Was this a sign of her Down East cred? she was asked later. "I was freezing, but I didn't have a coat."

KRIS SNIBBE/HPAC



commanding our attention and we took our attention off each other. Now we are ready, across the generations, to remember who we are: creatures of history, of deep psychology, of complex relationships, and of conversations artless, risky, and face-to-face. The choice ahead will not be easy, but perhaps neither *hard* nor *easy*, but those other opposites of easy: *complex, evolved, and demanding*.

It's time to make the corrections, and take stock of all the skills we'll need—and of how little technology is going to help us unless we remember all the things we know about life and living.

### “You Will, Because You Must”

*Former U.S. vice president Joe Biden, the College's Class Day speaker, was relentlessly optimistic about the prospects for the country, even as he disagreed with current political and policy decisions. But he noted that the class of 2017 had an obligation it could not shirk:*

“Just this week, the *Crimson* reported that 37 percent of your class who had been considering a job in the federal government changed your minds in the wake of last year's election. Forgive me, but I think that's the wrong reaction. You have an obligation to get engaged. You have the capacity to make things change. It's within your wheelhouse to do it.”

*He concluded with an admonition from his former philosophy professor:*

As if I was supposed to know, he said, “Remember what Plato said, Joe.” And I was thinking, what in the hell does that mean? Plato said, “The penalty that good people pay for not being involved in politics is being governed by people worse than themselves.” Let me say that again. The penalty that good people pay for not being involved in politics is being governed by people worse than themselves. So you have to engage. You have to be involved, even in this dirty business of politics, you have to, for your own safety's sake. And I have no doubt you will, because you must.

### “The World Can Be a Scary Place”

*In “When We Fall in One Piece,” Senior English orator Auguste (Gussie) Jennings Roc '17 spoke of what she'd learned from two terrifying experiences—being blown out of her Lower Manhattan apartment, on the first day of first grade, by the cataclysm of 9/11; and having her Harvard Visitas weekend shut down*



**Auguste Jennings Roc**

*by the manhunt after the Boston Marathon bombing—and from the kindnesses shown in each case: that “love and courage trump hate and destruction.”*

I have learned that the world can be a scary place. But I have also learned that: in the face of fear, we have a choice. Who will we choose to be when we are presented with the opportunity to care about, to stand with, to speak up for, to give

up something of ourselves as a simple act of humanity? Many of us have gone to bed in fear—fear of discrimination, fear of deportation, fear of walls and bans and rollbacks. We have been afraid. But, among us are the courageous. I know because I've seen it. I've eaten next to it in the dining hall, I've studied across from it in the library, I've walked by it in Harvard Yard. I know the mark of courage, and I've seen it here with you.

So, as we prepare to graduate and walk through those gates one final time as students, let us choose our weapons wisely. Let Courage be our defense against cowardice, Hope our defense against despair, Compassion our defense against destruction.

Let's choose Love as our ultimate defense against fear, because in the face of fear, lies the golden opportunity to shift the narrative by being someone who is willing to walk a six-year-old to a safe place, through a hole in a chain-link fence....

### On Being “Bewildered at Harvard”

*Graduate English orator Walter Edward Smelt III, M.T.S. '17, gave an address that was seemingly about his love of books and libraries. But he took a different direction, toward a larger meaning—and along the way drew upon a source that might seem subversive in an age of immigration bans and border walls. An excerpt:*

[S]ome problems just come with being human, and they need to be confronted again by each generation. No new technology, no printing press or app, is going to settle the problem of greed, or death, or hate. And at the Divinity School, we think about these problems, and about how people have dealt with them through the ages, and how to do what right we can in the face of all that's wrong.

As it happens, that reminds me of a line

from Rumi. “Sell your cleverness and buy bewilderment.” Harvard graduates will change the world, one way or another, because we're clever. But we must be more than that. We must be willing to become bewildered: neither approaching a problem arrogantly, sure that we already know the answer, nor throwing up our hands and walking away. Becoming bewildered means admitting some problems don't have quick fixes. It means learning from mistakes, learning from the other, learning what it is we can't learn.

And those are things Rumi can teach us about. Rumi, an immigrant from what is now Afghanistan to what is now Turkey, an immigrant from the thirteenth century to our own, a Muslim mystic. Rumi has something immensely valuable to tell us, but we have to listen really hard for it, with humility, and for the rest of our lives.

...[A]fter a few years here, I'm sure you'll agree that knowledge is hard. But wisdom is even harder. We'll need both...because this world is complex and contradictory, and if we're not bewildered sometimes, we're doing it wrong. But we'll go forth anyway, to change the world and also to be changed by it, to write our own books. Those books may be made of paper or published digitally, or...may simply be the legacy of the acts that make up a life. Regardless of their form, your books will be good books if you are willing to be bewildered, if you take on this messy, tragic, lovely world and confront its problems in good faith.

### “Our Wild Rumpus of Ideas”

*In her Commencement afternoon remarks, President Drew Faust talked about free speech. She was mindful that “recently, we can see here at Harvard how our inattentiveness to the power and appeal of conservative voices left much of our community astonished—blindsided by the outcome of last fall's election. We must work to ensure that universities do not become bubbles isolated from the concerns and discourse of the society that surrounds them.” But she was also concerned about other aspects of speech on the contemporary campus. An excerpt:*

Campus conflicts over invited speakers are hardly new.

Yet the vehemence with which these issues have been debated in recent months not just on campuses but in the broader public



**Walter Edward Smelt III**





President Drew Faust

sphere suggests there is something distinctive about this moment. Certainly these controversies reflect a highly polarized political and social environment—perhaps the most divisive since the era of the Civil War. And... free-speech debates have provided a fertile substrate into which anger and disagreement could be planted to nourish partisan outrage and generate media clickbait. But that is only a partial explanation.

Universities themselves have changed dramatically in recent years, reaching beyond their traditional, largely homogeneous populations to become more diverse than perhaps any other institution in which Americans find themselves living together.... Harvard College is now half female, majority minority, religiously pluralistic, with nearly 60 percent of students able to attend because of financial aid.... [Yet many] of our students struggle to feel full members of this community...in which people like them have so recently arrived. They seek evidence and assurance that—to borrow the title of a powerful theatrical piece created by a group of our African-American students—...they, too, are Harvard.

The price of our commitment to freedom of speech is paid disproportionately by these students. For them, free speech has not infrequently included enduring a questioning of their abilities, their humanity, their morality—their very legitimacy here. Our values and our theory of education rest on the assumption that members of our community will...actively compete in our wild rumpus of argument and ideas. It requires them as well to be fearless in face of argument or challenge or even verbal insult. And it expects that fearlessness even when the challenge is directed to the very identity—race, religion, gender, ethnicity, sexual ori-

entation, nationality—that may have made them uncertain about their right to be here in the first place. Demonstrating such fearlessness is hard; no one should be mocked as a snowflake for finding it so.

Hard, but important and attainable.... But the price of free speech cannot be charged just to those most likely to become its target. We must...nurture the courage and humility that our commitment to unfettered debate demands from all of us. And that courage means not only resilience in face of challenge or attack, but strength to speak out against injustices directed at others as well.

### “A Battle of Ideas”

*Mark Zuckerberg exhorted the Tercentenary Theatre crowd (and several million Facebook followers) “to create a world where everyone has a sense of purpose: by taking on big meaningful projects together, by redefining equality so everyone has the freedom to pursue purpose, and by building community across the world.” The scope of the challenges he identified would fit well with Joe Biden’s exhortation for Americans to think big; on equality alone, he said:*

We should have a society that measures progress not just by economic metrics like GDP, but by how many of us have a role we find meaningful. We should explore ideas like universal basic income to give everyone a cushion to try new things. We’re going to change jobs many times, so we need affordable childcare to get to work and healthcare that aren’t tied to one company. We’re all going to make mistakes, so we need a society that focuses less on locking us up or stigmatizing us. And as technology keeps changing, we need to focus more on continuous education throughout our lives.

*Acknowledging the current distemper, he said:*

[W]e live in an unstable time. There are people left behind by globalization across the world. It’s hard to care about people in other places if we don’t feel good about our lives here at home. There’s pressure to turn inwards.

This is the struggle of our time. The forces of freedom, openness, and global community against the forces of authoritarianism, isolationism, and

nationalism. Forces for the flow of knowledge, trade, and immigration against those who would slow them down. This is not a battle of nations, it’s a battle of ideas. There are people in every country for global connection and good people against it. This isn’t going to be decided at the UN, either. It’s going to happen at the local level, when enough of us feel a sense of purpose and stability in our own lives that we can open up and start caring about everyone. The best way to do that is to start building local communities right now.

*And with barely controlled emotion, he related this story from one of his own communities:* Remember when I told you about that class I taught at the Boys and Girls Club? One day after class I was talking to them about college, and one of my top students raised his hand and said he wasn’t sure he could go because he’s undocumented.... Last year I took him out to breakfast for his birthday. I wanted to get him a present, so I asked him and he started talking about students he saw struggling and said, “You know, I’d really just like a book on social justice.” I was blown away. Here’s a young guy who has every reason to be cynical. He didn’t know if the country he calls home—the only one he’s known—would deny him his dream of going to college. But he wasn’t feeling sorry for himself. He wasn’t even thinking of himself. He has a greater sense of purpose, and he’s going to bring people along with him. It says something about our current situation that I can’t even say his name because I don’t want to put him at risk. But if a high-school senior who doesn’t know what the future holds can do his part to move the world forward, then we owe it to the world to do our part too. ▢



Mark Zuckerberg

## News Briefs

### Graduate-Student Unionization

FOLLOWING the National Labor Relations Board's (NLRB) tentative decision in April to order new balloting in the Harvard Graduate Student Union-United Auto Workers campaign to organize graduate students, the University filed an objection. The path forward remains unclear: a new election could take place as early as next fall, or, if the case gets tied up in more legal hearings, much later, or not at all.

In April, the hearing officer ruled that Harvard had excluded from its eligible voter list many students who should have been able to vote in last November's election, and thus a new election should take place if the final vote count does not result in a union victory. That decision has not yet been approved by the NLRB's Boston regional director. The union has argued that Harvard's exclusion of some eligible students from the voter list created confusion over eligibility and discouraged voting.

In rebuttal, Harvard spokesperson Anna Cowenhoven wrote in a statement: "Questions about the list of eligible voters—the basis for the Harvard Graduate Students Union-United Auto Workers (HGSU-UAW) claim for a new election—ignore the facts. Thousands of students voted, including a majority of those found by the NLRB Hearing Officer to have been omitted from the voter list, and most of those ballots have already been counted. Students were highly engaged, and after nearly two years of organizing on campus by the HGSU-UAW, thousands voted in the November 2016 election—a majority in opposition to unionization."

Harvard's protracted election process now increasingly resembles those elsewhere. At Yale, where a majority of students in some departments voted to unionize, organizers undertook a hunger strike in an attempt to force the administration to begin contract negotiations. Yale has challenged

## HARVARD PORTRAIT



Sarah Lewis

**Sarah Lewis '01** remembers being approached by painter Jacob Lawrence while on a family visit to the Museum of Modern Art in New York. "I was very young—tiny—and I remember him breaking away from whatever storied crowd was around him, just to say hi to this African-American family in the museum." Lewis's parents weren't artists themselves, but "They made sure I understood the importance of African-American culture." Now assistant professor of history of art and architecture and African American studies, Lewis grew up with interests in painting, photography, and dance, thinking she'd continue them at the College. Instead, she was drawn to the social and political dimensions of the arts. Her clarity of thought on race in the arts has earned her public recognition rare for her field. In her course "Vision and Justice," students look at daguerreotypes commissioned by Harvard naturalist Louis Agassiz, who attempted to prove different races were descended from different lineages. "The categories of race and citizenship are deeply tied to the category of aesthetics," Lewis explains. "These were photographs that were instrumentalized for racial science." While working on her Ph.D. at Yale, she came upon a previously unstudied speech by Frederick Douglass, who lived during the birth of both racial science and photography. Douglass anticipated the power of that new medium not just to dehumanize, but also to "read African Americans back into the human family," Lewis argues with arresting precision, her self-possession mirroring Douglass's own. This was why he became the most photographed American man of the nineteenth century: "Not the most photographed African-American man—the most photographed *American* man." ~MARINA BOLOTNIKOVA

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## Yesterday's News

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

**1932** Guided by meteorologists' advice to find a spot in the lee of a large lake—to avoid the cumulus clouds typical of New England August afternoons—the 17-member Harvard Eclipse Expedition sets up camp east of Lake Sebago, in Gray, Maine, and successfully completes its scientific studies of the August 31 total solar eclipse.

**1942** The path from University Hall to Johnston Gate has been widened by the Navy to accommodate formations of marching men from the Harvard Naval Training School.

**1947** Members of the newly formed Harvard Youth for Democracy stage a protest outside the Old South Meeting House in Boston at a July 13 speech by the anti-Semite Gerald L.K. Smith. The 35 students picket the Meeting House with signs reading "No Free Speech to Preach Murder."

**1957** The proprietors of all stores in the block slated to become Holyoke Center are invited to meet with the University's planning coordinator and the dean of the Design School; they are assured that Harvard proposes to render every assistance possible during construction and to grant them space in the new building once it is completed.

**1962** U.S. Secretary of Defense Robert S. McNamara, M.B.A. '39, is awarded an honorary doctor of laws degree: "With vigor and courage he directs our nation's huge responsibility for the free world's defense."

**1967** The major Harvard and Radcliffe Commencement speakers, Edwin O. Reischauer, Ph.D. '39, and Barbara Tuchman '33, criticize U.S. policies toward Asia in general and the Vietnam War in particular in their addresses.

**1972** Among going-away gifts received by retiring Radcliffe president Mary Bunting is a specially bred purple cow (the product of a Charolais-Holstein cross) for her New Hampshire farm.

On the twenty-fifth anniversary of the announcement of the Marshall Plan, West German chancellor Willy Brandt, LL.D. '63, announces the creation of the German Marshall Fund in a speech at Sanders Theatre. The new fund will underwrite academic and scientific programs to stimulate American involvement in European questions and to promote mutual cooperation.

**2002** Harvard agrees to participate in the "Scholars at Risk Network," which offers temporary positions to scholars threatened in their homelands; the University will host researchers from Iran and Ethiopia in the new academic year.

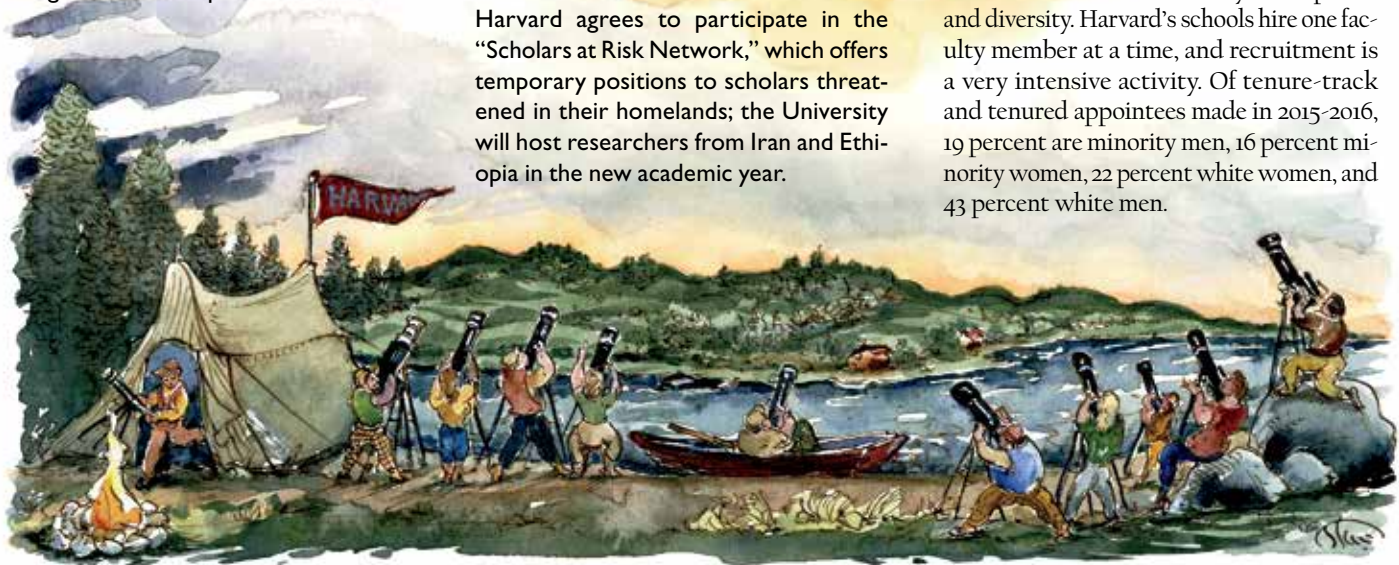
the legitimacy of the department-by-department balloting and has asked the national office of the NLRB to review its case; if the board agrees to hear it, that could put cases at Harvard and elsewhere on hold. Finally, a reconstituted NLRB under President Donald Trump might revoke the right of private university students to unionize, rendering the elections at Harvard and other universities moot.

Read more at [harvardmag.com/union-appeal-17](http://harvardmag.com/union-appeal-17). ~MARINA BOLOTNIKOVA

## Diversifying the Faculties

A DECADE AGO, more than two-thirds of tenured professors and nearly one-half of tenure-track professors at Harvard were white men. Since then, the composition of the faculty has evolved considerably, most notably among tenured professors: 25.8 percent are women and 18.8 percent are minorities, up from 20.5 percent and 12.6 percent in 2008. The share of tenured underrepresented minorities, including African Americans and Latinos (Harvard has no Native American professors), increased to 7.7 percent from 5 percent in the same period.

If these changes sound small, that is because faculty turnover is slow. Harvard has added 49 tenure-track and 42 tenured faculty members this year, within a total body of just under 1,500. "With the faculty not changing in size, and very few retirements, this actually reflects a real push on the part of the leadership of the University," says senior vice provost Judith Singer, who directs the office of faculty development and diversity. Harvard's schools hire one faculty member at a time, and recruitment is a very intensive activity. Of tenure-track and tenured appointees made in 2015-2016, 19 percent are minority men, 16 percent minority women, 22 percent white women, and 43 percent white men.



# University People

## Top Teachers...

The Faculty of Arts and Sciences has conferred five-year Harvard College Professorships—its highest honor for undergraduate teaching, advising, and mentoring—on Amanda Claybaugh, Zermurray Stone Radcliffe professor of English (see Harvard Portrait, May-June 2012, page 42)—a previous winner of the Graduate Student Council’s award for excellence in mentoring; Melissa Franklin, Mallinckrodt professor of physics (see “Learning by Doing,” May-June 2014, page 18); Gonzalo Giribet, professor of organismic and evolutionary biology; Marko Loncar, Lin professor of electrical engineering—a prior winner of the Undergraduate Council’s Levenson Memorial Teaching Prize; and Tommie Shelby, Titcomb professor of African and African American studies and of philosophy.



**Melissa Franklin**

COURTESY OF MELISSA FRANKLIN

## ...and Other Outstanding Instructors

David Cox, assistant professor of molecular and cellular biology and of computer science, and Lorgia García-Peña, assistant professor of Romance languages and literatures and of history and literature, were honored with the Abramson Award for outstanding undergraduate teaching and their sensitivity and accessibility to undergraduates. The Undergraduate Council’s Levenson Memorial Teaching Prize was conferred on Oliver Knill, preceptor in mathematics; Anna Klales, preceptor in physics; and Stephen Rosen,



**Amanda Claybaugh**

STEPHANIE MITCHELL/HPAC

Kaneb professor of national security and military affairs. The council’s Marquand Prize for exceptional advising and counseling was conferred on Gregory Bruich, lecturer on economics; Avik Chatterjee, tutor in Currier House; and Gregg Peeples, Allston Burr assistant dean, Winthrop House. The Graduate Student Council’s Mendelsohn Excellence in Mentoring Award was conferred on García-Peña (making her a two-time honorand); Barbara Grosz, Higgins professor of natural sciences; Jerry Mitrovica, Baird professor of science (featured in “The Plastic Earth,” September-October 2016, page 46); Ahmed Ragab, Watson associate professor of science and religion; and Xiaofei Tian, professor of Chinese literature. Finally, Elena Kramer, Bussey professor of organismic and evolutionary biology (she is also department chair and a Harvard College Professor), and Martin Nowak, professor of mathematics and of biology, received the Cox Prize for Excellence in Science Teaching (which is accompanied by a \$10,000 personal award and \$40,000 in support for teaching and research).



**Xiaofei Tian**

STEPHANIE MITCHELL/HPAC

## Special Scientists

Faculty members newly elected to the National Academy of Sciences include David Charbonneau, professor of astronomy (see Harvard Portrait, March-April 2008, page 57); Noam D. Elkies, professor of mathematics; David D. Ginty, Lefler professor of neurobiology; Barbara B. Kahn, Minot professor of medicine; Ariel Pakes, Thomas professor of economics; Madhu Sudan, McKay

professor of computer science; Rachel I. Wilson, Martin Family professor of basic research in the field of neurobiology; and Junying Yuan, Hay professor of cell biology.

## A Pulitzer Passel

Winners of Pulitzer Prizes this year include David Fahrenthold ’00, of *The Washington Post*, for his coverage of the presidential election campaign; novelist Colson Whitehead ’91, for *The Underground Railroad* (read a full profile, “A Literary Chameleon,” from the September-October 2016 issue, page 32); Loeb associate professor of the social sciences Matthew Desmond, in nonfiction, for *Evicted: Poverty and Profit in the American City* (profiled in “Disrupted Lives,” January-February 2014, page 38); composer Du Yun, Ph.D. ’06, for *Angel’s Bone*; and, for their part in teams recognized for collaborative work, David Sanger ’82, of *The New York Times*, in international reporting for work on Vladimir Putin’s projection of Russian power abroad, and Peter Newbatt Smith ’83 and Richard P. Sia ’75, staff members of the International Consortium of Investigative Journalists, recognized for explanatory reporting on the Panama Papers. Details and links are available at [harvardmagazine.com/pulitzers-17](http://harvardmagazine.com/pulitzers-17).



**David Fahrenthold**

COURTESY OF DAVID FAHRENTHOLD



**Colson Whitehead**

COURTESY OF COLSON WHITEHEAD



**Matthew Desmond**

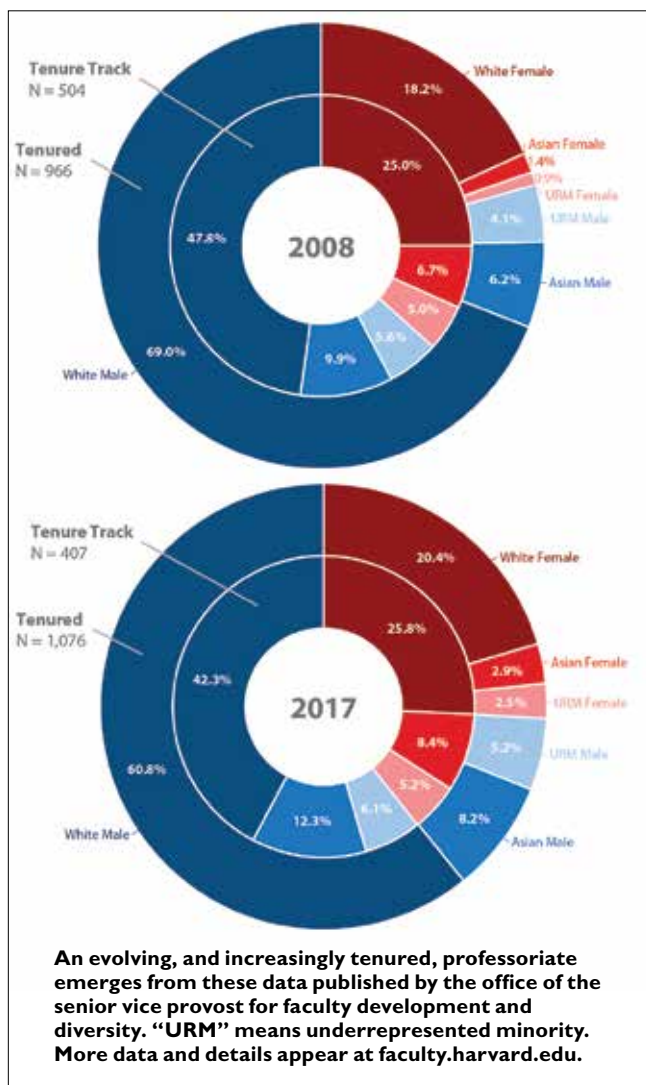
JON CHASE/HPAC



**OVERSEERS’ LEADERS:** Scott A. Abell ’72, past president of the Harvard Alumni Association, has been elected president of the Board of Overseers for 2017-2018, and Tracy P. Palandjian ’93, M.B.A. ’97, will serve as vice chair of the executive committee. The service will conclude their six-year terms as Overseers. They succeed Kenji Yoshino ’91, and Nicole Parent Haughey ’93, respectively.

COURTESY OF SCOTT A. ABELL AND TRACY P. PALANDJIAN





Diversity still varies widely at the departmental level. "The [Faculty of Arts and Sciences] divisions that are doing particularly well are, not surprisingly, the places where the graduate-student pools are themselves more diverse," Singer says. The arts and humanities division has the University's largest fraction of tenure-track women: 63 percent. The schools of education and divinity have relatively high shares of underrepresented minority faculty members, reflecting the makeup of Ph.D. programs in those fields. Singer also gives credit to high achievers in fields that typically aren't as diverse. Women represent 46 percent of tenure-track faculty in FAS's science division, for example: "That is really high." In the school of engineering and applied sciences, underrepresented minorities now make up 15 percent of tenure-track faculty.

Additional details are available at [harvardmag.com/facdiversity-17](http://harvardmag.com/facdiversity-17). ~M.B.

the divisions." The proposed "arc" of the required course options envisioned five actions students would take in learning to work with data: "Ask, Get, Analyze, Iterate, and Communicate" with consideration of ethical issues embedded in each step." Harris asked that an implementation committee be authorized to proceed.

But faculty members raised several concerns. Those in mathematics, engineering, and applied sciences (including applied mathematics) found the proposal too focused on data science at the expense of math, logic, and related disciplines. Some speakers worried that finding nearly 1,700 seats annually might prove infeasible, particularly when nearly half of entering students each year require extra help in entry-level calculus. Among the issues are who will teach (faculty members, or adjuncts or preceptors, as in Expository Writing), and whether sufficiently skilled teachers

## Pending Business: Maths

THE ACADEMIC YEAR ended with two important matters affecting undergraduates' Harvard lives—intellectual and social—left very much pending.

At its April 4 meeting, the Faculty of Arts and Sciences (FAS) discussed a reconceived empirical and mathematical reasoning requirement under the revised undergraduate Program in General Education, which takes effect in the fall of 2018—and introduced a new Harvard acronym, TwD, for "Thinking with Data," reflecting a bent toward data science (see [harvardmag.com/mathreq-17](http://harvardmag.com/mathreq-17)).

Dean of undergraduate education Jay M. Harris presented the report of the committee charged with refining the course, which asserted that all Harvard undergraduates "should be able to understand, interpret, and manipulate the data they will encounter in their lives beyond the University, as well as comprehend the basic quantitative concepts that are essential to many academic disciplines, across all

could be hired at a time of fiscal constraint.

Harris therefore withdrew the motion at the May 2 FAS meeting, pending further discussion with the mathematicians and refinement of the proposal. Presumably, the issues will return this fall—making for a sprint to the following academic year, when students begin selecting courses to fulfill their new gen-ed requirements. ~J.S.R.

## Pending Business:

### Social Organizations

SEPARATELY, at the May 2 meeting, FAS members adopted changes to the *Harvard College Handbook for Students* for the 2017-2018 academic year—an annual routine. "In keeping with the University's articulation of belonging and inclusion," gendered pronouns will be rendered gender-neutral. Other passages concerned Expos, advanced standing, email accounts and email privacy, and the new gen-ed requirements (with a caveat: "Until the new Quantitative Facility requirement is finalized and takes effect, students must complete the current Empirical Mathematical Reasoning requirement"). Separate language addressed marijuana (given the Massachusetts law permitting recreational use for adults); smoking (of tobacco, including vaping); and final examinations in absentia.

But the *Handbook* remains silent about the controversial new policy on student membership in unrecognized single-gender social organizations (USGSOs, such as final clubs, fraternities, and sororities), the subject of divisive FAS debate for most of the year (see "Social-Club Saga," May-June, page 18). It denies members of USGSOs the required College recommendations for prestigious scholarships and fellowships, and prohibits leadership positions in recognized clubs and athletic teams. Students who seek such recommendations or leadership positions must affirm that they do not belong to such groups. Alleged untruthfulness would be subject to review by the Honor Council, created by the faculty to hear cases of academic misconduct (cheating on examinations, plagiarism, and so on).

Both the policy and its implementation are under review, but for now, it remains in effect for freshmen arriving this August. They would not join USGSOs during their first months on campus, in any event—but they would still be affected by the rule because the affirmation requires that students attest that they have not been a member of a

## English, Enlarged

Beginning this fall, new English concentrators will be required to fulfill a “diversity in literature” requirement. The language of the faculty’s proposal “asks our students to engage with the ongoing histories of patriarchy, empire, and heteronormativity in and through literature” by “encountering the creative achievements associated with alternative traditions, counter-publics, and archives of dissent.” The topics will include, among others, “the historical construction of markers of difference such as race, ethnicity, class, gender, and sexuality” and “the imaginative and formal innovations produced by disenfranchised groups.” Qualifying courses (which include “Early Women Writers,” “The Rhetoric of Frederick Douglass and Abraham Lincoln,” “Global Fictions,” and others) will be so designated; over time, the requirement is expected to affect the design of other courses. Separately, Yale overhauled its English requirements this year, too; students will be expected to gain exposure to literature from more periods, and the department will also increase the number of courses featuring works by women, people of color, and authors from non-English-speaking countries who wrote in the language—a concerted effort to reflect the diversity of Anglophone literature.

## Guggenheim Fellows

The John Simon Guggenheim Memorial Foundation has conferred fellowships for the coming year on faculty members Adriaan Lanni, Touroff-Gluck professor of law; Martin Puchner, Wien professor of drama and of English and comparative literature (Harvard Portrait, May-June 2013, page 50); and Natasha Warikoo, associate professor of education. Puchner, who chairs the undergrad-

uate program in theater, dance, and media (see the report in the May-June 2016 issue, page 18), will also be resident at the Cullman Center for Scholars and Writers at the New York Public Library during the year.

# Brevia



**HEADS OF HOUSES.** Martignetti professor of philosophy Sean D. Kelly and senior lecturer on philosophy Sheryl Chen have been appointed faculty deans of Dunster House; they succeed Roger Porter and the late Ann Porter (who died on May 17 after health challenges accelerated unexpectedly). Kelly led the recent overhaul of the undergraduate general-education curriculum (see [harvardmag.com/gened-rev-15](http://harvardmag.com/gened-rev-15)). The couple have two sons, Ben and Nathaniel. Lakshminarayanan “Maha” Mahadevan, who is England de Valpine professor of applied mathematics, of organismic and evolutionary biology, and of physics, and Amala Mahadevan, a senior scientist at the Woods Hole Oceanographic Institution and faculty member at MIT, have been appointed faculty deans of Mather House; they succeed Christie McDonald and Michael D. Rosengarten. Maha’s research was featured in “The Physics of the Familiar,” the magazine’s March-April 2008 cover story (the year before he won a MacArthur Fellowship), and in many articles since. The couple’s children, Aditya and Kausaly, both attend Harvard College.

## On Other Campuses

MIT’s The Engine, a venture-capital and accelerator initiative aiming to support local startups in biotechnology, robotics, medical devices, and related fields, with a facility in Central Square, has attracted some \$150 million in initial funding. The institute contributed \$25 million; the balance came from outside investors....The Stanford Board of Trustees visited Harvard and MIT during its April retreat. A Stanford News report said that during their Harvard day, the trustees heard presentations on sustaining the arts, humanities, and social sciences alongside physical sciences and engineering. At MIT, they learned about the application of digital technologies to teaching and learning; entrepreneurship; nanoscience; urban studies; and the social implications of technology....Yale’s pilot program of applying a carbon charge to 20 campus buildings proved effective in reducing carbon emissions, according to an initial assessment....Duke’s arts and sciences faculty tabled a proposed revision of the undergraduate curriculum, according to *Inside Higher Education*; the effort sought, among other goals, to simplify complicated course requirements and to “rethink our vision for disciplinary as embodied by the curriculum,” but has not yet attracted the desired degree of consensus to proceed to a vote.

## Nota Bene

ADMIT THEM....And they will apparently come: the College reported that nearly 84 percent of applicants offered admission to the class of 2021 have accepted: the highest “yield” since 1969, when 83.1 percent of invited class of ’73 members opted for Cambridge.

...OR NOT. As this issue went to press, *The Harvard Crimson* on June 4 reported on a



STEPHANIE MITCHELL/HPAC



**LEADING LAWYER.** John F. Manning, Bromley professor of law, has been appointed dean of Harvard Law School, effective July 1, succeeding Martha Minow. A member of the faculty since 2004, Manning, a scholar of public law, teaches on subjects ranging from administrative law to statutory interpretation. Read more at [harvardmag.com/hlsdean-17](http://harvardmag.com/hlsdean-17).

darker side of memes (the subject of The Undergraduate column, opposite): the College's decision to withdraw offers of admission to members of the class of 2021 who shared explicit and derogatory memes "mocking sexual assault, the Holocaust, and the deaths of children" in a closed Facebook group.

**ADMITTING THEM...**The Mastery Transcript Consortium, comprising more than 100 private schools nationwide—including elite institutions such as the Dalton School, Cranbrook Schools, and the Phillips Academy in Andover, Massachusetts—has proposed doing away with traditional high-school transcripts. Instead, members propose that students present evidence of proficiency in diverse skills at vary-

ing levels of difficulty. Whether the idea takes hold or not, it is indicative of changing criteria (such as making standardized tests optional) and methods of assessment spreading across the admissions landscape.

**EARNINGS UPDATE.** Harvard's annual disclosure for the fiscal year ending June 30, 2016, reveals that President Drew Faust earned \$1,404,848—up from \$816,370 in the prior year—reflecting \$536,449 of deferred compensation awarded for "exceptional service" and to "encourage retention" during the years from 2012 through 2014, plus accrued investment earnings on the payments, which vested and were paid out in 2015. Harvard Management Company's departed president and chief executive officer Stephen Blyth was paid \$14.9 million. Full details appear at [harvardmag.com/earnings-17](http://harvardmag.com/earnings-17).

**RADCLIFFE FELLOWS.** Among the Radcliffe Institute's 52 fellows next academ-

ic year are 11 Harvard affiliates, including Pforzheimer University Professor and University Library director emeritus Robert Darnton; former U.S. ambassador to the United Nations Samantha Power; and former Law School dean Martha Minow. The complete roster is available at [harvardmag.com/rias-fellows-17](http://harvardmag.com/rias-fellows-17).

**ARTS IN ACADEMIA.** Dan Byers, previously senior curator at the Institute of Contemporary Art/Boston, has been appointed Robinson Family director of the Carpenter Center for the Visual Arts. Separately, Damian Woetzel, M.P.A. '07, a former principal dancer with the New York City Ballet (and visiting lecturer at Harvard Law School), has been appointed president of the Juilliard School.



Dan Byers



Damian Woetzel

**HARVARD LAW'S LADDER.** After a three-year trial run at the College, the Law School is extending its Junior Deferral Program. Beginning this fall, any college junior can apply for admission; acceptances will be conditioned on successful graduation and a minimum of two years of work, study, or research or fellowship opportunities. Beyond maintaining a strong pool of applicants in an increasingly competitive environment, the program encourages students who study science, engineering, and related fields to consider preparing for legal careers.

**ADAMS HOUSE ON DECK.** Even as the two-year reconstruction of Lowell House gets under way (the picture shows the former Harvard Community Garden, established in 2010, which has yielded to a staging area for the work), Faculty of Arts and Sciences dean Michael D. Smith announced that architects will begin drawing up plans for the renewal of Adams House, the next undergraduate residence to be updated and reconfigured for the twenty-first century. The work would not begin

before 2019; read more at [harvardmag.com/adams-redo-17](http://harvardmag.com/adams-redo-17).



HARVARD MAGAZINE/LC

USGSO for a year prior to assuming a leadership role or accepting a scholarship, and that they will not join a USGSO in the year following. Pending the outcome of the policy review, these matters may come before FAS again in the fall—an outcome most faculty members would probably like to avoid.

~J.S.R. and JONATHAN SHAW

## Education, Ever More Online

HARVARDX, the online course initiative, has begun piloting the disaggregation of contents—course videos, recorded lectures, illustrations, and exercises—so professors across the University can search them and incorporate them into their classroom teaching as of this fall. The HarvardDART (Digital Assets for Reuse in Teaching) tool thus makes it possible to repurpose material heretofore available only through full edX online courses—advancing the goal of applying discoveries from online teaching and learning, through the dozens of full courses now in existence, to campus-based in-

struction in any of thousands of courses for which the content is relevant. It also yields more applications from Harvard's extensive investment in developing and posting the online courses, which can easily amount to tens of thousands of dollars or more per new offering.

In other online developments, edX—the Harvard-MIT-led consortium and technology platform through which HarvardX distributes its online courses—in April launched a “Professional Certificate” program for career-related courses created by companies and edX-affiliated universities. The programs, lasting two to six months (and thus shorter than MicroMasters, in which students begin online and then transfer to on-campus instruction), are explicitly related to career applications. Among them are “Data Science for Executives” from Columbia, “Retail and Omnichannel Management,” from Dartmouth, and “Microsoft Professional Program in Data Science,” from Microsoft. Meanwhile, Coursera, a for-profit competitor to edX, announced a plan to

offer 15 to 20 online degree programs by the end of 2019, including master's degrees in innovation and entrepreneurship, and in accounting. Both ventures illustrate how online programs are taking a more professional tilt, more oriented toward revenue (comparable to HBX and HMX, from the business and medical schools; see [harvardmag.com/hmx-17](http://harvardmag.com/hmx-17) for additional details)—a mission distinctly different from HarvardX's nondegree, liberal-arts brief and its predominantly free distribution.

Taking market logic one step further, also in April, Purdue announced its acquisition of Kaplan University—the credential-issuing operation of the Kaplan higher-education business, encompassing 32,000 students at 15 campus locations. Purdue has announced that it intends to create a nonprofit, online university, operating under Purdue's name, that focuses primarily on adult learners. About 85 percent of those Kaplan students are in fully online programs; the rest are in hybrid (online and classroom) settings. ~J.S.R.

## THE UNDERGRADUATE

# Our Memes, Ourselves

by MATTHEW BROWNE '17

I STARE AT a stock photo on my Facebook feed of a blond woman leaning over an infant, both caught in a delighted gaze. The generic rendering of motherly bliss has been repurposed into a two-panel comic, with text Photoshopped on top. In first panel, the infant says “M-m-m-,” and the elated mother reacts, “Oh my god! The baby! He’s saying his first words! Mama? Mom? Mommy?” In the second panel, the infant finishes: “McKinsey and Company.”

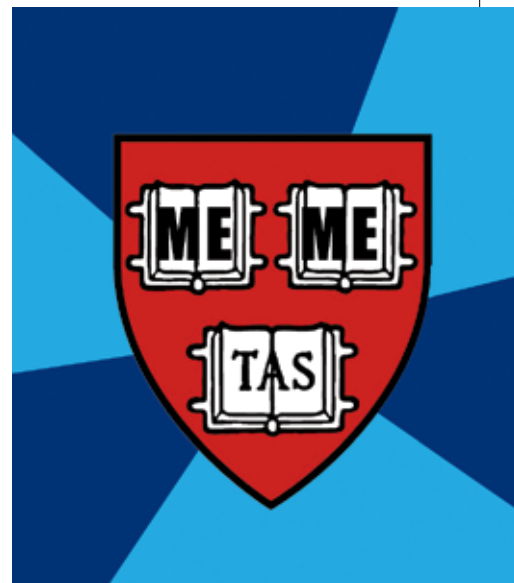
This is just one of the hundreds of images I come across while scrolling through Harvard Memes for Elitist 1% Tweens. HMFEOPT, as its users abbreviate it, is a Facebook group started in February that’s become a phenomenon on campus, one in a string of such groups cropping up at schools this year, from UC Berkeley Memes for Edgy Teens, to Brown Dank Stash of Memes for Unproduc-

tive Teens, to Yale Memes for Special Snowflake Teens. The groups are forums dedicated to sharing memes—a reference-heavy sort of humor that’s grown up on Internet social-media platforms—related to each university. It’s essentially a big game of passing inside jokes back and forth, isolating quirks of collegiate culture and exploiting them for fun.

On-campus recruiting by financial and consulting firms is just one of dozens of popular targets in HMFEOPT. To scroll through the group is to wade through a swift current of allusions to all corners of Harvard life, from the particulars of swiping into certain dining halls, to the challenges of catching the Quad shuttle, to the seeming impossibility of getting a good night’s sleep. No school norm is safe from being identified as a trope and turned into a punch line. In the past, the only analysis you might get of a slice of Harvard life might be a conversation, in person

among friends, or an op-ed in the *Crimson*. Now, an accompanying flood of memes adds another layer of commentary. By providing a space for people to share such observations, HMFEOPT has become the site of a new type of dialogue on campus.

This subculture of wry analysis has grown alongside concerns about how to create a school-wide dialogue on difficult issues. Generating such a dialogue is particularly difficult at Harvard, where students spread themselves thin across dizzying arrays of commitments, academic and otherwise, and social organizations tend to di-





vide the student body into self-selected, like-minded groups. As a result, for better or for worse, HMFEOPT might be the closest thing we currently have to a campus-wide forum. As of this writing, the group has 27,463 members. (This exceeds the total College population because current group members can accept requests from any Facebook user who wants to join.) It's difficult to estimate exactly how many undergraduates use the group, but that total suggests that a large number do. Any of these thousands of members can post memes, making HMFEOPT a centralized, crowd-sourced trove of chatter that cuts across the student body.

While much of the content addresses inane topics, the group has also been a site for sharing memes about a slew of charged issues. Following the release of the final report of the College's Implementation Committee for the Policy on Membership in Single Gender Social Organizations (see [harvardmag.com/usgsco-implement-17](http://harvardmag.com/usgsco-implement-17)), members seized on one particular sentence that proposed, as a theoretical alternative to final clubs and Greek organizations, a program of College-recognized Inter-House Dining Societies: "Societies might set special themes for some of their meals, purchase special desserts, invite special guests, eat in elegant attire, read Chaucer out loud, or anything else they might enjoy." The idea that Chaucer could compete with final clubs' exclusivity and lavish parties was ripe for a meme encapsulating the feeling that the administration was out of touch with its students.

That day, students flocked to HMFEOPT to see how creatively their classmates could spin the joke. Theories developed about dean of Harvard College Rakesh Khurana and his secret love of the fourteenth-century poet. Never before had the cover of *The Canterbury Tales* been so heavily Photoshopped. One popular post featured a mock text-message conversation between a student and Khurana about what was

happening on campus that night. The student writes that he's "heard about a couple things," to which Khurana responds, "lol like a party with alcohol and music?" and then adds, "how about u slide into some elegant attire & read Chaucer out loud w me as we dine over HUDS food @ the dhall?" About 1,000 people liked this meme. By my count, about 20 other Chaucer memes that day received more than 100 likes.

By liking these memes, sending them to friends, commenting on them, and creating their own in response, HMFEOPT's members were participating in an oblique discussion of campus politics, but it's hard to tell where such conversations go. Yes, HMFEOPT's inundation with Chaucer memes showed students that their classmates thought the administration was out of touch. But to what ends? The group seems to give its members the ability to ridicule the committee's report only at a strange angle that revels in lunacy and doesn't necessarily translate to building a robust critique. This is what's perplexing about HMFEOPT. Because so many people use the group, it remains tempting to think that the memes might represent the desired—if idiosyncratic—inclusive discussion about Harvard. But if HMFEOPT does represent a new forum of cross-campus discourse, it's one fueled by hyper-ironic playfulness. Any criticism that has teeth is a fringe benefit.

Still, at least one aspect of memes makes me optimistic. Like all observational humor, they create a loop of recognition. The humor comes from being in on the reference—recognizing the trope that the meme isolates. Memes work like old Jerry Seinfeld bits that have you saying, "That's so true" after he points out things people do on airplanes. In my



experience, when a meme has sparked a more substantive conversation, it always circles back to how "right" a meme got it. Memes make different people aware of their common experience. If a

meme takes a critical perspective on some issue, it can bring opinions to the surface that individuals may otherwise have kept to themselves, thinking they were alone. Memes can be politically constructive when they amplify discussions in real life—though the thrust of the conversation tends to be about the joy and ingenuity of the humor.

IF YOU FOLLOW the group regularly, it's hard to stop noticing, in real time, those moments it skewers. When a friend I haven't seen in a while suggests that we grab lunch sometime to catch up and we never do, I think of the meme of a skeleton sitting on a park bench, captioned "Still waiting to 'catch a meal sometime.'" When the overbearing competition on campus starts to make me feel down, I think of the meme of the definition of "self-esteem" with the caption, "Since y'all Harvard kids know everything, what's this?"

To feel as if you're often receiving your experience of the world through pre-digested tropes produces contradictory effects. It can make your experiences feel hollow, as if they don't have the unique, authentic imprint that you romantically imagine they might. But the memes are also popular, I think, because they generate the affirmation that comes with being recognized and understood. Your reactions to the often absurd conditions of life at Harvard are validated by other people who see some of the same things and feel some of the same ways.

Maybe paying attention to our tropes can work toward socially productive ends. But, at bottom, HMFEOPT demonstrates the dizzying effect of how mediated our lives are. Memes turn campus life into a sort of hall of mirrors: you recognize the things you do being recognized by other people recognizing them as things that other people do—and you get to laugh along with it. ♡

Berta Greenwald Ledecky Undergraduate Fellow  
Matt Browne '17 is waiting for the special concentration track in memetics.



# Spring Sports

## Track and Field

**After a season of big wins** and broken records, Harvard's track and field team sent three women to the NCAA championships in Eugene, Oregon, as this issue went to press. Two seniors—sprinter and hurdler Jade Miller, and shot-putter and discus thrower Nikki Okwelogu (a 2016 Olympian for Nigeria)—punched their tickets to the tournament with strong

performances in the NCAA East preliminary meets in late May. So did standout sophomore sprinter and jumper Gabby Thomas, who this spring helped the women's team to its fourth straight Ivy Outdoor Heptagonal Championship title—and with it, for the first time in program history, a “triple crown”: a sweep of all three titles in cross country, indoor track, and outdoor track.

The men's team took fourth place in the Outdoor Heps, missing third place by a single point. Senior Efe Uwaifu, a jumper, qualified for the NCAA tournament in Eugene as well, reaching ninth place overall with a 51-foot, 5.5-inch triple jump in the East regional preliminary round.

## Golf

**After finishing second** in early April at the Princeton Invitational, the men's golf team won its second straight Ivy League championship at the end of that month, defeating the field of seven other teams by 15 strokes, earning a trip to the NAAs; the Crimson had topped the leaderboard on each of the tournament's three days. At the NCAA regional competition in mid May, Harvard senior Kendrick Vinar placed thirteenth overall with a final score of 218 (plus-two, 76-69-74), the highest NCAA finish for a Harvard player since 1982.

The women's team, after taking third in the April I Harvard Invitational and winning first a week later in the Navy Spring Invitational at Annapolis, Maryland, placed second in a field of seven in the Ivy championship. Sophomore Anna Zhou led the way with a final score of 231 (plus-15, 77-76-78).

## Crew

**In mid May**, the men's heavyweight crew took second place at the Eastern Sprints Championships in Worcester, Massachusetts. During a wild afternoon on Lake Quinsigamond, the varsity eight was barely beaten by Yale after making a furious comeback; the second varsity boat took fourth, and the third boat rowed to a

first-place finish. Two weeks earlier, the team had swept Northeastern to win its twentieth consecutive Smith Cup, and before that had swept all five races against a higher-ranked

Princeton team to bring home the Compton Cup for the first time in three years. As the magazine went to press, the Crimson was preparing for the 152nd Harvard-Yale Regatta in New London, Connecticut. (Last year's varsity contest was declared, controversially, to have no official winner, after Harvard's boat sank in rough waters within the first half-mile of the course and the race was called off with Yale ahead.)

The men's lightweight team, meanwhile, hoisted the Jope Cup at the Eastern Sprints, winning the championship for the first time since 2011. Rowing at home in late April, the Crimson had beaten No. 1 Yale and fourth-ranked Princeton to capture the Goldthwaite Cup, adding to the spring's existing haul of the Wales-Kirrane Cup (versus Columbia and Georgetown), the Biglin Bowl (versus Dartmouth and MIT), and the Haines Cup (versus Navy and Delaware).

After an up-and-down spring, the eighteenth-ranked women's heavyweight crew won gold at Eastern Sprints, placing first in five of its six races on a late-April afternoon during which competitions were delayed by lightning. The Radcliffe lightweights also finished first at Eastern Sprints, winning gold in the varsity eight race, silver in second varsity, and gold in third varsity. A week earlier, the Radcliffe lightweights had upset third-ranked Princeton on a cool and foggy Saturday in Cambridge to win the Class of 1999 Cup for the second year in a row.

## Tennis

**Closing out** its season in late April with a 17-8 overall record (5-2 Ivy), women's tennis handed losses to Ivy rivals Princeton, Yale, Columbia, Brown, and Dartmouth this past spring. Toppling Princeton 5-2 in the final win of the season, the Crimson earned a share (with Dartmouth) of the Ivy League trophy for the first time since 2009. Sophomore standout Erica Oosterhout secured the winning point in that contest. A first-team All-Ivy player who won seven of her last 10 matches, Oosterhout was 18-9 overall in singles competition this season, and 16-9 in doubles when partnering with senior captain June Lee.

Men's tennis finished with an 18-9 overall record (6-1 Ivy), clinching a share of the conference title on the final day of the season, with a dual match win over Penn. The team had won nine of its last 10 matches, marred only by a 4-2 loss to Cornell (with whom it would share the Ivy crown, along with Columbia). In singles play, the Crimson was led by junior Jean Thirouin (with a 16-4 overall record) and sophomore Andy Zhou and junior Kenny Tao (both 14-7). The doubles pair of sophomore Christopher Morrow and freshman Logan Weber led the team with an 18-6 record; Tao and senior Brian Yeoung followed close behind with 16-6.

—LYDIALYLE GIBSON

## Heavyweight women's crew

ZACK WILLIAMSON



Jade Miller

## Kendrick Vinar







# POETRY, VOICED

Works “unspool” in the  
Woodberry Poetry Room.

**I**N 1928, Frederick Clifton Packard Jr. '20, head of Harvard's public-speaking department, improvised a cutting-edge audio-recording studio in one of the Yard's oldest buildings, installing a telegraphone in Holden Chapel. The device, about the size of a small radio and roughly resembling a typewriter, was deemed “decidedly unimpressive in general appearance” by *The Harvard Crimson*, though “ingenious and almost uncanny” in its power to capture speech. Most thrilling, and disquieting: “The record may be preserved for eternity or simply be rubbed out.”

Packard had always loved the spoken word: he produced amateur plays around Boston while at college, and afterward pursued an acting career in New York and Europe before returning to his alma mater to conduct linguistics research and help students and faculty

with speech impediments.

He also loved literature, especially the way it sounded, and at studio set-ups scattered around campus—in the Germanic Museum, the Cruft Memorial Laboratory, the basement of Memorial Hall, and elsewhere—he pursued another of his eccentric projects: the Harvard Vocarium, one of the earliest commercial recording labels for poetry. Its first few records were released in 1933 and featured T.S. Eliot, A.B. 1910, Litt.D. '47, but slotted the future Nobel laureate in what seems today a peculiar lineup—alongside recordings of two Harvard professors reading from the Bible and Chaucer.

The Vocarium started up just as sound recording technology was disrupting literary mores surrounding poetry and performance.

by **SOPHIA NGUYEN**



**Frederick C. Packard (left) envisioned a library where visitors could enjoy both “the printed book and the ‘talking book,’” and got his wish when the Woodberry Poetry Room, designed by Alvar Aalto, opened in Lamont Library in 1949 (middle row). Next door, the Lamont Forum Room (top row) featured a two-turntable playback for “group listening” and “poetry concerts.” Opposite page: a 1948 record from Packard’s Harvard Vocarium label, T. S. Eliot: *Reading His Own Poetry*, on a turntable in a console designed by Aalto and engineer Jack L. Weisman.**

Though poetry’s association with voice is as old as the art itself, the rise of radio in the 1920s dramatically reconfigured that relationship. It had long been assumed that poets were not the best performers of their work, Lesley Wheeler writes in

her book *Voicing American Poetry*, but broadcast media made trained, polished voices ubiquitous. Audiences became more invested in the concept of writers’ authentic presence, as conveyed by their idiosyncratic, physical voices. Author readings became more common, while verse recitals by amateurs and professional performers alike fell out of favor; in schools, pedagogical weight shifted from elocution to interpretation. It became integral to the careers of poets like Robert Frost ’01, Litt.D. ’37, and Edna St. Vincent Millay to share their work with listening audiences—he in public events; she over the airwaves.

litzer Prize-winner Marya Zaturenska. But he also carefully cast professionals to read non-contemporary verse: English thespians Flora Robson and Robert Speaight were recruited to perform Shakespeare, and scholars pronounced whole albums of Anglo-Saxon and Latin poetry.

Packard used his coinage “vocarium” to refer to an idea much more ambitious than his commercial label: he imagined a “library of voices” that preserved speech for posterity, a place people could actually visit to immerse themselves in words. One day, there might be “vocariums” in local schools and libraries all over the country. Fulfilling his dream of a space where the “talking book” could be appreciated alongside print text, the Woodberry Poetry Room was relocated to the recently opened Lamont Library in 1949. The space, specially designed by Finnish architect Alvar Aalto to emphasize listening, could accommodate 36 patrons at a central table and at auxiliary “listening posts,” where visitors could “browse”—eavesdropping at will on whatever others were playing at the time. Next door was the soundproofed Forum Room, where classes could gather for group listening sessions. (The “student motion picture group,” Ivy Films, also screened its first complete film there.) By

Packard recorded whatever luminaries he could coax into a studio session while they were visiting campus: the now-famous voices of Tennessee Williams and Dylan Thomas, and others whose work in any format has grown obscure, like the political poet Muriel Rukeyser and 1938 Pu-





The Packard Collection includes metal parts used in manufacturing (upper left, in a paper sleeve), as well as the published Harvard Vocarium records with their printed sleeves (bottom left and right). At upper right are four stages in the production of a T. S. Eliot disc (counterclockwise from upper left): lacquer disc, metal master, test pressing, and produced vinyl disc. On the facing page are Poetry Room curator Christina Davis (left) and assistant curator Mary Walker Graham.

1950, the library had almost 500 discs in addition to its sizable book collection.

The Harvard Vocarium might be best known today for making the earliest recordings of American modernist poets like Robert Lowell '39, Elizabeth Bishop, and Ezra Pound. "Recording technology allowed poets, to a certain extent, to model how free verse might sound," says Woodberry Poetry Room curator Christina Davis. As William Carlos Williams entreated, in a 1951 reading at Harvard recorded for the Poetry Room: "Listen! Never mind, don't try to work it out; listen to it. Let it come to you. Let it—sit back, relax...Let the thing spray in your face!" A ripple of laughter went through the audience. His reedy voice, almost wheedling, continued, "Get the feeling of it; get the tactile sense of something, something going on. It may be that you may then perceive—have a sensation—that you may later find will clarify itself as you go along. So that I say, don't attempt to understand the modern poem; *listen* to it. And it should be *heard*. It's very difficult sometimes to get it off the page. But once you hear it, then you should be able to appraise it. In other words! If it ain't a pleasure, it ain't a *poem*."

Even now, long after these writers have been canonized, their sound retains the power to shock. "Once you hear Ezra Pound screaming and beating on a kettle drum—I mean, you're just never the same," enthuses *Poetry Magazine* editor and former curator Don Share. In one recording, he says, "There's a little bit of laughter at the end. The people in the room got a kick out of the poem, and you can hear them laughing! Who would believe a thing like that?"

When Porter University Professor Helen Vendler was a graduate student at Harvard, women weren't allowed in Lamont Library except in the summer, when that part of campus became temporarily co-ed. At the time, she didn't especially like modernist poetry, and particularly disliked Wallace Stevens, Frost's classmate, whose work "didn't look like the poems I knew," she told an audience at a Poetry Room event in 2012. But a friend visiting the Woodberry Poetry Room with her insisted on listening to him, and eventually, said Vendler, "Once I had become familiar with his voice, I thought of all the poems as mysterious packages that had something for me inside." As she recounted in an interview for *The Paris Review*, "Suddenly, this voice was unspooling. I didn't even know what the poem was about. All I knew was that there were these wonderful lines that I would never have willingly walked away from."

The writer in question harrumphed, in a 1953 letter, that "I have always disliked the idea of records," and claimed that his Harvard visit had been taped without his consent. Still, perhaps grudgingly, Stevens marveled at the communion with poetry that the Vocarium encouraged. "On the one occasion that I visited the Poetry Room in the new library at Cambridge, there were a half-dozen people sitting around with tubes in their ears," he wrote, "taking it all in the most natural way in the world."

THE HARVARD VOCARIUM LABEL stopped publishing in 1955. Its exact cause of death is ambiguous—the venture was only sporadi-



## “My office was filled with these discs and tapes, just stuffed to the windows, and nobody knew what they were.”

cally documented—but funding had always been difficult to come by, and according to a 2011 interview with his granddaughter, Josephine Packard, Packard had begun to experience symptoms of early-onset Alzheimer's. But he continued to gather and make recordings, and throughout the 1950s and 1960s, Poetry Room director John (“Jack”) Lincoln Sweeney assumed Packard's mantle. He made recordings of poets from Sylvia Plath to Audre Lorde, and established a tradition of Harvard curators collecting the voices of the great writers of their moment, building sonic time capsules of contemporary literary culture.

When Don Share became curator in 2000, he set about digitizing these holdings. “My office was filled with these discs and tapes, just stuffed to the windows, and nobody knew what they were,” he recalls. Others at the library dismissed them as unplayable junk beyond repair, telling him to toss it all, to free up some space—“and of course I stockpiled every bit of it.” More than that: Share put out a call within the University, and then further afield, for Vocabarium and Harvard-related materials. “Underwriting every poem was a collection of objects, correspondence, bits and pieces of audio, sometimes other things. I felt like it was my job to assemble that constellation.”

People from all over the world mailed him audio objects, some-

times only loosely related to Packard. The Poetry Room had to acquire special equipment to play some of the stuff, including a hand-built tape recorder and bamboo needles. “You just never saw such a strange collection,” he says now, chuckling.

Since 2013, curator Christina Davis and assistant curator Mary Walker Graham have been taking inventory of what's formally known as the Frederick C. Packard Jr. Collection, the founding sound archive of the Poetry Room. Sitting in slate gray boxes neatly stacked in Davis's office, its contents are surprisingly unruly—some 2,500 objects in all. Of these, 1,500 are vinyl and shellac discs—mostly overstock from Packard's label—which can be heard on a record player. There are also odds and ends from the recording process: the original recordings created in the cutting room, on lacquer discs; the series of metal parts called masters, mothers, and stampers, used in manufacture; various test pressings, B-sides, and recording sessions which never made it to publication. On one disc, Marianne Moore can be heard asking Packard about whether she'd been speaking too quickly. On another, Weldon Kees—a writer and abstract expressionist painter, who disappeared in 1955—stops reading with an abrupt, “Sorry, kill it!” (“We gasped when we heard that,” says Davis.)

Davis likens the collection to an archive with several incarnations of a book—its final published edition, but also copyedits and galleys, and a stray handful of orphaned pages of the original manuscript, and then, perhaps, a reading with interesting annotations from generations of passing visitors.





Views of the Woodberry Poetry Room today (above and far right), refurbished in 2006, with laptop tables added to the two remaining Aalto-designed consoles. Its audio archive includes rarities like an early recording of Sylvia Plath (top right, featuring the poet's own handwriting), and recordings of Ezra Pound (opposite page, delaminated) and Robert Frost (right, gouged) previously thought to be "unplayable."

"And not just one book," adds Graham. "Hundreds of books in fragment form."

"With no living editor," finishes Davis. "So the mysteries are many."

Their survey revealed the collection's surprising breadth, including hundreds of non-Harvard Vocarium discs. Packard collected recordings of writers and performers working in Haitian Creole, Afrikaans, Danish, Yiddish, and Gaelic; he recorded rehearsals of Orson Welles's radio plays, Mexican folk songs, and works in Sanskrit by the Indian playwright Bharati Sarabhai. Packard's love of voiced literature had global range, says Graham. "I think if he could have, he would have recorded in every language."

His desire to document the spoken word went well beyond the arts. In addition to the students he recorded for his speech clinic, Packard captured addresses by visiting dignitaries; he also acquired memorials, sermons, and many hours of Japanese language lessons. One record, labeled "hypophysectomy—rat. parapharyngeal approach, to accompany a 16 mm color film of that title," contains audio from a medical surgery. "Packard seemed to see an opportunity, with the introduction of sound recording, to almost defy discipline," says Davis.

The Poetry Room will release a finding aid for this collection over the summer, a project that sounds simple on its face: it's an inventory of the holdings, linked to the Harvard Library catalog, alerting researchers to the existence of its various and sundry treasures. But

the fragility of various items posed a physical challenge, requiring custom-built enclosures to keep them safe—and the sheer eclecticism of the collection posed an organizational one.

The stewards also faced a nagging ethical and epistemological dilemma: how to deal with the various discs that were too delicate to be played. Some objects had markings, paper sleeves, or related ephemera that gave some hint as to what audio might be on them, but the curators had been surprised before. "If you say, 'Unknown author, unknown title, unknown year,' that thing will never get played," Davis says. "On the other hand, if you say too much, you mislead people."

"We're a good team," says Graham. "Because I tend to err on the side of, like—the only thing we can say about this is that it's a 13-and-a-quarter-inch disk that's lacquer on metal and has some edge damage. And Christina's more like, 'But I think we could probably say...'"

"We're like a cop show," Davis confirms.

"Processing the collection is about finding the balance," says Graham.

Because of its fragility, the survey of the Packard collection is, for now, necessarily incomplete—as is the even more ambitious project of making all of the audio listenable. But the curators hope the finding aid will alert scholars of the possibilities for further investigation. As Davis puts it, "It's not the key to the door—it's building the door frame."

"Y'ALL CAN HEAR ME, RIGHT?" tossed off the poet Tyehimba Jess, sauntering away from the podium at a Poetry Room event last No-

## Records, Rescued

THE RAREST and most delicate artifacts in the Packard Collection are his original lacquer discs. During World War II, when aluminum was scarce and radio stations across the U.S. and Britain donated records to contribute material to the war effort, manufacturers switched from metal to glass for these discs' base material; sometime over the intervening decades, some Vocarium originals have shattered. But the format is also inherently unstable. The soft lacquer coating is prone to cracking or flaking off, warping, curling—separating from the rigid base material in a process known as “delamination.” Assistant curator Mary Walker Graham uses the standard preservation term, not hyperbole, when she calls the damage “catastrophic.” It's almost impossible to ascertain what was recorded on these discs just by playing them—an ordinary stylus would rip that outer layer right off.

A new technology capable of “playing” these discs does exist: the IRENE system. (The name officially stands for Image Reconstruct Erase Noise Etcetera, but is really a tribute to the first record its inventor reconstructed, a copy of the Weavers' “Goodnight, Irene.”) A 3-D camera scans the audio material, and software builds maps of the groove shapes, converting those images into sound. It's hoped scholars might browse Harvard's holdings with the new finding aid, pointing out the most promising candidates for digitization, and that this academic interest would attract funding; the process is too expensive to apply to the collection wholesale. In 2014, the Woodberry Poetry Room successfully resurrected Ezra Pound's 1939 recording of “The Cantos,” and a gouged recording of Robert Frost's “The Road Not Taken,” among other objects.

At first he declined the hand-held mic Davis proffered. In an undertone, she explained that they needed a clear, direct feed. “Oh, for the camera, huh?” he grinned. At Poetry Room events, posterity is the other, invisible audience. Davis plans with the archive in mind.

Especially in recent months, she's taken an experimental approach to programming. Last semester's calendar included a conversation about criminal-justice reform, a workshop in which attendees collectively translated a poem by a Cuban dissident, and a “protest-writing session,” in which the public was invited to make posters and banners together over snacks. But occasionally, the room hosts the odd Packardesque session. No conceptual twists: just the writer and the work. The guest of honor is seated at a table in front of a microphone. Attendees sit at eye level and nearby, in a crescent of comfortable chairs. These events feel less like “readings”—stiff and pseudo-liturgical, the community duly gathering to reify high literature—than like a much more basic pleasure: being read to. The recording sessions do look and feel a little like a throwback to a long-gone time, but it also has a way of distilling the experience of the poem. “Oddly, by putting a big, slightly retro-looking microphone in front a human being,” says Davis, “your attention gathers around the voice, and less around the total performance and the physicality.”

Video encodes more sensory data than audio. Someone could watch video of, say, Rowan Ricardo Phillips's reading in 2014, and note what he was wearing, the Starbucks cup at his elbow, the snow falling outside. But no volume or density of additional information can put



a perfect seal on the historical record. Questions gust in through the cracks. Who was the woman who came in late? Who held the camera, and what did that person do to prompt the poet to make eye contact—first warily, then warmly, like sharing a private joke?

Davis makes event audio available on the Poetry Room's online Listening Booth, and puts a copy in

in Harvard's digital repository; sometimes she also uploads the video on YouTube. Her time with the Packard Collection has made her wonder if she ought to keep files in some second format, perhaps physically. She's leery of repeating the mistakes of the past. WAV (Waveform Audio Format) files are standard now, and can be played by almost any personal computer, but one day that equipment might be scarce.

These days, Packard's listening posts take the form of earbuds and iPads, loaded up with digitized audio files, screens glowing, though the curators sometimes bring out the actual artifacts, by advance request, for individual study. Davis likes to say that the Woodberry Poetry Room's archive tells the history of transfer. Through it, one could trace the history of recording technology: voices were reincarnated from discs to reels, and then to cassettes, then to CDs—“surprisingly fragile,” she adds—and now to digital files. Each curator sought to preserve the Vocarium audio on what was then the state-of-the-art format; each curator freely exercised editorial discretion about what to copy over, whether due to a format's physical limitations or their own aesthetic preferences. Sometimes records were altered in transfer, the original tracks re-ordered or left off. One reel she and Graham found seems to contain a recording of Robert Frost, and also, inexplicably, a lute performance.

It's very humbling, Davis says, to think that the future may laugh at you: “Every generation is arrogant in thinking what it invented is going to last.”

*Sophia Nguyen is associate editor of this magazine.*



# Blanche Ames

*Brief life of an intrepid botanical illustrator: 1878-1969*

by LAURA J. SNYDER

BLANCHE (AMES) AMES and her husband, Oakes Ames, professor of botany at Harvard and director of the Arnold Arboretum, were in the middle of the Yucatan jungle when their car stalled. As Oakes and the driver stood by helplessly, Blanche pulled a hairpin from her chignon, extracted a bullet from her revolver, and set to repairing the carburetor. She started the car—to this day, no one knows how—and the expedition continued.

The intrepid mechanic, daughter of one Civil War general and granddaughter of another, had graduated as president of her class at Smith College in 1899 with a degree in art history, a diploma from the art school, and the dream of becoming a professional artist. (“My ambition is soaring on the art line,” she told her parents. “You see I am puffed up and my fancies take wild flights.”) When she met Oakes Ames, A.B. 1898—no relation, but a friend of her brother’s—he began courting her with gifts of “the queerest orchids,” as she described them to her mother. After they became engaged, he presented her with a microscope so that she could examine and draw the botanical specimens he collected.

Blanche Ames was soon renowned as the foremost American botanical illustrator of the age. Using the microscope and another optical device, a camera lucida, she captured the intricate form of orchids: the delicate root hairs and rhizomes, the anther cap perched over the pollen bundles, the succulent pseudobulbs. Thanks to dark shadowing and crosshatch highlights, her elegant pen-and-ink drawings boldly depict the plants against the white page. They are at once scientifically exact and artistically brilliant.

Blanche illustrated all seven volumes of Oakes’s seminal work *Orchidaceae: Illustrations and Studies of the Family Orchidaceae* (1901-1922). The orchid family had been considered a crucial case study of the theory of evolution by natural selection ever since Charles Darwin published his *Fertilization of Orchids* in 1862, speculating that orchids and their pollinators had adapted to each other or “co-evolved.” But research on orchids was hampered by pervasive confusion over the proper way to classify them. Oakes undertook a comprehensive overhaul. By the end of his life he had become the most celebrated orchidologist in the world.

Blanche shares the credit for placing orchid study on a firm scientific foundation, and not only for her incredibly precise drawings. During their 50-year marriage, she was more than an illustrator; she was her husband’s co-investigator, and he justly referred to her as his “colleague”: they traveled together to the Caribbean, the Philippines, and Central and South America in search of specimens. Oakes is acknowledged as the discoverer of more than 1,000 new species. Many of these he found side-by-side with Blanche.

Once, in Rio de Janeiro, Oakes learned of a Brazilian orchid that had been discovered decades earlier and sent abroad to the fore-

most authority on the area’s orchids. The specimen was lost en route; its only ghost was a watercolor drawing that had been made before it was sent. Because the drawing did not show enough detail to classify the orchid, and no further specimens had been found, the species remained in a kind of scientific limbo. Returning later from an expedition to Brazil’s Mount Itatiaia, Oakes and Blanche found a large fallen tree blocking their path. Growing on that tree was a single orchid—incredibly, it was a specimen of the lost species. Blanche, not Oakes, was given the discoverer’s honor of the taxonomic name: *Loefgrenianthus blanche-amesiae*.

Oakes’s remarkable herbarium, now part of the Harvard University Herbaria, was another joint effort. Most of the sheets include plants dried and pressed by Blanche, as well as her sketches and watercolors of the living specimens, together with Oakes’s notes, photographs, and journal clippings. Comprising thousands of pages, the herbarium remains a valuable resource for botanists—especially the copies Blanche made, during a visit to Berlin in 1922, of the herbaria sheets of Rudolf Schlechter and Rudolf Mansfeld of the Berlin-Dahlem Herbarium. When the originals were destroyed during the bombing of the city during World War II, Blanche’s copies became the only remaining documentation of some species these botanists had discovered.

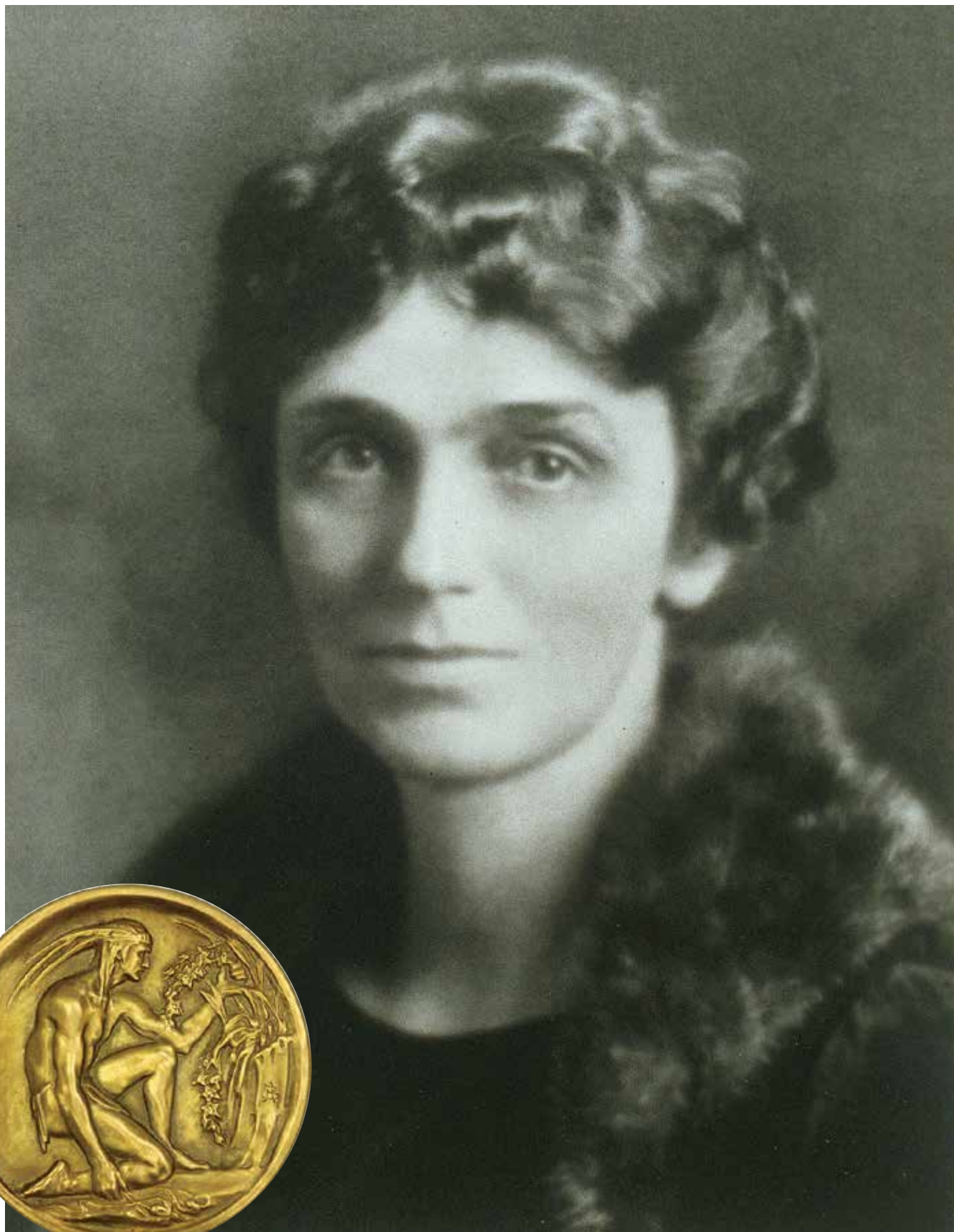
Many research papers published in the Harvard series *Botanical Museum Leaflets* were also graced by her drawings. She supplied the orchid illustrations for the first posthumous edition of the *Manual of the Botany of the Northern United States* by Harvard professor Asa Gray, the foremost American botanist and Darwinist of the nineteenth century, and illustrated the books of other botanists as well. The American Orchid Society commissioned her to design its medallion (at right): a Native American, modeled on her son Oliver, gazing upon a branch of orchid blossoms. Today, her motif adorns the seal of the society as well as its gold medal of achievement, which was first awarded in 1924—to Blanche and Oakes Ames.

A woman of many talents, Blanche Ames was also a sought-after portrait painter, an inventor who held four patents, and a political activist engaged in the struggle for women’s suffrage and birth-control rights. But her greatest impact was upon the scientific study of orchids, a field still considered central to the study of evolution, especially for investigations of species interactions. Her botanical illustrations exquisitely embody Darwin’s view of orchids and their parts as “multiform and truly wonderful and beautiful.”

Laura J. Snyder is the author, most recently, of *Eye of the Beholder*: Johannes Vermeer, Antoni van Leeuwenhoek, and the Reinvention of Seeing.



© BLANCHE AMES







# Probing Psychoses





Andrew LeClerc  
in his home garden

In understanding  
schizophrenia, genes have  
“an awful lot to say.”

by COURTNEY HUMPHRIES

ANDREW LECLERC KNEW something was wrong when he heard voices when no one else was around. Some were those of people he knew, others were unfamiliar, but all had the authentic mannerisms of real people, not his imagination. He was in his early twenties, unsure of his direction in life, and had been taking synthetic marijuana to ease stress from past traumas. Disturbed by the voices, he sought help in an emergency room and voluntarily admitted himself to a psychiatric hospital, not realizing he would be kept there for six days. He was diagnosed with psychosis, but had little interaction with a therapist. “You mostly sit around with coloring books,” he says. It felt like a punishment, when all he wanted was help.

Afterward, he contacted therapists, but many were booked. An online search led him to a research study at Beth Israel Deaconess Medical Center in Boston for people newly diagnosed with psychotic disorders. In January 2014, he entered a two-year study that compared two approaches to psychotherapy to help manage cognitive impairments and other symptoms. He was also prescribed an antipsychotic medication.

Eventually he was diagnosed with schizophrenia. Now, about four years later, at 26, LeClerc is learning to live with the condition. “It’s hard for a person who’s diagnosed with schizophrenia to be told something’s not real when they think it’s real,” he says. He continues to take antipsychotic medications that help control his hallucinations and lives in an apartment below his parents in Middleton, Massachusetts. He’s hoping to start a small business, putting his love of gardening to work as a landscaper.


But more importantly, he’s learned to make peace with his mind. He likes to say: “I don’t hear voices, I hear my own brain.” When voices do appear, he recognizes them as a product of an aberrant auditory cortex, and he thinks about engaging his prefrontal cortex—the decision-making part of the brain—to help him distinguish fact from fiction. “I have tools to pull myself back to the moment,” he says.

Not everyone who struggles with schizophrenia is able to find such stability. The illness takes many forms; symptoms may include hallucinations and delusions, lack of motivation, and cognitive problems similar to dementia. It tends to strike in the late teens and early twenties, robbing young people of their mental stability just as they’re entering adulthood, beginning careers, or pursuing a college degree. Some improve, while others experience a long mental decline.

“The treatments that we have are useful but not great,” says Matcheri Keshavan, Cobb professor of psychiatry at Harvard Medical School (HMS) and the leader of the study that LeClerc participated in. The medications used to treat schizophrenia are decades old, and only ameliorate symptoms. Like other psychiatric illnesses, schizophrenia has suffered from a lack of investment from pharmaceutical companies. Says Keshavan, “We need better medications that really address the underlying cause of this illness.”

But those causes are still mysterious. What scientists do know



A photograph of Steven Hyman, a man with grey hair and glasses, wearing a dark suit jacket over a light blue shirt. He is sitting at a laboratory bench with his hands clasped. In the background, there are various laboratory equipment and supplies, including a pipette, test tubes, and a rack. The lighting is warm and focused on him.

Steven Hyman,  
director of the  
Stanley Center for  
Psychiatric Disease  
Research

is that schizophrenia tends to run in families. About 70 percent to 80 percent of a person's risk of developing the illness, Keshavan says, can be explained by genetic factors. Recently, there's been a surge of effort to capitalize on that fact. Advances in genetics have made it possible to search not only for clues about schizophrenia and other psychiatric illnesses hidden within thousands of human genomes—but also for potential new treatments.

As a result, there's been a renaissance in research on schizophrenia and other psychiatric disorders, and some cautious optimism. "It's been possible to make real if still early progress in understanding what genes and molecules influence these illnesses," says Steven McCarroll, Flier associate professor of biomedical science and genetics. At Harvard, the leading force is the Stanley Center for Psychiatric Disease Research at the Broad Institute, which is pouring new funding and resources into amassing data on the genetics of mental illness.

### Filling in an Incomplete Picture

BRINGING the power of genomics to psychiatric disease fulfills a long-held goal for the Stanley Center's director, Steven Hyman, professor of stem cell and regenerative biology. An HMS professor of psychiatry before becoming head of the National Institute of Mental Health (NIMH) in 1996, Hyman was frustrated by the sluggish progress on the science of psychiatric disorders, as re-

search on illnesses like cancer, heart disease, and diabetes marched ahead. Schizophrenia in particular is challenging to study because it's uniquely human. Scientists can study limited aspects of psychiatric illness in animals if they can measure an observable behavior, such as avoiding social interactions or grooming excessively. But psychosis is a problem of thinking; animals, as far as is known, don't experience it in any way we can measure. It's also challenging because brain tissue is so inaccessible. "We were really hampered," Hyman says, "and I, frankly, didn't know all that much more when I was at NIMH in the late 1990s than careful observers knew at the turn of the twentieth century."

When he left the position, Hyman was interested in researching psychiatric disease but didn't see a rigorous path to do so; instead, he accepted a position as Harvard's provost—taking what he now refers to as a "10-year timeout." During that time, a revolution occurred. Genetic technologies and vastly expanded computer power opened new paths for studying the biological basis of complex diseases.

The Broad Institute launched the Stanley Center in 2007 under inaugural director Edward Scolnick, thanks to an initial \$100 million in private funding from philanthropists Ted and Vada Stanley, aiming to bring much-needed innovation to treatments for psychiatric disease by harnessing the power of genomics. (The Stanleys provided another \$650 million in 2014, an unprecedented gift for psychiatric research.) Partly as a result, the center has gathered the

world's largest collection of DNA samples for studying not only psychiatric diseases—including schizophrenia, autism, ADHD, and bipolar disorder—but also healthy control subjects. The resulting data are freely available to the public.

“The human genome has started to give us a really powerful way into the problem,” Steven McCarroll explains, “because the key source of scientific leverage that we have is we know that schizophrenia and other psychiatric illnesses are heritable—they aggregate in families. Their molecular secrets are almost certainly hidden in the way our genomes vary from person to person.”

Much of the research on genetics and disease has focused on what McCarroll calls “genetic sledgehammers”—genes that when mutated would almost certainly make you sick.” But schizophrenia, like most common diseases, is genetically complex. The hereditary component of the disease may be a product of tens to hundreds of “genetic nudges,” variations that don't cause disease by themselves, but together make people vulnerable to illness.

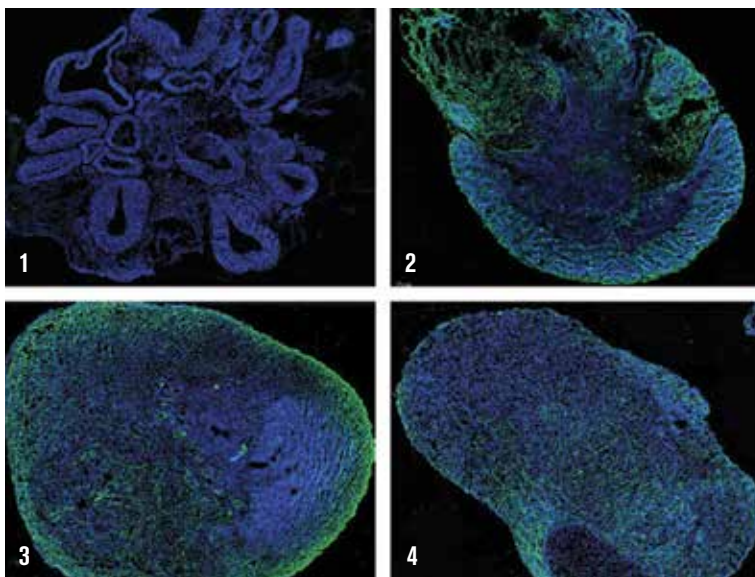
Studying genetic nudges requires amassing large numbers of DNA samples to achieve the statistical power to find subtle variations that may contribute to disease, a project that's taken enormous collaborative effort by many scientists and institutions around the world. The Psychiatric Genomics Consortium—the largest scientific collaboration involving psychiatric disease—formed in 2007 and comprises hundreds of investigators in 38 countries and nearly a million genetic samples. The Stanley Center has served as the hub for data sharing, aggregation, and analysis to further the consortium's discoveries.

One of the key tools for uncovering the genetic basis of disease is the “genome-wide association study” (GWAS)—a way of quickly sorting through the common variations in genomes to find those that are more common in people with a given trait or disease than in those without. Associate professor of medicine Mark Daly, who leads the analytic hub of the consortium, says that scientists originally thought such studies might uncover a handful or two of DNA variants that could be statistically correlated with schizophrenia. But rather than identifying a few standouts, the consortium's Schizophrenia Working Group found a crowd of genetic associa-

**“We know that schizophrenia and other psychiatric illnesses are heritable—they aggregate in families. Their molecular secrets are almost certainly hidden in the way our genomes vary from person to person.”**

tions, each contributing just a tiny amount of risk. A landmark paper published in 2014 in the journal *Nature*, led by Michael O'Donovan of Cardiff University, described 108 different locations in the genome that harbored variants associated with schizophrenia.

GWAS studies can identify only stretches of DNA: like flags on a zoomed-out map of a city, they provide a neighborhood, not the exact address. “We know where the variants are, one of which is likely to be the causal variant, but can't say for sure which one,” says assistant professor of medicine Ben Neale, who is developing methods to analyze genomic data. Another approach is to sift through



**Researchers from Harvard and the Broad Institute have grown human brain organoids, three-dimensional organ models cultured from stem cells, to study the genetics of psychiatric illness. This series shows growth at 1, 3, 6, and 9 months, with development of synapses indicated in green.**

genomes in finer-grained detail by directly reading each letter of the DNA sequence. Such work is time-consuming, but it can help uncover rare genetic differences that are linked to disease, many of which have a stronger effect than common variants. Work by the consortium has also analyzed areas of DNA that are deleted or duplicated, called “copy number variations.” People with schizophrenia tend to have more such variations overall, and the genes they affect can provide clues to the disease's origins.

Meanwhile, the Stanley Center and other institutions are working to collect thousands more DNA samples from people with schizophrenia and other psychiatric disorders, hoping to identify even more genetic associations of risk. Hyman doesn't see such data-gathering as an endless project. “We should kill this problem,” he says, “meaning in some reasonable number of years—seven to 10—we should have proceeded so far in the genetics of schizophrenia, bipolar disorders, autism, perhaps some other disorders, that we've reached diminishing returns in terms of biological information.”

But so far, the picture is still incomplete. The vast majority of genetic samples, for instance, come from people of European ancestry. “From a purely scientific point of view, it means we're missing a large proportion of the world's genetic diversity,” says Karesten Koenen, professor of psychiatric epidemiology at the Harvard T.H. Chan School of Public Health. Most of that diversity is in Africa: There is much more diversity in African genomes than in those of people from other parts of the world.

Koenen is leading an effort through the Stanley Center to launch genetic research on psychiatric disease in Ethiopia, Uganda, Kenya, and South Africa. Their researchers are partnering with researchers and academic and clinical institutions in those countries and will be gathering DNA samples and clinical information from people diagnosed with schizophrenia. “We really want to build local capacity,” she says, and develop sustainable research programs that



can be led by local scientists and clinicians. The center also plans to extend the effort to Latin America, beginning in Mexico.

This effort will help fill in the genetic picture of psychiatric illness, and will also help correct a vast imbalance. Geneticists are

## Prediction and Prevention

GENETIC RESEARCH may someday bring new treatments and understanding to psychiatric disease, but clinical researchers are already using other kinds of information about their patients to guide their treatment. Cobb professor of psychiatry Matcheri Keshavan, who is based at Beth Israel Deaconess Medical Center, says that the variability of schizophrenia is a major challenge. “No one patient is like any other in terms of how the disease behaves over time,” he says. Some people have a single psychotic episode and then recover. Some are able to manage the condition with medications, and go on to find jobs and start families. Others experience cognitive decline and are unable to function in society. What clinicians call schizophrenia, he says, is “probably a collection of multiple different syndromes, each of which might have a slightly different causation.”

One challenge to defining the illness is the lack of a “biomarker” that can be identified with a blood-draw or an MRI scan. Keshavan and other researchers are investigating strategies to use a combination of brain imaging, clinical tests, histories, and other techniques to stratify patients. Eventually, he hopes, this clinical effort will begin to connect with the emerging science of schizophrenia genetics, so that “down the road, we will be able to identify a specific biological [schizophrenia] subtype which may have a specific causal factor.”

Schizophrenia runs in families, but is not solely a genetic disease. An identical twin of a person with schizophrenia, for instance, has a 50 percent risk of getting the disease, in spite of sharing all of their risk genes (a fraternal twin, in contrast, has only about a 15 percent risk). Environmental factors that have been associated with the disease include a history of abuse or neglect, cannabis use, having an older father, and growing up in a city.

Keshavan has been leading long-term studies on people with schizophrenia as well as young people at risk for the disease because of family history and other factors. The goal is to determine whether it’s possible to better predict who might develop schizophrenia, and if so, to intervene early to help with treatments, including cognitive therapy.

A family history of schizophrenia can be a heavy weight for individuals like David, a 22-year-old participant in one of Keshavan’s studies. His older sister began to have delusions about people being in contact with her, and was diagnosed with schizophrenia several years ago. Knowing his higher risk, David is careful to manage stress, eat well, and exercise. “I myself have had a lot of anxiety issues in the past, and have in turn put a huge premium on my health and wellness,” he says. His sister, meanwhile, has been able to hold a job and live a stable life thanks to medication. But the illness has been difficult for the family to speak about, he says: “The pain of the experience and the stigma surrounding mental health are so palpable.”

beginning to use data to classify patients based on their risk of developing complex diseases, including schizophrenia. But these risk profiles, Koenen says, lose accuracy when applied to people of African descent. As this kind of profiling makes its way into medicine, she says, “There’s a risk that if we don’t extend this research to Africa, the health disparity and treatment gap will widen.”

## Nibbling at Synapses

WHAT WILL all this data amount to? There’s a misconception, McCarroll says, that the goal of this research is to conjure up a “crystal ball genetic test” that will give people personalized treatments based on their unique portfolio of genes. That’s not the aim. “Our goal,” he says, “is to understand the core biological processes in the illnesses, so that innovative treatments can be developed that can treat anyone.” Scientists hope that the dizzying array of schizophrenia-related genes will converge onto a few basic processes in the brain, once the function of those genes is understood.

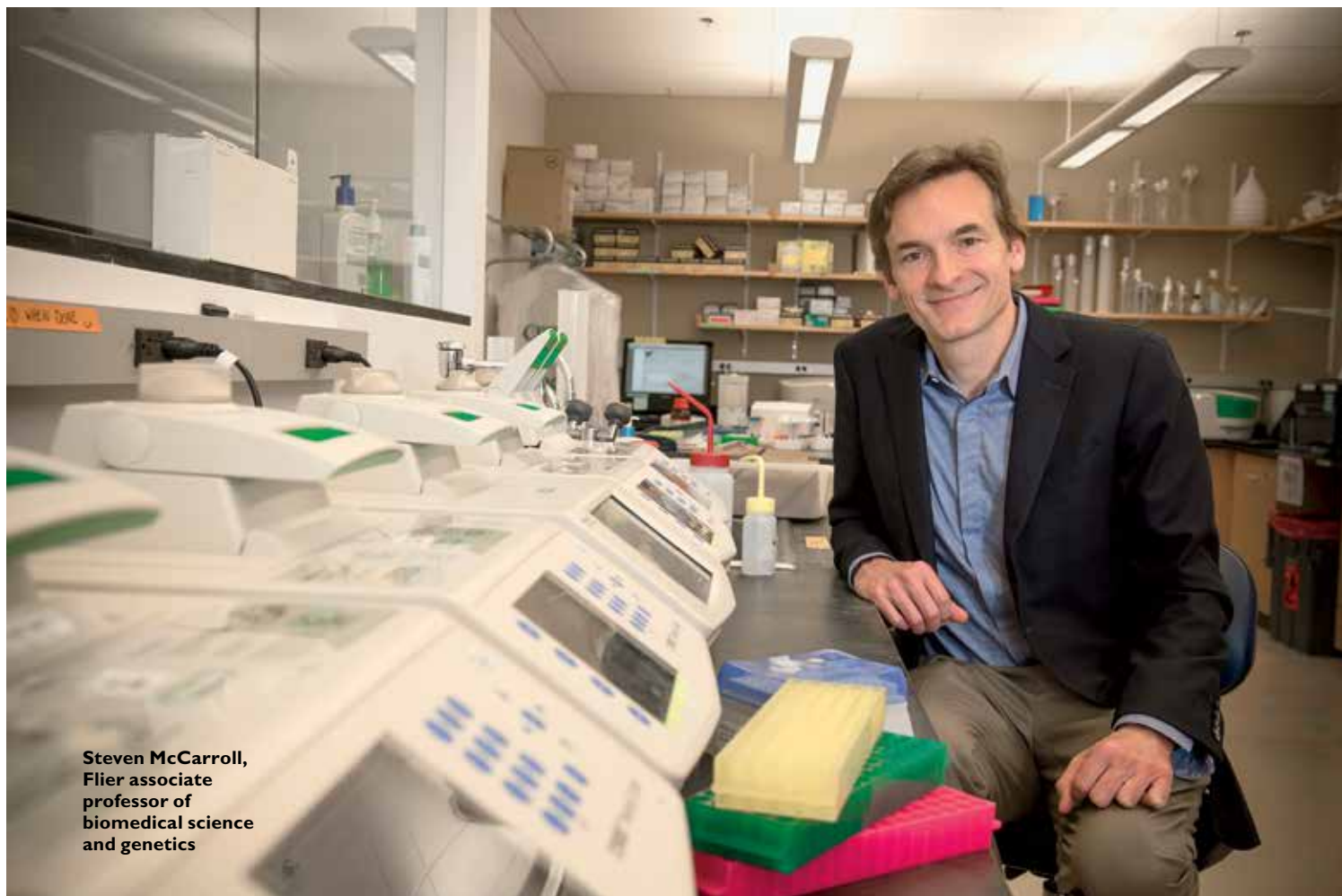
But even as scientists have made dramatic leaps in discovering genetic risk factors of complex diseases, the task of understanding how those genes work is a different, and slower, task.

McCarroll was lead author of a study making one of the strongest links between a specific genetic variant and its role in schizophrenia. Working with Aswin Sekar (then a graduate student, now a research fellow), he focused on the most powerful signal of risk in GWAS studies to date, a stretch of DNA in chromosome 6 that was known to harbor many genes involved in the immune system. They focused on one called C4, which has a high degree of variability in humans: each of its different forms may be present in multiple copies in one individual. By using both genetic data and postmortem brain tissue, they found that people with schizophrenia are more likely to have variants of the C4 gene that lead to higher levels of one gene product, C4A, in brain cells.

C4A is one of several proteins involved in a type of immunity called the complement pathway, which helps clear damaged cells and harmful microbes from the body. As part of their study, McCarroll and Sekar collaborated with associate professor of neurology Beth Stevens, whose previous research with mice clarified an ingenious connection between the complement pathway and the brain. Scientists know that as the brain develops, it churns out new cells, which form billions of connections called synapses. In adolescence and early adulthood, some of these connections are pared back, a process called synaptic pruning. In mice, Stevens has found, this pruning is mediated by the complement pathway, which triggers immune cells called microglia to attack neural connections: “literally nibbling at synapses.”

Sekar, McCarroll, and Stevens also worked with professor of pediatrics Michael Carroll, who had developed mice with varying copies of the C4 gene, and showed that too much C4 activity in the animals can lead to excess pruning. “It’s too much of a good thing,” Stevens says. Their finding suggests that schizophrenia, in some cases, may be caused by loss of synapses in adolescence—an especially promising result because it supports clinical observations: synaptic pruning coincides with the age when schizophrenia typically emerges, and brain imaging shows that many people with schizophrenia experience a thinning of the prefrontal cortex in the early stages of disease.

McCarroll emphasizes that the C4A variation contributes only a small amount of risk of disease, but may collude with other variants to tip the brain past a threshold. “There are a lot of genetic findings that map to synapses,” says Hyman, so some of those other variants



**Steven McCarroll,**  
Flier associate  
professor of  
biomedical science  
and genetics

may contribute to a larger disruption in how synapses are formed and maintained. But other processes are likely at work in schizophrenia as well. Some genetic risk variants relate to a chemical signal in the brain called glutamate, and others to ion channels, proteins that determine how electrical signals propagate in brain cells. “There are also others,” Hyman adds, “that, frankly, just have us scratching our heads.”

### **There Is No Playbook**

THE WORK ON C4 offers an example of how genetics is beginning to help neuroscience move forward. “It’s opened up a ton of new directions and strategies for our group,” says Stevens. Across Harvard and the Stanley Center, a growing community is launching

**Environmental factors that have been associated with the disease include a history of abuse or neglect, cannabis use, having an older father, and growing up in a city.**

collaborative projects with the goal of taking psychiatric disease research into new territories.

One priority is developing new models for teasing out the role of genes in the brain. Scientists have been able to study some behaviors that relate to mental illness in animals, but there is no animal model for schizophrenia. Michael Carroll is now working to extend the

C4 study by creating “humanized” mice that carry human C4 genes, which may make it possible to study their function in a living brain.

Other researchers are trying to develop new ways to study psychiatric disease in humans. Paola Arlotta, professor of stem cell and regenerative biology, explains that when scientists are able to get samples of human brain tissue—from patients undergoing surgery, postmortem donations, or even tissue from fetuses—the cells die quickly. They can’t be propagated and studied in a laboratory, so “there is no renewable source of the actual endogenous tissue.”

Stem cells have emerged as a way around that problem. Scientists can now take cells from the skin or hair and transform them into induced pluripotent stem (iPS) cells that are capable of becoming other cell types, including brain cells. (At the Stanley Center, Arlotta and other scientists are exploring how to transform iPS cells into specific types of brain cells.) The iPS cells allow scientists to study how cells derived from a person of one genetic background differ from those of another person.

Scientists can also use the genome-editing tool CRISPR-Cas9 to introduce specific genetic changes and study their effects.

But there’s very little that can be learned about psychiatric disease from isolated cells: brain activity depends on the constant chatter of many cells that are intricately connected. Arlotta has been investigating whether neural stem cells can be spun into something



that behaves more like human brain tissue. So-called organoids—clusters of millions of cells up to a few millimeters in diameter—can be formed from growing stem cells in a nutrient-rich solution. Organoids have already been used to study events that happen in early development: last year, a team of researchers used them to study the effects of the Zika virus on developing brains.

But since psychiatric diseases like schizophrenia emerge later in life, Arlotta wants to make organoids grow larger and live longer, and to understand whether they can mimic some of the properties of an older brain. “This is a new tissue we’re making,” she says, “and so the questions that we want to answer are: can we develop them for a very long time, can we understand the cellular composition, can we see if these organoids make actual networks and communicate with each other?”

To better characterize these cell-based models, Arlotta and her colleague Kevin Eggan, a fellow professor of stem cell and regenerative biology, are collaborating with McCarroll to apply a technology his lab developed—DropSeq—that makes it possible to analyze gene activity in individual cells. The technology will provide a detailed, cell-by-cell understanding of what these models may reveal. In a *Nature* paper published in April, Arlotta’s team demonstrated that it’s possible to cultivate human brain organoids for nine months or more. Analysis revealed that the organoids are filled with a diverse mix of brain-cell types, and that these cells actually form interconnected networks, suggesting they may begin to function in ways that brains do.

But how much meaningful information about psychiatric disorders can be gleaned by studying individual cells or clusters of artificial tissue remains unclear. And an even bigger question is how to use these models to study the effects of genetic nudges. Disease genetics, typically, has been studied by altering or removing genes, one at a time, in an animal. Studying a whole suite of subtle genetic variations in a model system is a completely new idea.

“There is no playbook,” says Hyman. He acknowledges that the work is risky; many of these projects are possible only because the Stanley Center’s open-ended funding makes it easier for labs to work together to pursue new ideas. “We spend many tens of millions of dollars a year, and we’re accountable only at the end of the year to our scientific advisory board, and we tell them our strategy,” he says. “It gives us enormous flexibility, but it’s an enormous responsibility.”

## A Little Risk in All of Us

SOME SCIENTISTS AND CLINICIANS believe that gathering genetic data and studying cells is a misguided strategy for alleviating psychiatric illness. They see it as reductionist, and argue that it emphasizes the inborn biological origins of illnesses rather than other factors—like abuse, trauma, drug use, and emotional stress—that are known to play a role in their development. Hyman answers, “Genes are not fate, but genes have an awful lot to say.” Genetics and the environment both undoubtedly contribute to disease, but both ultimately must act on the brain—and genetics happens to be a more tractable way to study what’s happening in the brain.

Genetics is already providing insights that could help alter the way psychiatric disorders are defined. “People have studied disorders with a box around them,” says Elise Robinson, assistant professor of epidemiology, who has analyzed genetic differences

within and between disorders such as schizophrenia, bipolar disorder, depression, and autism, which are usually defined by clinical categories outlined in the *Diagnostic and Statistical Manual of Mental Disorders*. But Robinson says the idea of distinct boundaries separating these disorders is not necessarily consistent with biology. Genetically, psychiatric disorders look more like Venn diagrams with large overlaps. People with schizophrenia share 60 percent to 70 percent of genome-wide variation with those who suffer bipolar disorder, and about 25 percent with autism.

Similarly, there is no simple dividing line between people who have a psychiatric illness and those who don’t. “Genetic risk for schizophrenia is not something you either have or don’t have,” she says. “There’s a little bit of risk in all of us.” Natural variations in many different genes, she explains, have been shown to relate to the way people perform on tests of cognitive or emotional skills. Schizophrenia may emerge from some combination of factors that

**“Genetic risk for schizophrenia is not something you either have or don’t have.” The disease may emerge from some combination of factors that are part of normal variation.**

are part of normal variation in the development and functioning of the human brain. This is true for other complex diseases and many normal traits, she adds: height, for instance, is largely determined by genetics, but there’s no single gene—or even handful of genes—that controls it. It’s a quality that emerges from many genetic inputs.

Robinson believes that scientists could learn more about these disorders by cutting across diagnostic boxes and studying genetic variants that are linked to multiple traits and disorders. Only by understanding how these variants affect the brain can researchers begin to understand how they contribute both to normal brain function and to the risk of disease.

Such research could help demystify the experiences of people like Andrew LeClerc. He has learned to talk about his schizophrenia as something he struggles with, not something that defines him. He describes his condition as a “mental difference.”

LeClerc also appreciates that not all the voices in his head are negative: he sometimes hears words of encouragement or helpful warnings. As he speaks, his thoughts don’t always follow the linear paths of normal conversation, but they can take him into deeper places; he has a keen understanding of how humans’ brains create their own realities. He sees an analogy to his condition in the once-expensive glass pieces he has begun collecting from his local dump. Glass that seems like trash, he says, can be reused or recycled, so it isn’t really broken. He describes himself the same way: “I’m fragile, not broken.”

It may take decades before genetic research on schizophrenia yields new treatments for people like LeClerc, but clues about the biological underpinnings of schizophrenia could help in other ways. “Patients with psychiatric disorders get blamed for those disorders in our culture in a way that people with diseases in other organs don’t,” says McCarroll. If this research can provide a firmer biological understanding of what’s happening in the brain, he says, “I would hope that we could generate more empathy.” ▢

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# An Educated Core

Rethinking what liberal-arts undergraduates ought to learn, and how

by JOHN S. ROSENBERG

“WHAT TO TEACH AND HOW TO TEACH IT are likely to become central issues for colleges in a way that they haven’t been for a long time,” wrote Nicholas Lemann ’76 in early 2016 in *The Chronicle of Higher Education*. Past experience as dean of Columbia’s Graduate School of Journalism, where he revised the curriculum, steeped Lemann in professional schools’ natural focus on best equipping students for their chosen careers. For teachers of “the great majority” of U.S. undergraduates who “are taking mainly skills courses” to become accountants, engineers, K-12 educators, and so on, the academic issues are largely professional, too. But “In the better-

resourced, more-selective colleges that a lucky minority of students attend”—liberal-arts institutions—“the curriculum is usually both less practical and less prescribed,” Lemann noted. He knows about

such matters as an alumnus, and as a member of the Harvard College visiting committee and the American Academy of Arts and Sciences’ Commission on the Future of Undergraduate Education.

Until now, he continued, “most selective institutions...that emphasize an undergraduate liberal-arts education have gotten themselves off the hook of having to...decide what all degree recipients must have learned.” Today, he observed, “If colleges can’t or don’t want to clearly define what they’re about academically, they are left unarmed against what has become the intense pressure to define undergraduate education in terms of acquiring only those skills that have an obvious, immediate, practical applicability and will enhance a graduate’s chances of employment.” (Humanities have become an obvious casualty.) Pragmatically, such colleges “have something to learn from professional schools about better defining themselves academically.”

**Yale-NUS, an ambitious Singapore-based experiment in liberal arts, is built around this central courtyard.**



More broadly, Lemann observed, as colleges compete for applicants, an institution “offering a wide variety of options from which students can select...has to maintain a large, expensive set of departments and courses.” As those costs collide with rising financial aid, often small (or nil) endowments, and changed student expectations, many liberal-arts schools face existential questions.

“In undergraduate education,” he concluded, “the best way to anticipate change would be to define, state, and put in effect a clear academic mission.” Envisioning “what you stand for academically” and a means to “ensure that every student’s experience encompasses that” led him to contemplate an education in a “set of master skills” (interpretation of meaning, drawing inferences, and so on—“a canon of methods rather than a canon of specific knowledge or of great books”) that in concert would “make one an educated, intellectually empowered, morally aware person.”

Such prescriptions run against the grain in most colleges today. Students admitted to selective schools are considered mature enough to pursue their preferred studies. They may proceed with some guidance (from the structured core curriculums at Columbia and Chicago to Harvard’s increasingly relaxed program in general education: see “The Harvard College Curriculum,” page 55)—but most receive relatively little (distribution requirements) or essentially none (as at Amherst and Brown). Research-oriented faculty members teach, in departments and concentrations, about their disciplines and scholarly interests; where general-education courses exist, they are typically created separately. At the most fortunate

schools, the resulting smorgasbord offers hundreds or thousands of course choices. In theory, with less structure, everyone finds it easier to navigate the undergraduate years—and to term the result liberal arts.

But this is not necessarily the ideal solution. Beyond the corrosive effects of careerism on student decisions, the significance of a lot of liberal-arts courses may be suspect, even apart from their relevance to employers. And students’ increasingly diverse preparation and backgrounds mean that many may find it daunting to plot a coherent academic program where the choices

appear so numerous or the rationale for any particular path so faint. At a time of lagging college completion, such undergraduate uncertainty may become a problem for society (see “America’s Higher Education Agenda,” September–October 2016, page 64).

Given the long-term value of being broadly educated in a rapidly changing, complex world, it is encouraging that efforts to rethink undergraduate education are under way. Three very different examples expand the range of possibilities: a significantly reconceived liberal-arts college 10,000 miles from the eastern U.S. epicenter of elite higher education; Lemann’s proposed refitting of liberal arts for the twenty-first century; and a venture-capital-funded startup in San Francisco, complete with structured curriculum, technological pedagogy, and an asset-light model that does away with the typical campus accouterments: no classrooms, dining hall, laboratories, or library.

These experiments—two tangible, one theoretical—all proceed outside established institutions (perhaps a separate cause for concern). But that they exist suggests welcome attempts to revise what students should learn in a liberal-arts course of study, and how.

## The Residential College, Redefined

IMAGINE conceiving a college that establishes as its first principle “articulate communication,” defined this way:

Collegiate communities of learning come into being largely through substantive conversation among their members. “Open, informed, and reflective discourse”—an activity of speaking and listening, writing and reading, that is partly its own end, in which participants assume that others will pay attention, and through which they hope to come to know something they did not know beforehand—this is the central and distinctive activity of collegiate education in the liberal arts and sciences. It follows that colleges should emphasize the importance of speaking and writing, and also of the visual and performing arts and other modes of engaging in substantive communication...between individuals who cannot self-segregate into like-minded groups as easily as they can online..., who find a meeting planned for one purpose yielding an unexpected discussion about wholly different matters.... [The] curriculum puts great emphasis on face-to-face encounters and on the practices of articulate communication appropriate for intellectual conversation.

This is not a pipe dream. It underpins a functioning college with a distinctive common curriculum; an international faculty assembled to craft, teach, and renew it; and a purpose-built campus to house 1,000 undergraduates ultimately (more than 800 will be enrolled this fall). The first class educated in the program shaped by “articulate communication” graduated this past May.

The excerpt comes from a 2013 report reflecting the views of the inaugural curriculum committee of Yale-NUS College (Yale’s joint venture with the National University of Singapore), and of the first few dozen faculty members recruited to create this new institution

COURTESY OF NICHOLAS LEMANN/COLUMBIA UNIVERSITY



Nicholas Lemann draws on his professional-school deanship to suggest new directions for undergraduate learning.

The Yale-NUS common curriculum assures that students discover they “all have something to learn—it’s incredibly effective” in building “academic and communal identity.”

by collaborating in a deliberately nondepartmental way. Its chair was political philosopher Bryan Garsten '96, Ph.D. '03, who is professor of political science and humanities and chair of the humanities program at Yale. In conversation, he recalled, that period coincided with the peak of the frenzy over massive open online courses (MOOCs), prompting the committee members and professors to “think through what a college is, and particularly what things could be held in common” among its constituents. The new colleagues, in other words, used the opportunity to devise a college that addresses the questions Lemann subsequently summarized as “what to teach and how to teach it.”

Of course, Yale-NUS's genesis reflects far more than that 2013 prospectus. It is in fact the latest step in Singapore's purposeful pursuit of progress in higher education. In a conversation last winter, executive vice president Tan Tai Yong, former dean of the school of arts and social sciences at NUS (the new college's funding partner), described that arc. First came an emphasis on training professionals—like doctors, lawyers, engineers, and civil servants—on a disciplinary model borrowed from the British. Then, the education system supported more research and development, though still with an eye on the economy. Now, in this millennium, resources have been poured into building student residences—a novelty for the small city-state—and experimenting with general education for students pursuing certain professions. Tan called this last stage a liberal-arts “halfway house.”

An evolving Singapore, said Tan, a South Asian historian, has raised its sights from problems of “engineering” to “problems of social understanding,” encompassing its own complex, diverse population, its ability to navigate among emerging Asian giants with their own interests, and the furious pace of economic and technological change. Given a need to “produce people with different abilities” who can “change disciplines very easily,” the logical next step was a full-fledged liberal-arts college, where students would learn to “deal with diversity and uncertainty.” (Tan himself faces those challenges now: he became Yale-NUS president on July 1.)

Yale-NUS enjoyed two important advantages as it began to define itself. In a separate interview on the Singapore campus, founding president Pericles Lewis (from 2012 through this past June, when he assumed Yale's vice presidency for global strategy), highlighted the value of starting from scratch and attracting faculty members interested in both institutional innovation and a strong focus on teaching undergraduates. The prevailing American model for liberal arts, he noted, had devolved to distribution requirements (humanities, social sciences, sciences)—typically liberalized so they became easier for professors to teach and students to fulfill. “So obviously,” he continued, “we took the opposite approach.”

Yale's Directed Studies—an optional year-long freshman sequence of immersion courses in Western philosophy, literature, and historical and political thought—provided a sort of template that was then broadened significantly. Lewis, previously a Yale professor of English and comparative literature, said Yale-NUS had a global vision beyond merely extending a traditional great-books program into an “Asia and the West” survey. And in considering



**Instruction at the new college emphasizes seminars and discussions, a relative rarity in Asian higher education.**

“what a young person must learn to lead a responsible life in this century,” as he put it, the curriculum had to embrace quantitative reasoning, scientific inquiry, analysis of social institutions, and understanding of modern

social thought. The new college set out to establish itself as “a model community of learning,” he said: a residential school whose educational program would be shaped by a broad “common curriculum.” In its present form, that comprises 10 courses:

- Literature & Humanities (L&H) 1 and 2 and Philosophy and Political Thought (PPT) 1 and 2 (both freshman semesters);
- Quantitative Reasoning, Comparative Social Inquiry (CSI, both first freshman semester), and Scientific Inquiry 1 (second freshman semester);
- Modern Social Thought and Scientific Inquiry 2 (first sophomore semester); and
- Historical Immersion (any junior or senior semester).

The titles suggest the courses' broad, non- (or at least inter-) disciplinary nature. During the past academic year, L&H students read *The Ramayana*, *The Odyssey*, Herodotus, *The Decameron*, the Han dynasty historian Sima Qian, *Aladdin*, *The Tempest*, Sudanese novelist Tayeb Salih's *Season of Migration to the North*, and more. The PPT syllabus—engaged with concepts of the self, the state, individuality, national self-determination, and other issues—spanned sources from classical Chinese philosophers, *The Bhagavad Gita*, Plato, Aristotle, and Marcus Aurelius to Descartes, Hobbes, Mill, Nietzsche, Gandhi, and Arendt. CSI examines the state, markets and corporations, social movements and social change, class, race, gender, and family: fields of interest to scholars of government, economics, sociology, and anthropology, among others.

The mix of disciplines in these common courses is already distinctive—and other aspects of their design have further, significant implications for students and faculty members.

To begin with, the common-curriculum courses are faculty-owned and -operated—not by a single professor, but genuinely in common. Teams of scholars have hammered out the syllabi and related assignments together. Associate professor of humanities Mira Seo, part of the initial cohort who contributed to the Garsten report, described the exhaustive, iterative process of designing L&H classes that teach students “to see works in dialogue with each



other, in a pre-disciplinary way”—not a natural act for experts accustomed to advancing their own fields. A classicist who chose Yale-NUS over a tenured position at the University of Michigan, she recalled the faculty group moving away from a forced march through Homer and *The Aeneid*—and the specialist’s desire to “master” certain texts—toward a synoptic approach: one that included more and different kinds of texts. They determined that the appropriate goal for liberal-arts undergraduates was “your *capacity* to master a text,” placing the emphasis on increasing student skills. Such goals impose on professors an obligation to collaborate (all had to be committed to “charitable reading and good listening”) that echoes the college’s aspirations for “articulate communication.” The faculty group read Salih’s book, for instance, and decided they could not teach it effectively—until a new member of the group made the case for it; it was added to the syllabus last year. “This is more work, it’s more maintenance,” Seo said, “but it’s improvable the way a canon is not.”

The common courses are team-taught as well. Rather than divvying up the lectures by discipline, for example, an anthropologist delivered the second Modern Social Thought lecture on Tocqueville. The director of the common curriculum, Terry Nardin, professor of political science at Yale-NUS and NUS, a scholar of modern European political theory, said faculty members everywhere are reluctant to “teach things that are strange,” and admitted finding the learning curve “steep” when preparing to teach about Asian political philosophers. But “This is the very spirit of a liberal-arts college,” he argued, “where people are interested in things outside their field. We ask our students not to prejudge things,” not to track themselves into a professional course too early. “We need to have a faculty that matches the expectations we have of our students.”

Moreover, the teachers do *all* the teaching: Yale-NUS doesn’t have graduate students, and does not delegate coursework to teaching fellows. A typical common course has one lecture each week (where the faculty members steel themselves to learn from one another, as Nardin described) and two seminar sessions (where the professors have greater scope to draw upon their disciplines). Each teaching team collaborates on rigorous assessments at the end of each semester, to strengthen courses and as a guide to colleagues who

may join future iterations. The faculty’s ownership of the common curriculum has been maintained beyond Yale-NUS’s launch: the inaugural science sequence has already been pared down and recast to focus more on the nature of scientific inquiry and foundational questions, despite students’ differing levels of preparation; and a separate course on contemporary issues has been jettisoned because it overlapped the examples being used in other courses. (This pace of change would astonish at most U.S. colleges.)

Overall, said future president Tan, Yale-NUS’s collectively conceived and taught common curriculum differs significantly from a separate general-education sequence that “no one owns.”

Because all students take the common courses on a coordinated schedule during their first semester and in the subsequent two terms, they encounter new material and learn new skills together, in a way that is additive. To encourage a focus on learning per se, during the first semester, grades are not recorded on transcripts and there are no final exams; evaluations and comments focus on papers, team projects, oral presentations, and students’ reflections on their progress.

Professor Jane M. Jacobs (an aptly named urban-studies scholar), another of the initial faculty cohort and now director of the division of social studies, highlighted this “common experience.” The first-semester social-inquiry content complements the material in philosophy and political thought, she noted. Pericles Lewis underscored the resulting benefits to the hoped-for “community of learning,” as students take their intellectual conversations outside the classroom. In a student body that is internationally far more diverse than those at U.S. colleges, with a variety of prior school experiences and cultural traditions, the first semester more or less assures that “all the students are equally scared out of their minds” as they confront unfamiliar ideas and their own weaknesses, Seo said. They discover that they “all have something to learn—it’s incredibly effective,” and underpins “academic and communal identity.” For all the freedom to choose courses that U.S. students may enjoy, their individual schedules may preclude such community benefits.

The course sequence also reinforces acquisition of skills. Both L&H and PPT have writing assignments that progress from analysis of a close textual reading toward assembling of evidence and making comparative analyses. CSI, separately, requires students to produce a longer research paper. This “structured skill acquisition, integrated across the curriculum,” Nardin said, equips students to write well in multiple disciplines. Introducing quantitative reasoning in the first semester equips students to use data and algorithms in the scientific-inquiry and other courses that follow.

The schedule also incorporates “cocurricular” ex-



Pericles Lewis (left), founding president of Yale-NUS, and then-Yale president Rick Levin, who partnered with NUS

Pericles Lewis emphasized two advantages Yale-NUS has had in defining itself: starting from scratch, and attracting faculty members interested in innovation and undergraduate teaching.





**Above: The new campus, foreground, in front of NUS's residential towers; central-quad detail (right)**

periences that extend learning beyond the classroom. During a common “Week 7,” first-semester students engage in field experiences—some in Singapore, some elsewhere in Asia and far beyond—with their professors. These are followed by presentations: an opportunity for speaking and visualization exercises. Similarly, spring-break and two-week, year-end “labs” tied to faculty members’ research provide academic experiences in the wider world. Students’ interests and academic paths are deliberately integrated when they study abroad, too—a nearly universal choice. Trisha Craig, dean of professional and international experience, emphasized that all these opportunities are tied to learning; they are “not drive-bys.” Professor Bryan E. Penprase, another of the initial faculty members, said that, as intended, the design of the common curriculum enabled students to enhance their learning “in their cocurricular activities and their conversations”—a major step toward building a “new academic culture.”

Accommodating 10 term-length common courses has led Yale-NUS to limit concentrations in one way that the faculties at Harvard and other research institutions might reject: across all fields, students’ majors require only eight courses and two terms of work on a capstone project (research, a policy analysis, or a work of art or performance). “Does a philosophy major need 15 courses?” Pericles Lewis asked. The common courses are “not introductory courses, not preparation for advanced study in *any* field,” as Nardin put it, so students can take electives that are a bridge into, say, economics or a particular scientific field. But the emphasis remains very much on integrative, liberal-arts education, rather than assuming that most students seek graduate academic training. The concentrations themselves are what Jane Jacobs called “short, fat majors”—14 in all, including such broad fields as arts and humanities, life sciences, and physical sciences.

Penprase, who directs the college’s Center for Teaching and Learning, is an astrophysicist who might be expected to celebrate depth in concentrations. In fact, he is a strong advocate for limiting them this way. Students can certainly pursue a physics or

chemistry track, he said, but the broader physical-sciences major is “more vibrant.” After the “lived experience” of the common curriculum, he added, juniors began their concentration courses with “a unique breadth,” preparing them “to be more integrative or interdisciplinary” in their major fields. (Apparently, there is a collateral effect on their teachers: as he put it, “We’re all a faculty of *science*.”) A former faculty member at Pomona, a school praised for its teaching, Penprase said that Yale-NUS students acquired communication experience and “lateral skills” that outweigh any potential deficit from limiting “deeper disciplinary training earlier.” The result is “a very powerful kind of education and autonomy. They have become more interesting, creative humanists or scientists.”

Do these structures and decisions work? Yale-NUS is pioneering



HARVARD MAGAZINE/USP



liberal arts in Asia, and the fledgling college has no track record of graduates' subsequent success. But at least a few of the current students were enthusiastic. Over lunch in one of the residential dining halls (which offer halal food lines), Jason Carranceja, a junior from the Philippines who chose the school over Amherst, said the first-term common courses had made him "better able to appreciate diverse perspectives in other people"—and that they redirected his studies from physical sciences and mathematics to a global-affairs concentration. A grant to study Spanish led to an eye-opening summer abroad in Argentina; he is now exploring east-west and north-south relationships as South America and South Asia interact. And before she came to Singapore, said Ruchika Goel, a sophomore from New Delhi, she had little sense of the differences among Asian nations. Her schooling in India was test-based, and devoid of writing. Now, her suitemates encompass six Asian countries and eight languages; as part of her studies, she conducted her first research project, on gender rights in India, and had a faculty-directed lab experience in Cuba. This summer, she is studying contemporary culture in Korea, after a semester immersion in the language.

Meanwhile, familiar signs of collegiate exuberance were evident. Protest posters about the college's rules for student-organization meetings were hung (politely, with nonmarking adhesive) on the pristine white walls of the campus. A resident rector (faculty dean, in Harvard parlance) had invited students to a Super Bowl party—beginning at 7:00 A.M. to accommodate the 13-hour time difference. And on a blackboard, seniors had chalked items from their bucket lists, ranging from "Fame and riches" to "Hang out with frenz." Southeast Asia, meet liberal-arts undergrads.

How will NUS know if this enormous investment pays off? Tan Chorh Chuan, the university's president, noted that higher education in Singapore "came from a British foundation, with early, narrow specialization," but now, "We have to think about a future-ready

graduate...able to zoom out and zoom in" to identify problems, define options, and build relationships that span cultures and boundaries. To cope in a "multicentric" world, he said, "We need a *lot* more breadth, with rigor." (The president, a renal specialist, has managed this feat himself: he has for decades undertaken rigorous treks deep into Asia—and then illustrated accounts of his journeys with his own drawings and paintings in the style of classical Chinese masters.)

Tan credited Singapore's government for its "long-term thinking and willingness to make long-term partnerships" with institutions like Duke (medical sciences), Johns Hopkins (music and art), and now Yale. In the new college, NUS was "responding to the need for creative thinkers who are familiar with Asian as well as Western perspectives," ultimately in service to Singapore and throughout Asia. To that end, he pointed to the "more purposeful link between what people learn within the classroom and outside it." Students who work on a sustainability project in a Cambodian village with their professor, he said, learn about economic development and the environment but also "discover more about *themselves* and how they relate to other people and situations."

The effects of the Yale-NUS experiment—a common curriculum with experiential learning, residential education, and the melding of traditions—will become manifest in 10 or 15 years, Tan said. His core criterion seemed to align with the essence of the liberal arts: "Will the graduates be leaders in different sectors in Singapore, Asia, and the world—and will they be able to be influential agents of change in their own spheres?"

## A Curricular Prospectus

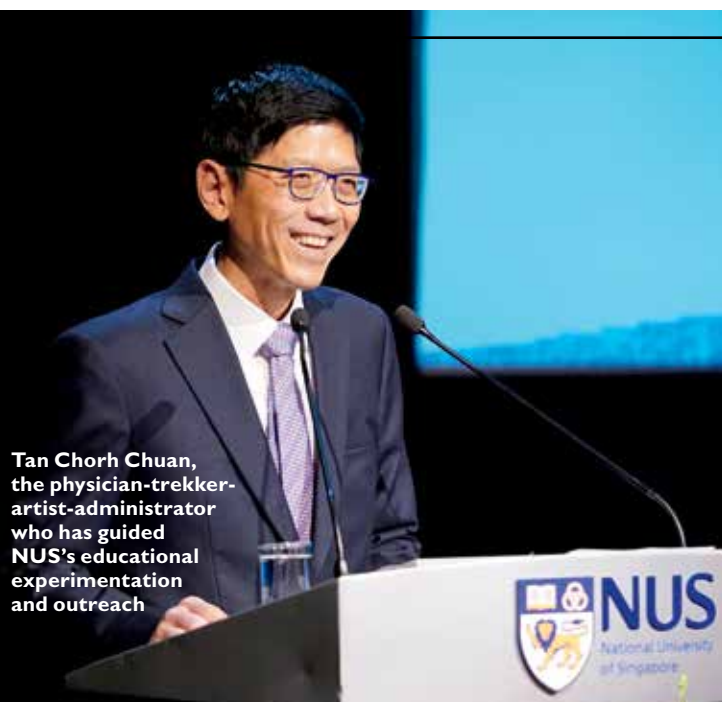
WHERE Yale-NUS moves the curriculum toward a common set of courses defined by the *substance* of the liberal arts (think of Harvard's former Core Curriculum), with better integrated instruction in writing and other skills, Lemann seeks a curriculum different in *kind*. He focuses on core courses explicitly designed to create the competencies he thinks students will need as adults. Mastering these skills, he wrote, would yield an understanding of "what it means to be a college graduate, regardless of one's major, that would be as clear and strong as stipulating what it means to be a professional-school graduate."

In a conversation, Lemann cited diverse benefits beyond developing foundational skills. For new students who lack the highest level of academic preparation, this sort of structured curriculum would be "an introduction to how to operate in the university." The core courses, he said, would be "part of a system that would be more efficient at acclimating kids to higher education," boosting their graduation rate. Recalling his own Harvard education, he cited gaps in statistical and quantitative methods that he had to remedy, for example, before he could formulate a critique of Richard J. Herrnstein and Charles Murray's 1994 book *The Bell Curve*. A thoughtful set of courses on how knowledge is created would correct such omissions.

Writing in the *Chronicle* again nearly a year after his first essay, Lemann fleshed out a case for the liberal arts that would be "stronger, or at least more specific, than calling for 'critical-thinking skills' and 'education for citizenship,'" without succumbing to an education in "employment skills that have a demonstrable payoff." He outlined a set of first- and second-year courses in:

- information acquisition: the sociology and sources of knowledge in the Internet era;

Has the academy embraced his proposal, or at least reacted? Not in any organized way, Lemann said—not at all to his surprise.



Tan Chorh Chuan, the physician-trekker-artist-administrator who has guided NUS's educational experimentation and outreach

COURTESY OF NATIONAL UNIVERSITY OF SINGAPORE



**Yale-NUS has the full suite of educational spaces and amenities found on U.S. residential campuses. Mira Seo helped shape the common courses—and the college's teaching culture.**

- cause and effect: defining a question, forming hypotheses, and testing them;
- interpretation: close reading of texts;
- numeracy: engaging with quantitative reasoning, probability, and statistics;
- perspective: how different people experience the world;
- the language of form: seeing, using, and producing visual information;
- thinking in time: historical perspective and a sense of contingency; and
- argument: written and spoken presentation

Although a course on cause and effect would necessarily involve the scientific method, for instance, and one on thinking in time would engage with historical content, Lemann made clear that he means something distinct from science or history classes, *per se*. For instance, “cause and effect”

is something like a course in the basics of the scientific method, aimed at people who aren't necessarily going into science. The core thinking process entails stating what question you're trying to answer, then establishing a hypothesis..., then finding a way to test the hypothesis by gathering material that would settle its degree of trustworthiness. The title of the course refers to the idea that causation is a key concept in almost all fields of inquiry.... [F]or years I have been teaching a version of it to journalists, using news stories as the main material. What might explain, for example, why violent crime has decreased so much more in New York City than in Chicago? What's important is conveying the idea that making inferences is a skill, and that a series of thinking techniques is powerfully helpful in performing it.

Similarly, “thinking in time” means “to do more than teach people to do historical research *per se*. To most students arriving at college, the past often seems safer than it actually was, outcomes more inevitable than they were, and operative assumptions closer to the ones we use today.” Historical perspective “can make students see that everything could have turned out differently, that individual people always operate within social, economic, and cultural contexts.”

Lemann has aimed to prompt discussion about a “suite of intel-

lectual skills that together would empower a student to be able to acquire and understand information across a wide range of fields, and over the long term,” as she sought “a more successful education and also a more successful career and life.” In other words, a refreshed program in liberal arts.

And has the academy embraced his proposal, or at least reacted? Not in any organized way—not at all to his surprise, he responded. There is no organized constituency for such change among professors and students (and no direct voice for those outside the academy). Presidents focus on who is in the student body—and not “what the university is teaching.”

Having shed his own administrative duties, Lemann wrote as a faculty member, with the freedom that confers to say what is on his mind unburdened by the necessity of implementation. He did so knowing the many reasons “why core-curriculum discussions are difficult and unpopular, and why methods are not an explicit or primary focus of undergraduate education. But the result is that the balance has shifted too far away” from the kind of teaching and learning he has sketched. A conversation that began to shift that balance back, he wrote, “would make liberal education stronger and more sustainable.”

## And Now for Something Different

FROM THE Silicon Valley perspective, Yale-NUS is yet another expensive venture, replete with overhead and catering to elite students, and Nicholas Lemann's curriculum retrofit a mere face-lift for commodity colleges—both ripe for disruption. The clearest attempt to effect that disruption is Minerva Schools at KGI, the undergraduate operation of the venture-funded Minerva Project, founded by Ben Nelson, a graduate of the University of Pennsylvania's Wharton School and former CEO of Snapfish, the photo-hosting service. The school has enrolled students since the fall of 2014, immersing them in a reconceived kind of college significantly shaped by Stephen M. Kosslyn: its founding dean, now its dean of arts and sciences, and for three prior decades professor of psychology, department chair, and dean of social sciences at Harvard.

Much has been written about Minerva's distinctive structure and teaching. In pursuit of radically lower costs, the school has essentially done away with all the fixed assets of a campus. Stu-



dents live in leased units with kitchens in San Francisco their first year, and then sequentially, in subsequent semesters, in six other cities around the world (thus far, Berlin and Buenos Aires, with Seoul on tap), where they literally study abroad together. They attend “class” by laptop, in a sense inverting the HarvardX MOOC model: instead of aggregating faculty members in Cambridge and Boston and disseminating their work around the world, Minerva aggregates its students and connects them online to dispersed teachers.

When they log on for class sessions via the Active Learning Forum, Minerva’s software platform, teachers (who work on a contract basis) and students can all see each other, since all instruction is in seminar format. The lesson plans used by each faculty member build in myriad engagement and reinforcement tools derived from research on learning (electronically arranged small breakout groups to brainstorm a problem and report on options, polling and voting to solicit feedback, collaborative whiteboards). By observing each student through the platform, the instructor can make certain each is remaining continuously involved, and tallies each one’s participation in discussions.

The software minutely details every learning objective and activity built into the lesson plan for each class session. Faculty members go through a four-week Minerva boot camp to master the pedagogy before teaching students. The aim is an intensified version of the active learning achieved in other institutions’ “flipped classrooms,” which assume prior familiarity with readings and recorded lectures so students’ time with their instructors focuses on problem-solving and learning concepts by applying them. Harvard Business School students might see a Minerva class as an online equivalent of their own carefully structured case discussions, on steroids. The similar-

ity is no accident: Kosslyn mastered the approach during three years as co-leader of the Mind of the Market lab with Gerald Zaltman, now Wilson professor of business administration emeritus. (Nelson, Kosslyn,

**Stephen M. Kosslyn, Minerva’s founding dean and dean of arts and sciences, has driven a radical redesign of liberal arts and pedagogy.**



COURTESY OF THE MINERVA PROJECT

and colleagues detail the Minerva system in a book forthcoming from MIT Press late this year.)

Such practices may become more widespread as educators examine Minerva’s methods. It may be a greater stretch to imagine other institutions embracing the radically revised, pared-down course of study in which Minerva deploys its pedagogy. If the substance of Yale-NUS’s common curriculum is a recognizable version of liberal arts, and Lemann’s “canon of skills” and methods would be taught using the substance of the liberal arts, Minerva at the very least inverts the telescope. Its curriculum, perhaps its most significant innovation, aims at what it calls “practical knowledge”: tools that equip students to solve real-world problems. Thus, rather than offer a course in, say, the history of art or music, Minerva views art and music as interpretative tools students can expect to use or encounter in communicating throughout their lives.

From the outset, Nelson promoted a vision of a highly structured general-education curriculum. As Kosslyn recalled from early discussions in late 2012, Minerva sought explicitly to prepare graduates to develop their capacity for leadership, innovation, adaptability, and global perspective; he plunged into the academic literature, looking for agreed-upon “characteristics of successful leaders,” innovators, and creative people, and testing his findings with employers. The process, Kosslyn said, was “very top-down.” His inquiries identified three core competencies that underlay the outcomes Minerva’s education aimed to prompt: two cognitive skills—creative thinking and critical thinking; and an interpersonal skill—effective communication. After a consultation with Harvard’s Balkaniski professor of physics and applied physics Eric Mazur (a pioneering educator, profiled in “Twilight of the Lecture,” March-April 2012, page 23), the latter competency was divided, creating a fourth category: effective interaction.

Immersion in acquiring those competencies, rather than conventional course content and information, became the subject of students’ first year, when they take four “cornerstone” courses:

- Formal Analyses (thinking critically with logic, statistics, algorithms, computation, and formal systems);
- Empirical Analyses (thinking creatively by framing problems, developing and testing hypotheses, and recognizing biases, as in science and social science);
- Multimodal Communications (speaking, writing, debate, design, and visual and artistic expression); and
- Complex Systems (human interactions, collaborations, networks, negotiations, and leadership).

“It all looks very coherent,” Kosslyn said, “and it is.” During the year, the students are introduced to about 10 dozen habits of mind and foundational concepts (HCs, in Minerva’s shorthand, each with its own hashtag) that the curriculum designers have determined are embedded in the overarching competencies: fitting communications to the context and audience, for an example of the former, and distinguishing correlation from causation, for the latter. The skills are engaged not through traditional subjects (literature, history, biology, and so on), but by addressing big problems: feeding

**Minerva’s curriculum design was “very top-down.” As a result, “It all looks very coherent, and it is.”**

the world, climate change, securing water supply, or maintaining peace.

In the second year, students begin to apply these concepts to their fields of interest, choosing among five majors (arts and humanities, computational sciences, natural sciences, social sciences, or business)—each with three “core” course prerequisites—plus diverse electives. To date, for Minerva’s pilot students and two subsequent cohorts—numbering about 300 in all from 2014 through this year—those electives have consisted of the core courses from the other majors.

Concentrations within the five majors are to follow in the third year: a prescribed grid of six tracks, typically, each in turn requiring three defined subject courses, designed to span theory, empirical findings, and applications. Those concentration courses are now under development as Minerva pedagogical experts team with faculty subject-matter experts to define the content, syllabus, and learning plan for each—all under decanal supervision. When all are created, Minerva’s catalog will number perhaps six dozen structured courses in total; in their third and fourth years, students also take electives from the other majors, and pursue increasingly independent work on capstone research projects and in Oxbridge-style tutorials.

For arts and humanities, for instance, the core courses are Global History, Morality and Justice, and The Arts and Social Change. For their subsequent concentrations, those students will choose among humanities analyses; humanities foundations; humanities applications; historical forces; philosophy, ethics, and the law; and arts and literature. Among the nine courses available, a “humanities applications” concentrator would enroll in Uses and Misuses of History, Creating Ethical Political and Social Systems, and Using the Arts and Literature to Communicate and Persuade. Underscoring Minerva’s emphasis on practical liberal arts, illustrative career options accompany the description of each concentration: for a humanities-applications concentrator, these include communications specialist, political scientist, public-policy expert, film maker, urban planner, and attorney.

To liberal-arts traditionalists, Minerva’s rubrics may seem formulaic or rigid. Having course designers and curriculum specialists figure so prominently in course development departs significantly from the convention of relying on the individual professor’s knowledge—and from the teamwork embedded in Yale-NUS’s common curriculum or any likely implementation of Lemann’s ideas. It is a good bet that many of the American students who enroll in the top tier of selective liberal-arts colleges now might chafe at Minerva’s holistic application of learning science.

But that is for the market to decide—and its business plan aims much more at students, many of them international, who do not now have ready access to liberal arts, and who are, overwhelmingly, not enrolled in the major liberal-arts programs that have evolved to

## The Harvard College Curriculum

BEGINNING in the fall of 2018, Harvard undergraduates will find themselves on a somewhat altered academic trajectory, as the revised Program in General Education takes effect. Following review of the Gen Ed curriculum that took shape a decade ago—under which students had to take one course each from eight broadly defined areas—the faculty decided in 2016 to alter its earlier handiwork. The resulting new framework requires one course each from four broad “perspectives” (Aesthetics & Culture; Histories, Societies, Individuals; Science & Technology in Society; Ethics & Civics); a distribution requirement (one course each from arts and humanities; social sciences; and sciences and engineering); and a new course demonstrating “quantitative facility” (the current definition of which, “thinking with data,” remains to be clarified, given some concerns recently raised by mathematicians—see “Pending Business: Maths,” page 26).

This segment of their education aims to “prepare students for meaningful lives of civic and ethical engagement in an ever changing world.” The faculty’s intent in defining the Gen Ed categories and devising the courses that qualify is to “help students to understand the deep relationship of scholarly work to some of the most important aspects of life beyond college. Gen Ed aims to produce practical wisdom: it asks Harvard students to consider how they will best use their liberal arts and sciences educations, and their lives, in the service of both knowledge and humanity.”

The College’s requirements thus comprise the Gen Ed courses; the distribution courses; expository writing; and learning (or testing out of) a foreign language. Alongside that architecture, the Harvard learners pursue concentrations. In any student’s progress through the College, concentration courses outnumber general-education and distribution requirements; and most ultimately aim, at least in honors fields, for focused research at some frontier of that discipline—a taste of what graduate study might entail. The rest of students’ academic work consists of whatever other electives move them and fit their schedules.

date. However its vision unfolds, Minerva has usefully pushed the limits on content and the application of cognitive science to test an alternate version of liberal arts, and put it before students who are willing, like their peers in Singapore, to try something very different.

• • •

YALE-NUS, uniquely supported by two powerful universities and backed with unprecedented resources, may be emulated in its entirety by a few of the emerging Asian nations with the funds to invest in liberal arts. Its curriculum may have a broader demonstration effect on established U.S. colleges seeking to bolster general education within familiar disciplinary buckets—or, at a minimum, to extend their definition of the literary canon beyond the usual European and North American icons. Lemann’s skills-based curriculum may find a readier audience, if not among the most prestigious elite institutions. Some elements of Minerva’s technologically driven, lower-cost model will have a financial appeal to hard-pressed colleges, public and private, and its edgier substantive version of the liberal arts is designed to have an appeal that builds bridges to career options after college. But whatever their particular paths toward wider influence, each represents a serious effort to challenge prevailing assumptions—perhaps while reminding educators and their future students of the enduring power and potential of an education in the liberal arts. ♥

*John S. Rosenberg is editor of Harvard Magazine.*



# Montage

Art, books, diverse creations



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## Comic License

Alan Yang, writing in Hollywood

by SOPHIA NGUYEN

**I**N THE TELEVISION SHOW *Master of None*, two Asian-American friends treat their parents to dinner. Awkwardly, one announces the purpose of the meal: "We wanted to learn more about you and how you got here." But when prompted to share a story, his father is stoic: "I cannot think of anything noteworthy." The son persists. "Come on—there's got to be something, right? Like, well, what did you do when you were growing up in Taiwan?" "I worked very hard." "Okay, did anything particularly interesting happen?" A long pause. "No."

Though the sons have some explicit takeaways from the encounter ("What an insane journey! My dad used to bathe in a river, and now he drives a car that talks to him!"), the episode's deeper insight is conveyed by inference: how, without outward conflict or obvious angst, the children of immigrants become deracinated. A generational gap can become a feature of the landscape without anyone thinking to ask how or when it opened.



Alan Yang

**Jaunts to Nashville and Italy aside, *Master of None* stays, and is filmed, in New York City (top). On set in the subway, castmates Lena Waithe (left) and James Ciccione confer with co-creators Aziz Ansari and Yang.**

That episode won an Emmy Award in 2016, its initial seed coming from the family lore of series co-creator Alan Yang '02.

Yang grew up in southern California's Inland Empire, and at Harvard found two refuges from culture shock. The first was playing in a punk-rock band in the Boston suburbs; the second was *The Harvard Lampoon*. For many, the campus humor magazine has been a career chute straight to Hollywood, and he began to pursue comedy in earnest while on staff. Still, Yang maintains that there was a fundamental

innocence to the activity. “Look, one of the greatest things about the *Lampoon* is, it’s a very pure point in your writing life, where you’re basically writing to please yourself and maybe 10 other 19-year-olds that you’re friends with in that building,” he says. “That’s a very pure thing to do! You’re not trying to write to sell a script, or to get famous, or anything like that.”

The friendships formed in the red-brick stronghold on Bow Street provided a ready-made support system throughout Yang’s postgraduate un- and underemployment in Los Angeles: “That alone gives you the stamina to stay with it.” The time spent with his college band also came in handy during his first substantial staff writing job, on the NBC sitcom *Parks and Recreation*. Yang played bass guitar in the fictional band of a first-season guest star, “as basically an in-joke for the writers’ room”; by the sixth season, that character had been promoted to a series regular, and Yang got to share the stage with the likes of Wilco. Starting as *Parks*’s most junior writer, Yang learned the ropes of TV production over its seven-year lifespan. There, he also befriended the show’s most junior cast member, comedian Aziz Ansari, bonding over shared interests in nightlife and travel.

When Yang and Ansari struck out to co-create their own series (in which Ansari also stars), those enthusiasms were core to *Master of None*. Released by Netflix in 2015, it follows a young actor and foodie named Dev, living in New York with a plateauing career and a stalled relationship. If the last generation of urbanite sitcoms were hang-out shows, anchored at a bar or apartment and offering the cozy feeling of home, *Master of None* is a wandering show—a chatty city walk with no particular destination in mind, making pit stops at food trucks and restaurants. It’s stuffed more with incidents than plot turns—auditions for bit parts, weekend trips out of town, babysitting for friends—all cut with observational humor. Though some episodes home in on specific topics, like cultural stereotypes or sexism, the show is most concerned with the paradox of choice. Dev maintains an epicurean, cheerfully noncommittal existence—underwritten by material security (he’s dining out on a lucrative Go-Gurt commercial), nagged by a creeping existential itch. In one episode, he and his friend tucker themselves out trying to decide where to go get tacos.

This relaxed, leisurely air, premised on a sense of abundance, seems emblematic of the television industry’s rapid expansion.

**The second season has Dev face both heartbreak (right) and career challenges (below, with his reality-TV producer-boss, played by Bobby Cannavale).**

In recent years, cable networks and online players have thrown money and creative control at promising writers. Such boom times have encouraged an exploratory, sometimes shaggy, approach to storytelling—especially on streaming-only platforms, where the series format has found new flexibility. For the new season of *Master of None*, this manifests as a kind of whimsy: one episode is a black-and-white riff on Italian neorealist cinema; another features the Jab-bawockeez, a masked, silent hip-hop dance crew, who help judge a cupcake contest.

One of Yang’s favorite moments in the season arrives in an episode called “The Dinner Party,” when a lovelorn Dev says goodnight to a crush, who’s returning home to Italy with her boyfriend the next morning. They hug goodbye, and minutes later she sends a jokey, flirtatious text message. The camera stays on Dev for the rest of his solo cab ride—three full minutes of him sitting, glum and silent—and the episode ends just as he gets out. “When I first saw that in the cut, I said, ‘Whatever happens, we cannot change this,’” Yang declares. “We’ve all *sat* in that cab! We’ve all *gotten* that text! The fact that you see him get out of that Uber is crazy to me. I love that.” On a traditional network, he adds, “There’s no way you’d get to do that.”

Time, and the freedom to spend it, have been essential. The show’s looser production calendar allowed the writers to gather new experiences and to hone them into ideas—otherwise, claims Yang, the new



season would have been all about publicity tours. In the past, he’s described *Master of None* as a product of and about its makers’ “dying single years.” “Those single years are still continuing!” he says now, with a long, loud, burst of laughter.

Meanwhile, he’s gone on other explorations. A trip to Asia inspired a screenplay he intends one day to produce and direct: a country-hopping, intergenerational family drama, drawing on anecdotes he heard while traveling with his father in Taiwan. “He told me these stories that I out and out stole, and put in the movie,” says Yang. As ever, research was halting. “It was a lot of me texting my mom and dad, and them not answering.”

## A Postmodern Youth

*Tahmima Anam’s Bengal trilogy finds a resting place.*

by MARINA BOLOTNIKOVA

**Z**UBAIDA HAQUE, narrator of *The Bones of Grace*, envies the moral clarity of her adoptive parents’ generation. They grew up in Bangladesh when it was still East Pakistan, serving in the national liberation army dur-

ing the 1971 War of Independence. People knew what was right and what was wrong then, Zubaida imagines; Bengali nationalism had forever animated their lives with a purpose that hers lacks. Four decades later, the family has grown wealthy through



her father's textile business. Zubaida's upper-class, postmodern youth feels maddeningly easy next to theirs, so easy that she's crushed by the weight of everything she must choose, all the possibilities of her academic life in America and her duties at home. Near the end of the novel, when she comes upon a roomful of laborers mutilated by Chittagong's shipbreaking industry who've been deprived by their boss of medical care, she is finally moved by her mother's imperative: "The sight of those workers changed what I knew about the world and my place in it. It made everything else shrink." The modern world is still filled with moral catastrophes.

*Bones* concludes the Bengal trilogy that Tahmima Anam, Ph.D. '05, began more than a decade ago, each novel a self-contained portrait of a generation of the Haque family. *A Golden Age* follows Zubaida's grandmother, a widow during the war. In the sequel, *The Good Muslim*, Zubaida's mother, a doctor who works with women raped during the war, makes sense of a reconstituted Bangladesh, suddenly more religious and autocratic, eager to forget the past and embrace ties with Pakistan. *Bones*, the longest and most ambitious of the trilogy, expands the orbit of Anam's story beyond Bengal to Pakistan, Dubai, and Cambridge, where its protagonist is studying paleontology at Harvard. Zubaida, much more than her mother and grandmother, must "cobble together an identity," as Anam puts it in an interview, because no great historical moment has anchored her generation.

*Bones* reads with the intimacy of a novelist who knows her heroine so well she's afraid of revealing too much—perhaps because Zubaida and Anam are almost the same person: both raised by former Bengali freedom

## Tahmima Anam



COURTESY OF TAHMIMA ANAM

fighters, attending college and graduate school in the northeastern United States, always feeling on the outside of things. Anam says she usually draws her characters from real life: "There's a joke in my family that no one should ever tell me anything because it will show up in a book. It's either that I lack the imagination to make up people, or it's that real people are so fascinating."

The narrative is pushed forward by Zubaida's romance with Elijah, a philosopher whom she improbably meets at a piano concert in Sanders Theatre. But she has a long-term boyfriend in Bangladesh, whose marriage proposal she feels pressured to accept. This is not, as some reviews have suggested, an arranged marriage; her parents are too modern for that. The relationship is more subtly fraught, colored by

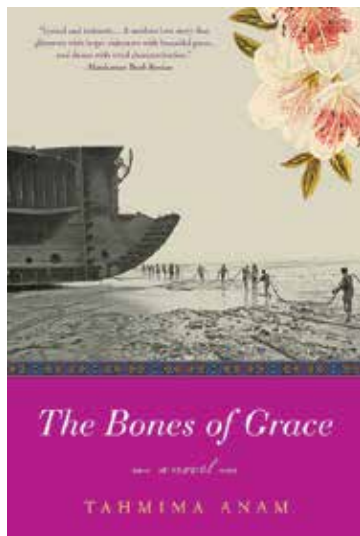
Zubaida's longing for security, her worry about estranging their two families, and her fear, which she recognizes only after meeting Elijah, that she can repay the debt of her adoption only by doing what her parents expect. *Bones* reaches its central question when Zubaida realizes that she isn't okay with not knowing who her birth parents were, that she *must* know. That need takes her through a deeper understanding of herself and her country, each tangled subplot revealing a world still captive to the past

even though old boundaries have collapsed: a colleague on a dig in Pakistan is suddenly arrested and dragged away, caught in a tribal conflict; a little boy and girl are maimed at a ship-breaking site, where giant decommissioned ships (and often human bodies) are stripped to their skeletons.

The recurring metaphor of bones extends to Zubaida's hunt for the fossils of an extinct walking whale, and to her almost metaphysical belief

in the importance of flesh-and-blood relationships—an obsession that eventually begins to unravel. "When I studied the fossils of *Ambulocetus* and *Pakicetus*, I told myself the souls of those ancient creatures were in their bones," she reflects. "But now, confronted by these fragments of people, a room in which the atmosphere had been thinned by the fleeing of hope, my knowledge of bones gave me nothing, no explanation, no prescription." The plot's epic scale would be unconvincing, were it not for Anam's humanizing prose.

*Bones* is filled with ordinary people crushed by the machinery of modernity, recalling Anam's training as an anthro-



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polologist. “Of all the social-science disciplines,” she says, “anthropology is the most open to questioning what the truth is and looking at the truth subjectively, understanding [that] the truth is contextual.” Yet while interviewing freedom fighters for her dissertation on historical memory in postwar Bangladesh, she felt confined by the requirement to tell the truth. Within the constraints of academic research, “I wasn’t fully able to explore the truths that we can only discover by making things up.” So after her dissertation, she enrolled in a creative-writing program in London and gave herself a year after finishing her first novel to find a publisher, or else look for an academic job. *A Golden Age* was published in 2007.

Anam’s need to “make things up” does not mean she’s uninterested in factual accounts of Bengali history—her stories are *about* the relationship of facts to national identity. She assiduously researched the details of the War of Independence: its massacres, war crimes, and underground operations. *Bones*, the novel set furthest from the war, asks what those facts should mean now. One of its smartest moments takes place outside of the courthouse where real-life Bengali politician Ghulam Azam has just been convicted of war crimes. A massive crowd, dotted with people Zubaida knows, screams “Death!” and “Hang him!”

Azam, now 90, emerges looking tiny and shriveled in a wheelchair, his hands cuffed in front of his body. He will die in prison a year later. What is the value in the conviction of an almost dead man, or the tribunal’s fact-finding exercise? For Zubaida’s mother, who provided testimony in the case and spent her life obsessed with the war, the moment is the proudest of her career, a way to neatly avenge her country’s humiliating past. But this is not Zubaida’s battle. She gapes at the incident, struggling to feel something, and returns to her search for the facts of her own life.



O P E N B O O K

## 1760s Extracurriculars

**Colonial America** was home to nine colleges still in existence. Institutional histories cover their founding and leadership, but lack some of the gritty essence of students’ daily lives then. In *Pedagogues and Protestors: The Harvard College Student Diary of Stephen Peabody, 1767-1768* (University of Massachusetts Press, \$27.95 paper), superb editor Conrad Edick Wright ’72, director of research at the Massachusetts Historical Society, has made accessible perhaps the best source for such a perspective. This excerpt is from his introduction about an “unexceptional collegian.”

**Since Stephen Peabody’s diary** provides the best available entrée into the Harvard community in the late 1760s, a close look at his day—how he spent it and with whom—repays the effort. Without an acceptable excuse there was no easy way around certain obligations, including morning prayers, daily recitations and lectures, and Sunday services; as long as Stephen was in town he hardly ever missed them. Then it was important to study enough to avoid faculty harassment. There were other ways to pass the time, though, and Peabody was only too happy to succumb to them. A multiday wrestling competition between the freshmen and the sophomores beginning on August 20,

1767, engaged him and other observers. There was nutting, which Stephen and some friends did on October 3, a day when the trees were full of chestnuts. Singing was a popular pastime, and Peabody reported informal harmonizing, usually with other undergraduates, at least 60 times. There were evenings with schoolmates—often for pleasure but every Saturday for prayer and discussion of matters of faith at the weekly meeting of some of the college’s more pious undergraduates. There were recreational excursions, including a day-long outing Stephen took with a friend on May 25, the second day of the journal, which steered him along a great loop from Charlestown to Boston, Brookline, Watertown, and then back to Cambridge. And there were errands to run, sometimes a few paces outside Harvard Yard in what is now Harvard Square, or more appealingly in Boston, where an outing might include attending a minister’s weekday lecture, viewing the muster of a militia company, dropping off a short article for publication in one of the town’s weeklies, or dining with acquaintances as well as visiting the metropolis’s shops.

Most of all, there was reading. With a substantial provincial library at Peabody’s fingertips it would be a waste not to read, and he did so avidly. Whether or not Stephen wrote in his diary about his curricular reading, apparently a subject of precious little consequence to him, his reading during his free time almost always merited a mention. In the course of the year Peabody’s diary covers he reported reading 72 titles....

**Stephen Peabody, 1809, by John Johnston**



# “Class Cluelessness”

*The powerful resentments shaping American politics today*

by ANDREA LOUISE CAMPBELL

**D**ONALD J. TRUMP’S VICTORY in the 2016 presidential election spawned a maelstrom of finger-pointing and soul-searching within the Democratic Party. How could the party of FDR, LBJ, and, for that matter, Bill Clinton, have lost touch so thoroughly with the white working class that had been central to its coalition for years? Which way should the party go in its identity and future strategy? Should it veer left, in the Bernie Sanders direction, or stay centrist? Should it continue to piece together an electoral coalition of racial and ethnic minorities, single women, and coastal

elites? Or does the logic of the Electoral College require a cross-racial, geographically diverse coalition of the non-elite centered on economic issues? The analyses and recommendations intended to prevent another 2016 for the Democrats are just beginning.

Pre-election warnings weren’t lacking. A host of books detailed the growing discontents of lower-income white workers. Harvard political scientists Vanessa Williamson and Theda Skocpol wrote of the frustration of Tea Party members in *The Tea Party and the Remaking of Republican Conservatism* (2012), while Katherine J. Cramer uncovered

the resentment of rural voters toward the “liberal elite” in *The Politics of Resentment: Rural Consciousness in Wisconsin and the Rise of Scott Walker* (2016). J.D. Vance described

his own family’s predilections in *Hillbilly Elegy* (2016) and sociologist Arlie Russell Hochschild reported that right-leaning folks in Louisiana bayou country felt they were *Strangers in Their Own Land*. Economist Robert J. Gordon ’62 revealed why they might be so upset in *The Rise and Fall of American Growth* (reviewed in the May-June 2016 issue, page 68).

If Democratic Party elites (and Hillary Clinton’s campaign officials) missed the warning signs, Joan C. Williams, J.D. ’80, of the University of California’s Hastings College of the Law, offers an early post-election analysis in *White Working Class*. Expanding

*White Working Class: Overcoming Class Cluelessness in America*, by Joan C. Williams (Harvard Business Review Press, \$22.99)

## Off the Shelf

Recent books with Harvard connections

For some serious beach reading: Maile Meloy ’94 returns to writing fiction for adults with **Do Not Become Alarmed** (Riverhead Books, \$27.00). Rapid and absorbing, if sometimes schematic, it follows a family cruise vacation gone wrong, and charts the waters of misfortune and privilege. Pair with the aloofly lyrical debut of Jesse Ruddock ’04, **Shot-Blue** (Coach House Books, \$19.95), about a single mother and her son squatting in a cabin by a remote Canadian lake.



Children’s grotto cave at the Lady Bird Johnson Wildflower Center, Austin, Texas

**Heading West? Because It Is So Beautiful**, by Robert Leonard Reid ’65 (Counterpoint, \$26), collects essays from decades of infatuated wandering from Santa Fe through the Yukon. For context, pack **Cattle**

**Kingdom: The Hidden History of the Cowboy West** (Houghton Mifflin Harcourt, \$29), by Christopher Knowlton ’78. His account of the capacious open-range era explains developments like the shaping of Teddy Roosevelt, and the near annihilation of the bison herd.

**The Color of Law: A Forgotten History of How Our Government Segregated America**, by Richard Rothstein ’63 (Liveright, \$27.95), is a searching examination of the *de jure* segregation of American cities.

Geyser University Professor William Julius Wilson calls it “the most forceful argument ever published” on the legal creation of neighborhood segregation. **Chokehold: Policing Black Men**, by Paul Butler, J.D. ’86 (New Press, \$26.95), is a passion-

ate account, by a former federal prosecutor, now law professor, of the harsh reality that “There has never, not for one minute in American history, been peace between black people and the police.”

**The Magic of Children’s Gardens: Inspiring through Creative Design**, by Lolly Tai, M.L.A. ’79 (Temple University Press, \$75). A copiously illustrated survey of enchantments that can be made real—through commitment and savvy design—in public parks. The author is professor of landscape architecture at Temple.

**The Idea of the Muslim World: An Intellectual History**, by Cemil Aydin, Ph.D. ’02 (Harvard, \$29.95). An associate professor of history at the University of North Carolina at Chapel Hill deconstructs the prevalent misunderstanding that the world’s 1.5 billion Muslims are a homogeneous community, or religious or political entity—a fiction arising from the fact that Muslims are not Christians. Useful reading for policymakers and the public alike.

**Paolo Veronese and the Practice of Painting in Late Renaissance Venice**, by Diana Gisolfi ’62 (Yale, \$75). A comprehensive examination of the sixteenth-century painter, whose lush work for the Venetian elite may be to your taste or not—but

IMAGES FROM THE MAGIC OF CHILDREN’S GARDENS. INSPIRING THROUGH CREATIVE DESIGN, BY LOLLY TAI, USED BY PERMISSION OF TEMPLE UNIVERSITY PRESS. ©2017 BY TEMPLE UNIVERSITY.

upon her much-read November 2016 *Harvard Business Review* article, Williams serves as tour guide and translator in explaining the worldviews, anxieties, and political choices of economically precarious white voters. Although cynicism comes easily about yet another member of the coastal elite class—splaining for the rest of us, the book is full of pithy observations and plausible theories. Her basic message is that white liberal elites and the progressive lawmakers who represent them have abandoned the white working class, scorning their lifestyles and beliefs while failing to offer policy solutions that would truly help them. No surprise then when that group returns the favor by abandoning Democrats in the electoral arena.

Williams defines the working class as Americans with incomes above the bottom one-third and below the top one-fifth (\$41,000 to \$132,000 in 2015, with median income around \$75,000). She also includes

an additional 6 percent who have higher incomes but no college degree. We might term such folks the middle class, but since Americans try to elide class differences by calling everyone “middle class,” she settles on calling this middle 53 percent “the working class.” Below the working class on the income spectrum are “the poor” and above are “the professional-managerial elite,” who in addition to having incomes in the top 20 percent also have at least one college graduate per household. This “PME” group has a median income of \$173,000.

WILLIAMS ASSERTS that the professional-managerial elite have a bad case of “class cluelessness.” We (if you’re reading this review, you’re probably in the PME) think the working class consists of racist, sexist, homophobic, and anti-immigrant “deplorables.” We can’t understand why all those people in fly-over country refuse to move where the jobs

are. Don’t they understand that manufacturing jobs aren’t coming back? Why won’t they take the pink-collar jobs that are growing? Why do they refuse to get the training they need to better their lot—and why don’t they send their kids to college? Why do they cling to their guns and their religion? Above all, why do such people vote Republican and vote Trump? Don’t they want health insurance and a higher minimum wage? And how dare they criticize the poor when so many of them are on government disability or unemployment.

Williams spends most of this short, trenchant book explaining the worldview of the working class: why they believe and behave as they do. And her message for the professional-managerial class is blunt: just as elites ascribe structural reasons for poverty, so too should they recognize the structural factors behind the attitudes and behaviors of the working class.

She walks through the sources of finan-

the scale and technique are astonishing. By a professor of art and design at the Pratt Institute.

**Stuck in the Shallow End: Education, Race, and Computing** (updated edition), by Jane Margolis, Ed.D. ’90, and colleagues (MIT, \$25 paper). A close study of Los Angeles schools documents the “virtual segregation” that discourages African-American and Latino students from progressing in computer science. The author’s work was covered in “Computing in the Classroom,” this magazine’s March-April 2015 cover story.

**Let Us Watch Richard Wilbur**, by Robert Bagg, G ’60, and Mary Bagg (University of Massachusetts, \$32.95 paper). A “biographical study” of the poet, A.M. ’47, J.F. ’50, who was the subject of “Poetic Patriarch” (November-December 2008, page 36). **The Songs We Know Best**, by Karin Roffman (Farrar, Straus and Giroux, \$30), examines the “early life” of John Ashbery ’49, Litt.D. ’01, and traces the influence of his youth on his poems.

**Reading with Patrick**, by Michelle Kuo ’03, J.D. ’09 (Random House, \$27), is a personal account of a Teach for America corps member’s engagement with a student in Arkansas—and her return to mentoring him,

after she attends law school, when he is in jail for murder.

**The Ruler’s Guide**, by Chinghua Tang, M.B.A. ’85 (Scribner, \$22). The wisdom of the great Chinese emperor Tang Taizong, made accessible for leaders today. At a time of fraught relations between the People’s Republic and the United States, 1,300 years later, perhaps one might make fresh use of the ancient leader and archer’s discovery upon learning that he had been using flawed bows: “I really don’t know their secret. I must know even less about governing a country.”

**A Description of the New York Central Park**, by Clarence C. Cook, A.B. 1849 (New York University, \$25). A new facsimile edition, with introduction by Maureen Meister, of the 1869 book by the art critic that provided crucial support for the famous, but embattled, Olmsted-Vaux design for New York’s brilliant park.

**The Imprint of Congress**, by David R. Mayhew, Ph.D. ’64 (Yale, \$35). The author, Sterling Professor of political science emeritus at Yale, the dean of congressional scholars, takes a sweeping view of the political role of the country’s unloved legislature, from the eighteenth century to to-



Detail from *The Banishment of Vashti*, 1556, by Paolo Veronese.

day. About greater delegation of powers to the executive, he notes, “Unlimited, take-all-the-marbles power at the top seems a bad idea for a heterogeneous society like today’s United States.” Hear that, senators and representatives?

**A Rendezvous with Death: Alan Seeger in Poetry, at War**, by Chris Dickson (New Street, \$24.99), is the first modern life of Seeger, A.B. 1910, the subject of the magazine’s *Vita* (November-December 2016, page 54), published during the centennial year of his death in battle in World War I.





**Where the coastal “professional-managerial elite” are not: view of a closed coal facility from Green Mount Cemetery, Waynesburg, Pennsylvania**

but rather the professional-managerial elite at whose hands they suffer daily affronts (“the doctor who unthinkingly patronizes the medical technician, the harried office worker who treats the security guard as invisible”). Unions help only a few people, and public unions representing teachers and bureaucrats take money from working people’s pockets. Support for Republican candidates whose policies

cial insecurity and hopelessness among that group. Jobs have vanished, job retraining is useless. Higher education is no sure step up for their children. Many working-class kids live in “education deserts,” miles from any college or university. The return on education can be low, and the resultant debt crippling high. The workplace has vastly different meanings as well: as Williams sardonically notes, for elites, “disruption” means founding a successful start-up. Disruption, in working-class jobs, just gets you fired.”

These structural constraints help explain worldviews and lifestyles. Above all, the working class wants to *work*. Sure, they may be on unemployment and disability now, but they qualify for those programs only because they were workers in the past—unlike the poor, who violate cherished norms of hard work and self-discipline. They resent Democrats for providing social assistance to these “shiftless” poor—handouts that the white working class wouldn’t stoop to accept (and for which their incomes are probably too high to qualify anyway, despite their financial insecurity). And they resent progressives for mandating sympathy for the poor, for women, and for minorities, while heaping scorn on them.

Elites may scoff at religion, but for the working class it is an institution far more

significant than elites’ ludicrous “mindfulness” and pursuit of self-actualization. It provides crucial structure, hopefulness, status, and a financial safety net in times of need, when government often falls short. In a world of structural inequality and lack of opportunity, the family, too, is paramount. Lacking financial resources, members of the working class rely on friends and relatives

**Religion and family provide crucial structure, hopefulness, childcare, and a financial safety net when government often falls short.**

to provide the childcare, elder care, and help with home and car repairs that elites simply purchase. Moving would mean the loss of these irreplaceable networks.

WHAT ARE the political implications of these patterns of belief? Here, too, Williams is good at explaining what seem to progressives and elites perverse patterns: the working class’s embrace of tax cuts for the rich, resentment of unions, and support for Republican candidates. Tax cuts for the rich could create jobs; less government revenue could result in benefit cuts for the resented poor. Plus, the working class doesn’t resent the rich, with whom they have no contact,

reflect these attitudes is perfectly logical, as is rejection of Democrats’ policies, which may help the poor, but not the working class (a \$15 minimum wage does little when a \$30 wage is what’s needed for a modest living standard in most parts of the country).

Williams’s analysis is most original when skewering elites’ assumptions. As she notes, elites who look down their noses at work-

ing-class folkways do so from the perspective of their *own* folkways. Elites may think they hold more liberal racial attitudes, but in fact we’re “all a little bit racist,” according to the musical *Avenue Q* and the inexorable results of the Implicit Association Test. Elites may think they hold superior gender attitudes, and deem working-class men sexist because they prefer their wives to stay at home when they can. But how about those elite male M.B.A.s who, surveys show, expect their future wives to stay at home, too? Turns out the average working-class father spends more time with his children than the average elite man. Elites may think moving (away from friends and family) for a higher-status

job is the ultimate professional achievement. But the working class sees work devotion as narcissism, and change as loss. Elite women may look down on working-class housewives, but job-applicant studies show that non-elite women get more callbacks than elite women, who are perceived as flight risks who will leave their own jobs, once they have children, to engage in the intensive mothering and “concerted cultivation” now expected in affluent circles.

IF THE BOOK is strong, albeit rather sweeping, on diagnosis, it is weaker on solutions. Williams calls for better civic education, which many have fruitlessly called for in the past. Perhaps her ideas about videos in which citizens extol what government has done for them could help. She’s on firmer ground in calling for elites to realize the folly of their, well, elitist ways and to offer policies that would actually help the working class, not just the poor (such as effective industrial policy and job credentialing). She also advocates new coalitions embracing common interests, observing that immigrants and the white working class share the same values of hard work and family, that progressives and the working class share an interest in marshaling government to fight against overreaching corporate interests.

#### More queries from the archives:

“Nothing is more likely to propel us headlong down the path to barbarism than a single-minded obsession with the concept of spiritual purity” and “Feigning deafness may be forgivable, but taken to extremes, it may cost one’s life”—two remarks cited by Japanese author Jun Ishikawa without precise attribution.

“When the action gets heavy, keep the rhetoric cool.”

“the boredom of living versus the suffering of being”

“When you see the word ‘primitive,’ always substitute ‘complicated’”

“The dew...In down-soft slippers...the dew has seemed like teardrops ever since...”

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

In sum, Williams offers an effective tour of working-class resentments arising from structural forces and the snobbery of the elite. She draws widely on research in sociology and psychology (relegated to footnotes to maintain readability) and throughout shares amusingly telling examples of class cluelessness that she received in reaction to her HBR piece. The account might have been further enriched with the relevant political-science research as well (such as the extensive literature on the “hidden welfare state” of social policies implemented through the

tax code, such as the home-mortgage interest deduction, that are costly, invisible, and disproportionately benefit the affluent). But in the end, Williams offers a concise, witty, and thought-provoking account of the powerful resentments underlying contemporary American politics. ▢

*Andrea Louise Campbell ’88, Sloan professor of political science and chair of the department at MIT, is the author of Trapped in America’s Safety Net: One Family’s Struggle, reviewed in the September-October 2014 Harvard Magazine.*

## ALUMNI

# Widening the College Pipeline

*The Posse Foundation aims to develop a “new national leadership network.”*

by NELL PORTER BROWN

SOON AFTER Jwahir Sundai started at Cambridge Rindge and Latin School, she began searching for “any resources I could get that would help me get into a good college.” A visiting admissions recruiter told her about The Posse Foundation, an unusual college-access and leadership program through which high-achieving students attend top-tier institutions within supportive groups—posses—of like-minded peers. The selection process is rigorous (typically fewer than 5 percent of

the applicants are chosen) and uses a “dynamic assessment” process to measure qualities like boldness, resilience, creativity, and ability to work in a team, rather than relying on the traditional standardized test scores, class rankings, and GPAs.

Sundai’s guidance counselor nominated her as a candidate, and she soon found herself “acting like a chicken,” along with all the other Boston-area applicants. “During the first round, we did different activities that took us out of our comfort zones,” she

recalls, laughing. In another task, she helped build a LEGO robot and run a discussion lab “to test how we were in a group, and how we would work as a posse.”

Each year, the foundation takes students from 10 metropolitan areas across the country (the others are Atlanta, Chicago, Houston, Los Angeles, Miami, New Orleans, New York City, San Francisco, and Washington D.C.) and places them at 57 partner educational institutions. The year Sundai applied, she got one of the 10 spots allotted to Boston-area



high-schoolers at Bryn Mawr, where she is now a rising junior studying global health. On campus, she is not only part of her own class's Boston posse—a group that has grown close through working, socializing, and learning together during the last three years—but also part of the school's larger Posse community. Because Bryn Mawr takes two posses per class, there are always, theoretically, up to 80 members on campus to whom Sundai says she can turn for anything: “Posse allows us to have a community in our schools that supports us both surviving and thriving at the undergraduate level—and beyond.”

More than 3,500 Posse students are currently enrolled in four-year undergraduate programs, says Posse founder and CEO Deborah Bial, Ed.D. '04. (There are 74 partnerships in all because a third of the partners take more than one posse in a class.) Students receive full-tuition scholarships and extra support from on-site mentors/advisers and from Posse staff members before, during, and after their undergraduate years, along with connections to research opportunities, internships, and comprehensive career guidance. There's also a network of more than 4,000 Posse alumni.

Posse screens for students “who are already really driven and motivated, the kids we think of as leaders,” says Bial, who established the foundation in 1989. “There are a

## The Posse Foundation “identifies particularly talented kids, kids who would blow you away, kids you’d want in any classroom.”

lot of college-access programs in the United States and many focus on minorities and diversity,” she continues. “They focus on a deficit: ‘poor,’ ‘underprivileged’; something is wrong that the program is addressing. Posse does *not* do that—and this is really important. It underlies everything we do. Posse is a strength-based model that, although it also addresses diversity, identifies particularly talented kids, kids who would blow you away, kids you’d want in any classroom.” The ultimate goal, she clarifies, is “to build this new national leadership network in the United States,” to shepherd students who “can become senators and CEOs, who can run the hospitals and newspapers and sit at the table where the decisions are made.”

BIAL, a 2007 MacArthur Foundation fellow, has a spot at the table herself, having built the foundation into a force for social change with 10 offices around the country, 170 employees, and \$80 million in assets (including a \$50-million endowment). Partnering educational institutions foot their students’

scholarship bills, “which is why we are able to be so big,” Bial explains, while Posse relies on contributions and grants to operate.

The foundation has always been headquartered in Manhattan, where Bial lives with her husband, former *New York Times* op-ed columnist Bob Herbert, and across the river from her hometown of Teaneck, New Jersey. Her father played the bassoon and contrabassoon for the New York Philharmonic for 38 years, and her mother was “the public-relations person” at the New York State Psychiatric Institute.

At Brandeis University, she majored in English, then worked briefly as a paralegal before taking a job at the nonprofit CityKids Foundation. There—and Bial has told this story often—she met a young man who had dropped out of an Ivy League college, who said, “I might have stayed if I’d had my posse with me.” That’s the whole concept. “If you grew up in the Bronx and you wind up in Middlebury, Vermont, or Greencastle, Indiana, without anyone you know or your family, it’s not surprising that you might say, ‘Forget it, I’m going home,’” she says. “The culture shock is tremendous. But if you manage to figure out a way to find your niche in that community, and a group of friends who can back you up, it changes the whole equation. I think everyone needs a posse.”

Within a year, at 23, she had started the foundation as “just an idea.” Vanderbilt’s Peabody College “took a chance on a program with no track record,” she says, and accepted five New York City students in 1989—“And the idea worked. That first group of kids was incredible.” For the next decade, Bial and a small team focused on designing the “dynamic assessment” tool and a pre-collegiate program for successful applicants, then added new partners—Brandeis, Middlebury, and DePauw, among them. (During this time the foundation officially incorporated, with Michael Ainslie, M.B.A. '68, as the inaugural board chairman.) Bial herself returned to school in 1995, earning a master’s de-

Deborah Bial



## Centennial Medalists

THE GRADUATE SCHOOL of Arts and Sciences' Centennial Medal, first awarded in 1989 on the occasion of the school's hundredth anniversary, honors alumni who have made contributions to society that emerged from their graduate studies. It is the highest honor GSAS bestows, and awardees include some of Harvard's most accomplished alumni. The 2017 recipients, announced at a ceremony on May 24, are: Russell A. Mittermeier, Ph.D. '77, a primatologist, herpetologist, and conservation advocate; Sarah P. Morris, Ph.D. '81, a classicist and archaeologist; Thomas F. Pettigrew, Ph.D. '56, an expert on racism and intergroup relations; and Richard Sennett, Ph.D. '69, a sociologist who writes about cities, labor, and culture. For more about the medalists, see [harvardmag.com/centennial-17](http://harvardmag.com/centennial-17).



Graduate School of Arts and Sciences honorees (from left) Mittermeier, Morris, Pettigrew, and Sennett

gree, and later her doctorate, at Harvard while simultaneously fine-tuning the foundation. In 1999, she began replicating the Posse model, opening a second office in Boston.

Further expansion, between 2007 and 2016, under the board leadership of Jeff Ubben, co-founder and CEO of the San Francisco-based hedge fund ValueAct Capital, brought 47 new partnerships and increased foundation assets to \$80 million. Today, alongside additional financial supporters, Bial has well-connected advocates within higher education, including former Harvard president Derek Bok, who serves on the national advisory board.

These resources help fund the on-site support for Posse students that Bial considers critical. At Bryn Mawr, Sundai meets regularly with posse friends to talk, share meals, study, hang out. On her very first day on campus, she recalls, "People I didn't even know came up and hugged me and told me,

"Welcome home." They were other, older Posse members at Bryn Mawr. Especially important is her go-to Posse mentor, professor and chair of mathematics Leslie C. Cheng. Sundai's had challenges, like deciding whether to pursue STEM studies and/or humanities, and says, "I don't know who I would talk to if I didn't have Leslie. She is supportive, patient, dedicated, amazing—she has helped me so much in my time here."

That quality—tending "to look externally when they're challenged, to think in terms of teams solving a problem," Bial says—is often a factor that differentiates successful students, and is something the foundation looks for in candidates. "They are more likely to succeed than the kid who locks herself up in a room and withdraws, who thinks she is the only one she can rely on. We tend to think of leaders as individual success stories, but they are successful because they know

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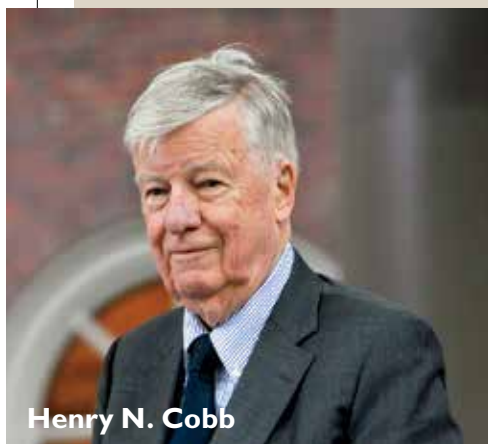
It's also why access to internships and career help is built into the program. Generous backing led to this spring's announcement of a new Posse summer-fellowship program, honoring Jeff Ubben, for five high-performing scholars annually. These “once-in-a-lifetime” internships come with \$7,000 stipends,

Bial explains; the inaugural fellows have positions in the offices of U.S. congressman and civil-rights leader John R. Lewis, LL.D. '12 (“He’s my hero,” she adds); film producer Jason Blum (*Whiplash*, *Kicking and Screaming*); and Nobel Prize-winning economist and Columbia University professor Joseph Stiglitz, among others.

What's next? By 2020, Bial expects to have a 6,000-strong Posse alumni network and 26 more educational partnerships, which would bring the number of Posse students in the pipeline and on campuses at any given time to about 5,000. In addition, she is expanding another cohort of the Posse population, which began in 2012: post-9/11 military

## The 2017 Harvard Medalists

THREE ALUMNI received the Harvard Medal, for extraordinary service to the University, at the Harvard Alumni Association's annual meeting on the afternoon of Commencement day. They are:



**Henry N. Cobb**

**Henry N. Cobb '47, M.Arch. '49**, a former professor and chair of the architecture department at the Graduate School of Design (GSD) and former president of the GSD Association. Cobb designed several local buildings, including the terra cotta-clad Center for Government and International

Studies (CGIS) complex on Cambridge Street. CGIS is “representative of Harry’s contributions to the University and the Harvard community, and of his vision as an architect,” says GSD dean Mohsen Mostafavi. Cobb still teaches occasionally at the school as a visiting lecturer, serves as an honorary member of its campaign committee, and contributes actively to Pei Cobb Freed & Partners LLP, the architecture firm he helped found in 1955.

*Visionary architect with an eye for building community, you have helped shape Harvard both physically and pedagogically as a designer, writer, educator, and leader for the Graduate School of Design—enhancing the beauty of the built environment on campus and around the world with works of subtle elegance and profound eloquence.*

**Warren Masters Little '55**, who has devoted decades of service to Harvard’s alumni, athletic, and other organizations. “Renny” Little has served on numerous HAA committees since 1977, including the Happy Observance of Commencement Committee for 33 years—18 as its secretary. “An avid Harvard fan, he served as vice president and is an advisory committee member for the Harvard Varsity Club. He is an active



**Warren Masters Little**

member of the Friends of Harvard Track and rarely misses a home meet, or football, or women’s hockey game,” according to a statement from the HAA. “For Harvard’s 350th, he created an exhibit of Harvard’s athletic memorabilia. The pro bono curator of the Lee Family Athletic Hall of History, Little has collected Crimson treasures, refurbishing many for display.” A former executive director of both the Cambridge Historical Society and the Higgins Armory Museum, he was also a director of education at the New England Aquarium and a teacher and coach at the Rivers School. Little has also long served as secretary for his College class.

*Dedicated volunteer, poetic orator, mentor to many, and friend to all with a keen sense of history and humor, you have selflessly carried the baton for your class, Crimson athletics, and the entire Harvard community—equally comfortable in a top hat and tails at Commencement or a raccoon coat at The Game, and always wearing your H on your sleeve.*

**A. Clayton Spencer, A.M. '82**, who assisted four different Harvard presidents across 15 years. She was a senior administrator during the late 1990s and early 2000s, a period of significant change for the University, and was involved in the merger of Harvard with Radcliffe College and the resulting creation of the Radcliffe Institute; the creation of the financial-aid initiative, which made the College tuition-free for low-income families; and other high-profile University projects.

Since 2012, she has been president of Bates College—President Drew Faust spoke at her installation ceremony. Drawing on her extensive experience, Spencer reviewed *Lesson Plan: An Agenda for Change in American Higher Education*, by William G. Bowen, for *Harvard Magazine* (September-October, 2016, page 64).

*With conviction and humility that underscore your fierce commitment to higher education, you have served as an astute and forthright advisor to four Harvard presidents, providing the driving force and steady hand behind transformational University moments, including the launch of the Radcliffe Institute for Advanced Study, and the expansion of financial aid.*



**A. Clayton Spencer**

veterans. “These are people with a lot of experience already, who are returning to college for degrees, and the average age is 27,” she reports. “Their first choice is not to go to school with a bunch of 19-year-olds out of high school. But to have other vets with you? That changes the whole thing.” Some 80 Posse veterans are enrolled at partner schools Vassar, Dartmouth, and Wesleyan, with another 30 arriving this summer, and Bial wants to bring at least eight more partners on board.

Bial revels in continuing to build the organization and hone the “dynamic assessment” process that asks candidates to build those LEGO robots, offering examples of the knotty questions posed to applicants: Are you more proud of how you think or how you act? Do you generally give people a second chance? Explain.

Challenged to answer one herself—What does happiness feel like?—she responds: “I’m a pretty happy person. I like movement, so I want to always feel like I’m learning and I want to feel that Posse is always contributing, always learning and growing. I want to feel like I am of value.”

Kids do, too. This past April, Bial was at a Posse event in Chicago with Facebook COO Sheryl Sandberg ’91, M.B.A. ’95, and Wharton School of Business professor Adam Grant ’03, co-authors of the new book *Option B*, which examines how people overcome hardship and obstacles. “Adam was talking about how kids really need to feel they matter,” Bial reports. “Posse’s job, our job, is to make that clear—not just to them, but to the world we’re in.”



Leon Starr

## The Senior Alumni

RHODA LESSER DIAMOND ’42, of Martha’s Vineyard, and Leon Starr ’40, of Rye, New York, were the oldest Harvard and Radcliffe alumni present on Commencement Day. Each wore rain gear and had seats on the Tercentenary Theatre stage (to avoid the sloppy weather) during the afternoon program, when they were publicly honored by Harvard Alumni Association president Martin J. Grasso Jr. ’78. “I was here 70 years ago when George Marshall delivered his famous speech that saved the world,” noted Starr, “and now we’re here and going to hear from Mark Zuckerberg about the Brave New World.” Starr turns 99 in June and was accompanied by his wife, Jacquie, and his son, Jonathan ’69. Asked about how he’s lived so long, and so well, Starr credited

“clean living, lots of exercise. I played tennis and squash. And the love of two good women.” (“He means me, and his first wife,” a smiling Jacquie piped up.) Nearby, the 96-year-old Diamond said she had traveled from her island home “to celebrate my seventy-fifth reunion.” She was flanked by her sons, Paul ’82 and John, a Yalie, who quipped: “We’ve always been a Yale-Harvard family—but we’re more Harvard today.”



Rhoda Lesser Diamond

## New Harvard Overseers and HAA Elected Directors

THE NAMES of the new members of the Board of Overseers and elected directors of the Harvard Alumni Association (HAA) were read during the HAA’s annual meeting on the afternoon of Commencement Day. For Overseer (six-year term):

Paul L. Choi ’86, J.D. ’89, Chicago. Partner, Sidley Austin LLP.

Mariano-Florentino Cuéllar ’93, San Francisco. Justice, Supreme Court of California.

Darienne B. Driver, Ed.M. ’06, Ed.D.

’14, Milwaukee. Superintendent, Milwaukee public schools.

Carla Harris ’84, M.B.A. ’87, New York City. Vice chair of wealth management and managing director, Morgan Stanley.

Leslie P. Tolbert ’73, Ph.D. ’78, Tucson. Regents’ professor, department of neuroscience, University of Arizona.

For elected director (three-year term):

Martha Abbruzzese Genieser ’91, London. Director of philanthropy, Alan Howard Family Office.

Sangu Julius Delle ’10, J.D.-M.B.A. ’17, Accra, Ghana. Chairman and CEO, Golden Palm Investments Corporation; founder and president, cleanacwa.

Sachin H. Jain ’02, M.D. ’06, M.B.A. ’07, Cerritos, California. President and CEO, CareMore Health System.

Elena Hahn Kiam ’85, New York City. Co-owner and creative director, K-FIVE LLC d/b/a lia sophia; co-owner and non-executive marketing director, Cirrus Healthcare Products.

Ronald P. Mitchell ’92, M.B.A. ’97, New York City. CEO, Virgil Inc.

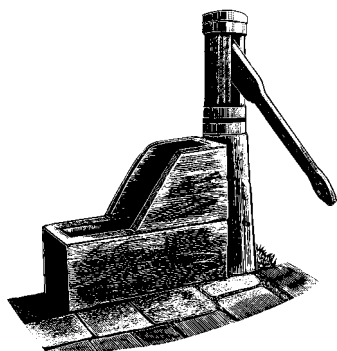
Paola A. Peacock Friedrich, S.M. ’06, Ed.L.D. ’14, Marblehead, Massachusetts. Human capital management consultant, AchieveMission.

## Cambridge Scholars

FOUR SENIORS have won Harvard Cambridge Scholarships to study at Cambridge University during the 2017-2018 academic year. Halah Ahmad, of Milwaukee and Currier House, a comparative study of religion concentrator, will be the Lionel De Jersey Harvard Scholar at Emmanuel College; Ezinne Nwankwo, of Los Angeles and Winthrop House, an applied mathematics concentrator, will be the William Shirley Scholar at Pembroke College; Eesha Khare, of Saratoga, California, and Leverett House, an engineering sciences concentrator, will be the Charles Henry Fiske III Scholar at Trinity College; and Kevin Xiong, of Cambridge and Cabot House, an economics concentrator, will be the John Eliot Scholar at Jesus College.



# “Puritans” Passé?



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

IN 1994, Kendric T. Packer ’48 wrote to The Pump’s Primus IV to propose rendering the first line of alma mater “Fair Harvard” gender-neutral. (“Fair Harvard! thy sons to thy Jubilee throng” was the troublesome text.) In April 1997, Faculty of Arts and Sciences dean Jeremy R. Knowles announced a celebration of the role of women at the College, and Packer turned to him. After due consultation, a version forwarded to and tweaked by Packer (“Fair Harvard! we join in thy Jubilee throng”) became the approved one. With that, Knowles said, “[W]e have moved to a decent inclusiveness for the next 361 years.”

Not so fast. On April 5, President Drew Faust’s Task Force on Inclusion and Belonging homed in on the *last* line (“Till the stock of the Puritans die”) and declared, “We think it’s time for a change.” The full bureaucratic force of the University is on board: the website (<http://inclusionandbelongingtaskforce.harvard.edu>) has a “Revise the Alma Mater” tab complete with explanation of the competition for new wording, deadlines and timetable, FAQs, and a panel of judges (three faculty members, two culturally savvy alumni). A winner is to be announced next spring.

Beyond to-be-expected media censure for political correctness, the proposal has engendered some of the same from alumni

(see page 7). The Puritan community has not yet weighed in.



AN ARTICLE in this issue discusses the liberal arts (page 47). A memorial minute presented recently to the Faculty of Arts and Sciences, on Svetlana Boym, the late Reisinger professor of Slavic languages and literatures and of comparative literature, alluded to a different education model. “In Soviet Lenin-grad,” it noted, “she early on showed signs of...independence, once refusing to disassemble and clean an AK-47, a required part of her school program.” She emigrated in her late teens, leaving “without her parents, Yuri and Musa Goldberg, engineers whose application to emigrate would continue to be denied for nearly another decade (a young KGB officer named Vladimir Putin told them they would never see their daughter again).”



HARVARD’S ever-evolving campus sometimes seems at risk of too-intensive development. The Kennedy School, for instance, is building more facilities underneath, within, and around its central courtyard. Bits of land, like the plot south of Malkin Athletic Center, have been nibbled away by (admittedly lushly landscaped) parking spaces.

But splendid pockets of greenery remain, awaiting visitors during the clement months. The walled courtyard at Busch Hall, complete with pond, is a lunchtime favorite. The courtyard bounded by the Converse, Naito, Bauer, and Fairchild laboratories should be



THOMAS EARLE/HPAC

on the calendar for next spring, when the redbuds, now mature, blossom; their leaves, clear yellow in autumn, merit a visit sooner. The redone Science Center courtyard, formerly an al fresco extension of the Greenhouse Café, is now mostly for viewing: a pleasing mini landscape of sedum-covered hillocks and a few sentinel pines—visual relief from the surrounding built bulk. Across the Charles, the new terrace behind Harvard Business School’s Chao Center, in a reimagined quadrangle of executive-education facilities, is growing in beautifully.

The Radcliffe Institute’s garden (shown above), comfortably surrounded by brick walls to shut out Garden Street traffic noise, remains the best refuge; it always rewards a walk. As now replanted with ferns, its appeal extends from early irises through fall.



ANOTHER memorial minute, on John Max Rosenfield, Rockefeller professor of East Asian art emeritus, looked at his journey to fine-art scholarship: “In high school he showed an aptitude for painting, although later he would speak disparagingly of his own efforts, referring to his canvases as ‘regionalist landscapes with cacti and an occasional jackrabbit.’”

—PRIMUS VI

# Palace Pottery

*The art and science of Jun ware*



rectangular pots (with holes to drain water) and footed basins, mostly. All are numbered (1 for largest, 10 for smallest), and from inscriptions on the bottom, imperial collection catalogs, and scenes in a few paintings, they appear to have been used for growing bulbs and small plants in the Forbidden City. Dworsky associate curator of Chinese art Melissa Moy, who began studying the pieces (about half of which are exhibited) for her master's thesis, notes that some of the inscriptions tie to the Hall of Mental

is the largest outside Beijing and Taipei).

Susan Costello, associate conservator of objects and sculpture, has x-rayed all 60 specimens. Swirls and striations under the glaze reveal that they were wheel-thrown before finishing in the molds. (She has also done masterly restoration of some samples.) The stoneware pieces were fired at high temperatures (1,200 degrees centigrade). Iron in the clay helped to produce the blue or green; copper oxide or metallic copper produced the plum or red. Beal Family postdoctoral fellow in conservation science Lucy Cooper has used x-ray fluorescence and a scanning electron microscope to see how the thickness of the glazes and their firing affect the result: tiny globules of glass in the glaze, smaller than the wavelength of blue light, scatter that color; what viewers see is primarily structural, *not* a pigment effect. More remains to be learned about the relative chemical composition of clay and glaze, and variances in firing, to fully understand the product.

That essential science aside, modern viewers, like Ming collectors or the diligent Danes, can see the plainly ravishing result.

—JOHN S. ROSENBERG



Visit [harvardmag.com](http://harvardmag.com) to learn more about the conservation and scientific analysis of these Jun ceramics.

**E**VEN THE Qing emperors, nearly four centuries ago, recognized Song dynasty (960-1279) Jun ware—a distinctive opalescent blue, sometimes splashed with organic-seeming, almost foliate lobes of plum—as one of the five great achievements of China's astonishing ceramic legacy. In contemporary perspective, Jun techniques in fact persisted much longer, at least into the Ming era (1368-1644): the fourteenth and fifteenth centuries.

One unusual set of such vessels is the subject of Harvard Art Museums' exhibition "Adorning the Inner Court," on display through August 13. For his fiftieth reunion, Ernest B. Dane, A.B. 1892, and his wife, Helen Pratt Dane, donated a ceramic and jade collection to the museum, including 60 pieces of "Numbered Jun" ware: various lobed and

Cultivation and other rooms in the palace.

Despite that evidence, mysteries abound. The dating of the work is imprecise, and the methods of manufacture resist modern replication. The precise modeling (exact alignment of interior and exterior indentations), perfection of shapes (see the lobed flowerpot and basin, above left), and forms (such as the vase above), Moy says, suggest the late fourteenth century, when Ming ceramicists began using dual interior and exterior molds. Demand would have arisen from construction of the Forbidden City. But there are few objects to study and compare (Harvard's collection of the numbered ware







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# YOUR WORLD IS HYBRID

A man in a dark suit and purple tie stands confidently with his hands in his pockets. He is standing on a large, circular, miniature model of a hybrid infrastructure. The model is a complex assembly of various elements: on the left, there are yellow construction cranes and orange storage containers; in the center, there are blue server racks and a small blue truck; on the right, there are more orange containers and a small building. The entire model is set against a dark blue background with white clouds at the base.

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