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# HARVARD

MAGAZINE

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recalibrates  
economics





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# HARVARD

MAGAZINE

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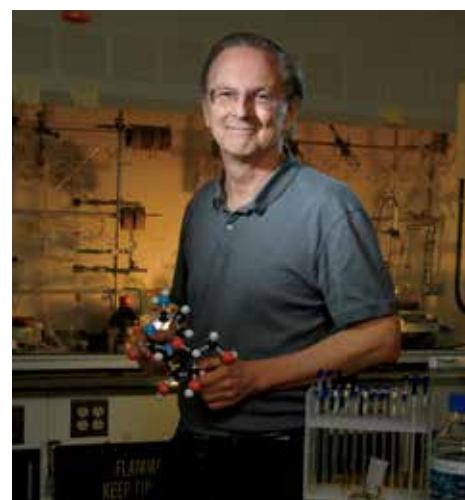
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On the cover: Globalization, made vivid: container terminal at the Port of Hong Kong. Photograph by Iain Masterton/Alamy Stock Photo



## Cambridge 02138

*Justice Holmes, another shoeless feat, athletic admissions*

## INFLAMMATION

I READ “Raw and Red Hot” (May-June, page 46) with great interest. I have equally great admiration for the clear writing. The multifaceted faculty approaches to the many well-known, as well as to the recent, involvements of inflammation in humanity’s defenses and illnesses were beautifully presented. We have come a long way from the *rubor, calor, and dolor* (redness, heat, and pain) reactions to a foreign body, usually of infectious nature.

The compilation of interests and questions whose answers are being sought reminded me of my 1953 freshman chemistry class, Chem 1, with Professor Eugene Rochow. Among the many witticisms that Rochow inserted into his lectures was a couplet that I hope I am quoting accurately:

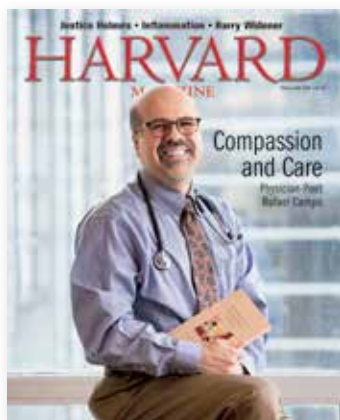
Little bugs have littler bugs upon  
their backs to bite ’em.

Littler bugs have littler bugs, ad  
infinitum.

I now interpret that to mean that, no matter how many answers scientific research determines, it unearths even more questions. That’s why we need research—to answer questions; and why we need to support it—to ask deeper ones.

MURRAY L. LEVIN ’57, M.D.  
Chicago

THE ARTICLE did a great job of presenting the groundbreaking research behind the negative role of inflammation in the body. While there are likely benefits of finding medications that can address these issues, we must also believe in the willingness and ability of individuals to tackle the inflamma-



tion problem through diet and exercise. The author, Jonathan Shaw, states, “The great difficulty with interventions involving altered diet and increased exercise is that...people already know what they should be doing—but for most, that knowledge doesn’t change behavior.... This suggests that pharmaceutical interventions

that block inflammation may be necessary to check the global epidemic of non-communicable disease.”

I run Wellness Foundation, a grass-roots nonprofit on Long Island that has been teaching people how to adopt a whole-food, plant-based diet for 14 years. We were created largely to address heart disease, diabetes, and obesity. Our six-week kick-start program is successful at reducing cholesterol, weight, and prescribed medications. But what we didn’t initially expect was how much it could help people with other inflammation-related problems such as arthritis, headaches, acid reflux, back pain, and eczema. Even people with depression report significant improvements.

Many of our clients have been told by their doctors to take medications, but rarely do their physicians recommend a diet and exercise program. In talking to skeptical doctors early on, many didn’t believe that their patients could change their habits. But after seeing dramatic results in their own patients, doctors now regularly refer patients to our program and several have even taken the program themselves.

I am encouraged to see Harvard scientists strengthening research on inflammation, but we must also encourage patients to make changes to their diets, and—even

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## Thinner Ice

THE REVOLTING late-winter reports about wealthy parents paying to cheat on their children's standardized tests and bribing coaches to get their high-schoolers listed as athletic recruits—and thus into institutions such as the University of Southern California and Yale—seem an unfortunate, totemic spectacle for our times. (For a separate complication involving a Harvard coach, see page 30.) All the elements are there: shameless status-seeking; the sense of entitlement associated with wealth, and emphatically divorced from merit; and the yawning disparities of means (and accompanying lack of morals among some who possess them) in twenty-first-century America. Readers can rank the details in order of sordidness, but they surely include the perpetrator's device of making the conduit for the money seem like a legitimate nonprofit, so "clients" could write-off their bribes as charitable deductions, or "bill" for them as business expenses. Thanks, guys.

Unfortunately, the overwhelming majority of selective-admissions colleges and universities that were *not* victimized by the scam are not wholly isolated from its spreading stain. Consider:

- From the time he was appointed Harvard's president, in February 2018, Lawrence S. Bacow has emphasized the critical importance of regaining public trust in higher education, at a time of unprecedented skepticism about the value of college and, in some quarters, the perceived values expressed on campuses. As reported ("In the Public Arena," January-February, page 26), many critiques of college today reflect a conservative perspective: that campuses are hothouses for liberalism, and intolerant of conservative voices. More broadly, citizens are concerned about, and put off by, the costs of earning a degree. That sentiment has been exacerbated in the past decade by reduced state budget support for public institutions, forcing them to increase tuitions and fees sharply. (The overwhelming majority of students attend institutions that, unlike Harvard and other top-tier private schools, are not significantly endowed and cannot offer substantial financial aid—so the rising sticker price has shocked most families.)

- In this context, the testimony in Students for Fair Admissions' lawsuit against the University detailed admission preferences associated with athletic ability and

applicants' legacy status ("Admissions on Trial," January-February, page 15). Surveys reveal that the citizenry, which *overwhelmingly* opposes affirmative-action considerations in holistic reviews of applicants, strongly dislikes athletic and donor/legacy preferences, too. The public is very meat-and-potatoes on admissions: merit, as measured by grades and test scores, is the meal of choice.

- Now, the admissions scandal has revealed the so-called "side door" of faking athletic credentials to gain preferential access to admissions, for those with the means (and ethical deficits) willing to do so.

The resulting perfect storm threatens to deepen public antipathy toward elite institutions—and to broaden its partisan contours in ways unhelpful to their stated agendas.

EVEN BEFORE the scandal made headlines, the think tank New America published "Supporting Students of Color in Higher Education," in response to a query from four U.S. senators (two of them declared candidates for the Democratic presidential nomination). In offering "our insights about protecting and empowering students of color to ensure they have equitable access to high-quality, affordable educational opportunities after high school" (the point of affirmative action, by the way), the authors advocated:

- ending federal financial aid for "highly-resourced and highly-selective institutions that engage in legacy admissions and other preferential admissions treatments that overwhelmingly favor wealthy and white families, including early decision programs" and

- requiring lottery-based admissions processes among "highly-selective colleges and universities that want access to federal research dollars."

Radical and far-reaching as those proposals might be, even in their authors' view, they hint at a change in the wind. In mid March, Ron Wyden (D-Oregon), ranking minority member of the Senate Finance Committee, announced that he would introduce legislation ending the tax benefit for donations made to colleges and universities before or during the enrollment of children of the donor's family. And at the end of that month, California legislators proposed bills that would ban universities, public or private, that receive state scholarship funding from giving legacy or donor preferences in admissions, and would require multiple institutional officers to authorize special admissions (for any candidate

who does not meet academic requirements). And congressional interest in forcing institutions to devote more of their endowment income to enroll and support lower-income students continues to percolate.

In other words, on the left, the taint of elite access is eroding support for the otherwise evident benefits of higher education as an economic stepping stone. In a report on these matters, *The Chronicle of Higher Education* cited pollster and Democratic campaign strategist Jill Normington's finding that the white working class—46 percent of the adult population—is shifting from its historic support of policies to expand access to college to a very different perspective: that perhaps college is not for everyone. While that no doubt reflects concerns about costs and postgraduate employment prospects, the shift could easily be accelerated by the widening perception that admissions are yet another example of a society and institutions rigged for rich insiders.

This is tragic, in socioeconomic terms. The evidence about the benefits of attaining a college degree is greater than ever.

From the perspective of higher-education institutions, their leaders, and their extended constituencies, the political challenge, already large, looms larger in the wake of the admissions scandal. Addressing the deep-rooted public skepticism likely means going beyond public relations and enhanced outreach to substantive change: reconsidering some long-held practices and, yes, preferences about the attributes that count in admissions to selective schools.

\* \* \*

HUMBLE PIE. No sooner had the previous edition of this column—grousing in part about the lack of academic and intellectual discourse in Faculty of Arts and Sciences meetings—gone to press in early April ("No more pencils, no more books....," May-June, page 8) than the April 2 gathering vigorously debated what exactly students should know about quantitative reasoning. The conversation, continuing similar exchanges from 2006-2007 and 2015-2016 considerations of the College's General Education curriculum, and unresolved then, got to some very basic ideas about data-infused, twenty-first-century learning and teaching (see [harvardmag.com/quant-reasoning-req-19](http://harvardmag.com/quant-reasoning-req-19)). Whether the solution legislated May 7 (see [harvardmag.com/quantrd-plus-prereg-19](http://harvardmag.com/quantrd-plus-prereg-19)), for implementation this fall, proves wise, or satisfactory, remains to be seen. But the talk was good to hear.

—JOHN S. ROSENBERG, *Editor*



more importantly—create environments in our communities where healthy lifestyles are the norm. For while we may be pushing against evolutionary habits to consume sugar and fat, change is possible, and those people who make changes are more likely to live long, healthy lives.

MICHELE SACCONAGHI, M.P.P. '92  
Sag Harbor, N.Y.

JONATHAN SHAW'S ARTICLE on inflammation is well researched and well written. Inflammation, however, may originate from divergent sources via several different pathways. Thus, categorizing them as "inflammation" in one fell swoop may be too naïve. One group of inflammation comes from infections or other noxious stimuli which our immune system tries to fight by generating the cardinal signs explained by Celsus. The other inflammatory groups include endogenous metabolic inflammation, which comprises the main gestalt of Shaw's article, and the last group is autoimmune inflammation stemming from aberrant immune reactions.

Metabolic inflammation is the result of several obesity-related illnesses such as non-alcoholic fatty liver disease (NAFLD) and diabetes. These non-infectious inflammations are called sterile inflammation, denoting non-involvement of infection, and usually do not exhibit the cardinal signs. However, blood viscosity upsurges in metabolic inflammation. Thus, fish oil with mild anti-coagulator function may alleviate increased blood viscosity in metabolic inflammation. The largest source of chronic inflammation is obesity. IL-1beta, as stated in this article, is in the center of this pathway. Therefore, reducing obesity will decrease inflammation, IL-1beta, and abate many chronic diseases. Indeed weight loss decreased CRP, the marker of inflammation referred to in the article.

Although these non-infectious and infectious inflammations produce similar cytokines, they have vastly distinct origins of pathogenesis. Clearly distinguishing these

pathways will help the public's understanding of inflammation and treatment options. One would not treat chronically abscessed teeth with fish oil, nor fatty liver disease with anti-infective drugs. Some pathology, such as periodontitis, does involve metabolic inflammation superimposed with local infection. Thus, it requires a two-pronged approach utilizing both anti-metabolic and anti-infective treatments.

Although "knowing" the disease process may not directly translate into behavioral changes, don't we have the obligation to educate the patients as to what causes their illness? In my surmise, Hippocrates is still correct as he said, "Before you heal someone, ask him if he's willing to give up the things that make him sick."

SOK-JA JANKET, M.P.H. '02  
Cambridge

#### JUSTICE HOLMES

I AM NEITHER a lawyer nor a historian of law, but I was aware more than colloquially of Holmes's *Buck v. Bell* decision, and though Lincoln Caplan ("America's Great Modern Justice," May-June, page 54) mentions the shadow it cast on Holmes's career via reference to Adam Cohen's book (which I have not read), he seems to whitewash Holmes's explicit eugenic agenda by framing it in cosmopolitan terms, and rather than condemn this vile-mindedness, chooses rather to celebrate this jurist, ignoring instead the ethical and legal groundwork it paved for Hitler's Final Solution and, later in our own country, for continued cruel and abusive treatment of the mentally ill and suffering. I find this reprehensible and though Holmes may yet be a favorite son of Harvard, I do not consider him a civilized man.

PHILIPPE P. BLOCH, A.L.B. '95, M.ED.  
Brookline, Mass.

LINCOLN CAPLAN defames the English and American judges who preceded Oliver Wendell Holmes when he says that they pretended to deduce the law from a brooding omnipresence and were unaware that law evolves to meet human needs. He is far from the first to tell how the great justice slew the deductive formalist bogeyman, but the tale is a myth.

Two centuries before Holmes declared that the life of the law has not been logic but experience, Matthew Hale wrote that laws are "accommodated to the Conditions, Exigencies and Conveniences of the People"

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as those “Exigencies and Conveniences do insensibly grow upon the people.” One century before Holmes, John Dickinson told delegates to the Constitutional Convention, “Experience must be our only guide. Reason may mislead us.”

Perhaps Caplan obtained his law degree without encountering any opinion by Lord Mansfield or Chief Justice Marshall, both of whom obviously made law with joyous abandon.

ALBERT W. ALSCHULER '62, LL.B. '65  
Kreeger professor emeritus,  
University of Chicago Law School;  
author of *Law without Values: The Life,  
Work, and Legacy of Justice Holmes*  
Cumberland Center, Me.

*Lincoln Caplan responds:* In his Holmes biography, Stephen Budiansky acknowledges “a stream of anti-Holmes vituperation that at time has bordered on the hysterical.” Professor Alschuler’s scathing critique of Holmes in *Law without Values*, which I took account of in my research, has earned him a reputation as one of the most vituperative. In *The Common Law*, Holmes quotes Hale, Mansfield, and Marshall. My article didn’t claim Holmes had a thought that no

of speech. I imagine him casting a sly glance at his colleagues as he delivered his opinion.

JOHN V. ORTH, J.D. '74, Ph.D. '77  
Chapel Hill, N.C.

#### A HOLMES-INFLAMMATION NEXUS

BOTH OF THE ARTICLES were excellent. At first reading, the topics discussed may seem disparate. The article about Justice Holmes stimulates interest in reading Stephen Budiansky’s new biography of Oliver Wendell Holmes Jr. in its entirety. The article about inflammation outlines how chronic unregulated inflammation, which does not restore homeostasis, may be the common pathogenetic mechanism in many different diseases. Perhaps a link between the two articles may be made through Oliver Wendell Holmes Sr. [A.B. 1829, M.D. '36, LL.D. '80]. Justice Holmes’s father made important contributions to literature and medicine. A common message from both articles may be that chronic inflammation is deleterious to the body and the body politic. Modulation of inflammation should restore health.

DAVID J. ZALESKE, M.D. '75  
Naples, Fla.

#### ANOTHER SHOELESS FEAT

I WAS INTRIGUED by the article about Kieran Tuntivate’s one-shoe victory in the 3,000-meter run (“One Shoe, No Problems,” May-June, page 34).

My grandfather, David Connolly Hall (Brown, 1901), also had a one-shoe track run in the 1900 Paris Olympics, good for a bronze medal in the 800 meters—making him the first Rhode Island Olympics medalist. According to the Rhode Island Heritage

was in high school and at Harvard.

I told him about running a 2:08 half-mile in the freshman open meet in 1965. He was not impressed. It was my only timed half-mile. I was a football and tennis player.

DAVID C. HALL III '68  
Lopez Island, Wash.

#### 1969

I ALWAYS appreciate the letters section of *Harvard Magazine*, and the May-June issue (particularly regarding the 1969 student strike) was especially lively.

Michael Widmer comments in his letter that “Many of the police took full advantage of the long awaited ‘opportunity’ to pummel the privileged students whom they had always resented.”

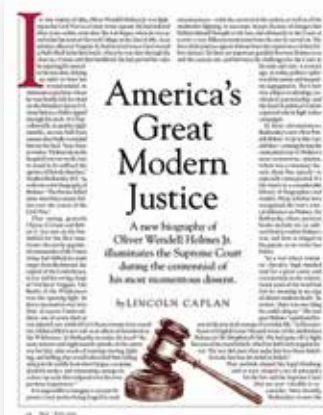
I was astounded by the anti-police bias in that comment. I wonder how many of those police he surveyed to come to the determination that they resented students and that they had long waited for the chance to “pummel” them. I wonder if Widmer is even aware of the bias implicit in his comment.

PETER KEESE '58  
Knoxville, Tenn.

*Michael Widmer responds:* Anyone who lived in Cambridge during the 1960s, as I did, knows full well through word and deed that large numbers of Cambridge police resented what they saw as privileged and snobby Harvard students—a feeling, by the way, with which I had considerable sympathy. And anyone who watched the invasion of Harvard Yard, as I did, knows full well that many of the police resorted to gratuitous violence that went way beyond what was required to disperse the students. One doesn’t need to do a survey to make an obvious connection between the police sentiment and the excessive violence. The facts speak for themselves.

#### ATHLETIC ADMISSIONS

MANY THOUGHTFUL people understandably are in a fury over the college admissions scandal [see 7 Ware Street, page 3]. The basis of the outrage is that elite universities are supposed to be institutions that educate the most outstanding students, but, due to corrupt behavior, less accomplished scholars displace individuals who are likely to be better students. At Yale a coach receiving bribes gave to the admissions office, on his list of recruited athletes, the names of two nonathletic applicants who were, by Yale’s metrics, sub-standard students. But wait!



one had ever had before. It reported that, in this iconic work of legal history, Holmes gathered evidence countering the “prevailing view about this form of law in the late nineteenth century.”

JUSTICE HOLMES’S DISSENT in *Abrams v. United States* is justly celebrated. But Holmes’s rhetorical skill in that case should also be noted. Praising “free trade in ideas” and “the competition of the market,” the justice appropriated the language of the conservative defenders of laissez-faire economics and turned it against them in defense of freedom

Hall of Fame write-up, “In a trial heat at Paris, he established the long-time Olympic record in the 800 meters of 1:56.2 on a grass track, but in the finals a competitor stepped on his heel, causing Hall to lose a shoe. Hall finished the race in third place, but the gold medal time of 2:01.2 was far slower than Hall’s earlier pace. During his Brown career Hall was a two-time New England champion and set a national record in the half-mile run.”

He went on to become a physician, but interrupted his career to serve in World War I, where he directed 33 ambulance companies in Italy. He lived in our guest cottage while I



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## LETTERS

No deserving scholars were displaced, but only two potential athletes.

This points to the greater area of concern. I have no complaints about Harvard's recruited athletes. They got in according to the rules, and the large majority of them made fine use of their time at Harvard. But now is the time to reassess the policy on recruited athletes. About 15 percent of the class are these athletes. In the scandal currently roiling the nation, a handful of better students was displaced by the corrupt actions of the conspirators. If 80 percent of Harvard's athletes would not have gotten in without their athletic credentials, that means they displaced 200 applicants who, according to Harvard's standards, are better students and more deserving of being at a great educational institution.

The irony is that the policy doesn't even give Harvard a competitive advantage: our Ivy League peers have the same policy. It's time for the entire league to reconsider the policy of providing an admissions advantage to recruited athletes; a change would raise the student body's academic abilities dramatically.

JAMES W. ANDERSON, M.Div. '73, Ph.D.  
*Chicago*

### **WHEN HOUGHTON WASN'T OPEN**

I WAS AMUSED by the article about Houghton Library ("A Sense of Belonging," May-June, page 18), subtitled "open to all." As a student at the School of Education in 1964, I wasn't allowed in because I was female. This was years before the "women's movement" so I hadn't yet learned to be hurt or outraged: that was just the way it was, something else we women had to work around or not give a hoot about. I assumed there was something so precious inside that building that it had to be reserved for the very greatest among us. Also, Harvard was a boys' school, really, so let it be a boys' school. I didn't care; the books I needed were at Widener.

One day, the poet William Meredith arrived in Cambridge to read at Houghton. He was my teacher in undergraduate days and I was, if I may say so, his pet. So of course, I went to his reading. I entered Houghton and looked around. What's so great about this place? I asked myself. It was just some dumpy library. It was the Wizard of Oz! I remember feeling confused and sort of sorry for men that they had to make exclusive something so mundane. But I never forgot.

DIANA ALTMAN, M.A.T. '64  
*New York City*

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## DIVESTMENT

I WAS DISMAYED when a spokesperson for Harvard Management Company (HMC) described the movement by faculty and students to divest from fossil fuels as a political issue. The December 11, 2018, letter to President Bacow and the Fellows of Harvard College signed by 250 faculty members makes clear that HMC's "continued investment in the fossil fuel industry is discordant with our mission and with the purposes of the endowment."

The 2018 report by the UN Intergovernmental Panel on Climate Change is a clarion call for bold action on an unprecedented institutional, local, and international scale. There is little doubt that climate change is occurring rapidly and with ever greater societal costs and damage to the natural world. Old metrics for decisionmaking no longer apply. Free-market economies influenced by vested interests will fail to respond quickly and rigorously enough to avoid devastating environmental destruction. Market mechanisms alone are insufficient to address climate change and do not adequately value the complex ecosystems that support all life on earth.

Transitioning to a carbon-free economy is an unprecedented global challenge that requires bold and decisive action. The arguments that it will cost too much or that technology will find a silver bullet are incorrect. Real leadership is needed to avoid leaving a much-diminished world to our children and grandchildren.

This open letter is an urgent call to Harvard to employ its considerable influence to bring about meaningful change, to lead with vision and moral authority, and to commit to a sustainable future. HMC's financial support for an industry that is drilling humanity and the natural world toward disaster is incompatible with the values and principles of a great university.

J. HALE SMITH, M.B.A. '77  
Milton, Mass.

## THE FACULTY DEAN'S DUTIES

MY FIRST REACTION to the press reports of the controversy over Professor Ronald Sullivan's dual role as counsel for Harvey Weinstein and faculty dean of Winthrop House was to cite it as an example of the inadequate current teaching of American history in the high schools. Certainly by the time I had graduated from high school in 1954, I knew that John Adams had been

counsel for the six British soldiers indicted for the murder of Crispus Attucks and five other colonists in the so-called Boston Massacre of 1770, which underlay the American Revolution. Subsequently I learned that one of his co-counsel was Josiah Quincy II, son of President Quincy and a member of the College class of 1763.

At that point I was prepared to dismiss the student objections to Sullivan's dual role as based on ignorance of the high ethical calling of members of the Bar to defend the accused, guilty or not. Certainly, even as a lawyer early in my practice of administrative law, I was appointed by the courts to defend indigent defendants who were likely guilty as charged.

But "Coming to Terms with Sexual Harassment" (May-June, page 22) has raised a question as to whether Sullivan's role as counsel for Weinstein is a conflict of interest with his role as faculty dean with respect to his students' sexual issues. Your reporting will be incomplete without addressing that question, which I consider the only basis on which the decision to remove Sullivan as faculty dean could be justified.

WILLIAM MALONE '58, J.D. '62  
New Canaan, Conn.

YOUR ARTICLE should have been titled "Coming to Terms with Harvard's Failure to Educate Its Students." In what has become the Sullivan case, Harvard missed its chance to help its students understand the quest for truth in legal proceedings.

Anyone is entitled to have an opinion about the guilt or innocence of a criminal defendant. But every defendant is entitled to an effective legal defense. The students who protested Sullivan's decision to defend Weinstein understood neither point. They did not understand that their opinion about Weinstein is just that: an opinion that does not vitiate the presumption of innocence. And they did not understand that even the most unpopular defendants—indeed, even guilty defendants—are entitled to a fair trial with a lawyer of their choosing. They also did not understand that a lawyer who serves a client does not, by that service, endorse anything the client may have done.

Or perhaps the students acted as they did simply because they could. After they acted up and acted out, the dean of Harvard College, unable to dismiss Sullivan for the reasons given by the students, initiated a "climate" investigation at Winthrop House.

The findings were predictable. Students, presumably including many whose actions instigated the investigation, reported that the "climate" was unsatisfactory, and so Dean Khurana terminated the leadership of the faculty deans.

So the sequence is that students initiate an ignorant and unwarranted protest. The dean fails to help them understand anything about the legal process and the right to counsel, but instead orders an investigation of a "climate" that inevitably deteriorated as a result of the students' actions. He then dismisses the target of those actions.

The failings here are multiple: the educational failing, the survey of opinion in an inflamed and biased environment, and the manipulativeness of the decisionmaker. The contrast with the fair criminal trial to which any defendant is entitled could not be sharper. Harvard has failed miserably in its educational mission.

DONALD L. HOROWITZ, LL.M. '62, PH.D. '68  
Duke professor of law and  
political science emeritus  
Duke University  
Chevy Chase, Md.

*Editor's note:* For an update on the controversy over the Winthrop House faculty dean, please see page 27.

## ERRATA AND AMPLIFICATIONS

THE LAST TWO WORDS of the May-June book review ("A New Story of Suffrage," pages 72-75) were deleted in some magazines. The sentence should read: "Her effort to dust off these stories provides a messier, sometimes troubling, and more convincing picture of some of the women who changed the world."

The contact information at the end of "Reading the Market" (page 13) rendered Professor Lauren Cohen's first name as "Laura."

In the feature on inflammation (page 46), Professor Gökhan S. Hotamisligil's first name was misspelled.

New University librarian Martha Whitehead's first name was shorn of its "r" in the accompanying photo caption (page 26).

And in Off the Shelf (page 71), both author, Adam Ehrlich Sachs, and title, *The Organs of Sense*, of one item were victimized.

We apologize for our errors. ~The Editors



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# Harvard<sup>2</sup>

Cambridge, Boston, and beyond



**8H A Bridge to the Past**  
*Historic New England's Eustis Estate, in Milton, Massachusetts*



**8B Extracurriculars**  
*Events on and off campus in July and August*



**8D Boston Jazz Fest**  
*The GroovaLottos, Albino Mbie, Pat Braxton, and others*



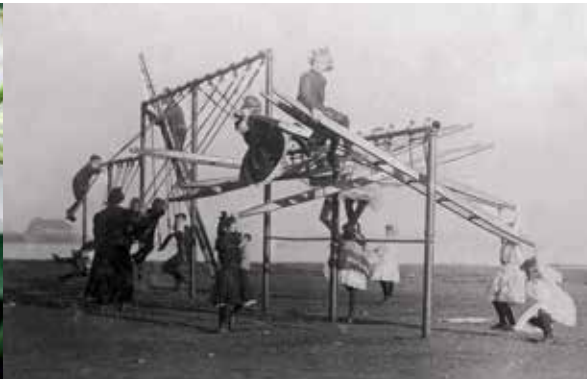
**8J Kay Kenny's Nighttime Secrets**  
*Griffin Museum of Photography*



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ERIC ROTH/HISTORIC NEW ENGLAND





# Extracurriculars

Events on and off campus during July and August

## SEASONAL

### Farmers' Market at Harvard

dining.harvard.edu/farmers-market

Enjoy fresh produce, specialty goods, and guest chefs. Science Center Plaza. (Tuesdays)

## MUSIC

### Harborwalk Sounds

icaboston.org

The Institute of Contemporary Art (ICA/ Boston) and Berklee College of Music host

free, waterfront concerts. Featured artists include the Bob Marley tribute band One Drop (July 25), the young Afro-Cuban-Latin rhythm-and-blues ensemble Clave & Blues (August 15), and the Boston indie-rock trio Them Sounds (August 22). Boston Seaport district.

### Nineteenth Annual GospelFest

boston.gov/summer-boston

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From left to right: A variety of lilies are on display at the Arnold Arboretum; "The Dumps" Turned into a Playground, 1909, Boston, by Lewis Wickes Hine, at the Gardner Museum; Blue Pulse, 2017, by Murray Dewart, at the Fuller Craft Museum

FROM LEFT: THE ARNOLD ARBORETUM; LEWIS WICKES HINE/THE ISABELLA STEWART GARDNER MUSEUM; MURRAY DEWART/THE FULLER CRAFT MUSEUM

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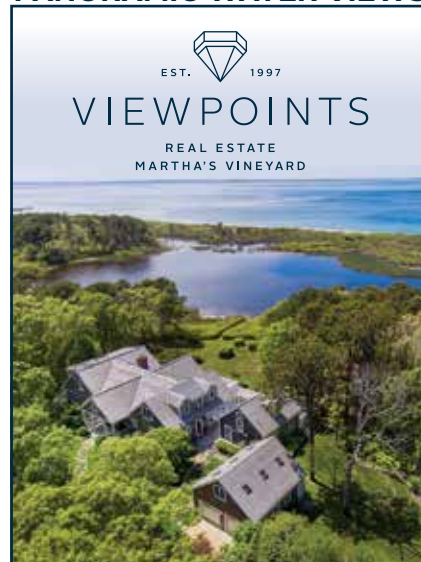
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## HARVARD SQUARED

works performed by local and national choirs. Boston City Hall plaza. (August 11)

### FILM

#### Harvard Film Archive

harvardfilmarchive.org

**Joan Tewksbury's Old Boyfriends.** This deceptively radical 1979 film follows a psy-

chiatrist who, in the midst of an emotional crisis, takes a road trip in search of old flames. Starring Talia Shire, John Belushi, and Keith Carradine. (August 23-25)

**Dark Waters—All-Night Movie Marathon** explores what happens to those who dare to step off dry land. Screenings include

*Purple Noon, The African Queen, Knife in the Water, Fitzcarraldo, The Poseidon Adventure,* and Kon Ichikawa's *Alone on the Pacific*. (August 31-September 1)

### THEATER

#### Shakespeare on the Common

commshakes.org

The Commonwealth Shakespeare Company presents free, outdoor performances of **Cymbeline**. The play chronicles the fateful adventures of a royal family, notably of the king's daughter, and iconic heroine, Imogen. Parkman Bandstand, Boston Common. (July 17-August 4)

#### American Repertory Theater

americanrepertorytheater.org

Produced in collaboration with Company One Theatre, the site-specific **Greater Good**, by Obie Award-winning playwright Kirsten Greenidge, looks at Greater Boston's historic educational hub through the drama of a progressive school striving to live up to its mission. Commonwealth School. (July 17-August 17)

### NATURE AND SCIENCE

#### Arnold Arboretum

arboretum.harvard.edu

Enjoy hundreds of fragrant lilies—and learn more about the versatile, herbaceous flowering genus *Lilium*—at the seventy-second **Annual International Lily Show**. (July 13.)

#### Tower Hill Botanic Garden

towerhillbg.org

Concerts, classes, kid-centered events, weekend guided tours, "Beer Garden Fridays"—and more. The Boylston, Massachusetts, preserve also offers free admission after 3 P.M. on Thursdays through August.

### EXHIBITIONS & EVENTS

#### Harvard Museum of Natural History

hmnh.harvard.edu

**A Lunar Soirée** celebrates the fiftieth anniversary of the 1969 moon landing with an evening of 1960s music, cocktails, and light refreshments. (July 20)

#### Harvard Art Museums

harvardartmuseums.org

Through some 200 works by 74 artists, **The Bauhaus and Harvard** honors the centennial of the founding of the influential design movement in Weimar, Germany. (Through July 28)



## STAFF PICK: Live Jazz in the Seaport

**Kick off** Labor Day weekend with the sweet, Mozambican-infused music of Albino Mbie—and other artists—at the Boston Jazz Fest (August 30-31.) The free event at South Boston Maritime Park, in the Seaport district, is produced by James Braxton. His wife, jazz vocalist Pat Braxton, is also on the lineup, along with the spirited soul-funk-blues combo, The GroovaLottos, of the Grammy Award-nominated album *Ask Yo' Mama*, and hit single "Do You Mind (IfWeDanceWitYoDates)?".

The festival began nine years ago as an outlet for local talents. "In the 1940s and 50s, Boston was a center of jazz, it was famous," says James Braxton. "Everyone, like Billie Holiday, Miles Davis, and Charlie Mariano, came here to record." The High Hat, Savoy Café, and Wig Wam were true hubs for the African-American musical tradition, and Wally's Café Jazz Club, established in 1947, still offers *daily* live acts and nurtures young artists in its tiny space on Massachusetts Avenue (not far from Symphony Hall).

Award-winning guitarist, singer, composer, and sound engineer Mbie is part of that new generation. He was first inspired by street musicians in his native Maputo, Mozambique, and, as a young teenager, built his own guitar from an oil can, wood scraps, and electrical cords. He graduated from the Berklee College of Music in 2013, and soon released his first album of original compositions, *Mozambican Dance*, recorded with musicians from 16 countries.

Before the festival, Braxton organizes free workshops and live demonstrations at the MBTA's Silver Line stops in Chinatown, Hyde Park, and Roxbury, "to try to get young people more involved in jazz and live music." Earlier this year, Berklee cancelled its long-running Beantown Jazz Festival, partnering instead with the Boston Art & Music Soul Festival/BAMS Fest, slated for June 22 in Franklin Park. "So, we're now the only jazz festival in Boston," adds Braxton. "Last year, we maxed out at the park, we had so many people—so this year we decided to get the music going on Friday night."

—N.P.B.



Community-focused concerts in the Seaport include a performance by jazz vocalist Pat Braxton.

**Isabella Stewart Gardner Museum**

gardnermuseum.org

**Big Plans: Picturing Social Reform.** Landscape architects and street photographers, like Lewis Wickes Hine, viewed salient aspects of American culture during the late 1800s and early 1900s, and advocated for change. (June 20-September 15)

**Fuller Craft Museum**

fullercraft.org

**Take It Outside: Works from the Boston Sculptors Gallery.** See a range of dynamic works while exploring the museum's plush, 22-acre park. Also on display, indoors, this summer: **Brockton Youth Create** and **Tending the Fires: Recent Acquisitions in Clay.** (June 22-October 27)

## Spotlight



COURTESY OF THE BOSTON CONTEMPORARY DANCE FESTIVAL

**Urbanity Dance** hosts about 30 local and national companies during its annual Boston Contemporary Dance Festival. Among them is the nonprofit's own troupe, seen above in a 2018 performance of "New Second Line," by choreographer Camille A. Brown. Building on the organization's mission to "engage, inspire, and empower" through the art of movement, the half-day event is also a chance to freely explore the diversity and definitions of "contemporary dance." As a genre, it developed in the mid 1990s, integrating classical ballet, modern, and jazz techniques, says Betsi Graves, founder and director of Urbanity Dance, which also leads community- and school-based dance programs. To that stylistic mix, she adds "hip-hop and global," and often tells students that "there is no wrong answer for contemporary dance-makers inspired by relationships, emotions, and the human body."

**Boston Contemporary Dance Festival**

August 10

Huntington Avenue Theatre

**Peabody Essex Museum**

pem.org

More than a hundred painterly, dream-like images explore the natural world, along with the nature of knowledge and memories, in **Order of Imagination: The Photographs of Olivia Parker.** (Opens July 13)

**Society of Arts + Crafts**

societyofcrafts.org

The ceramic installation **Linda Huey: Dark Garden** features wondrous flowers, plants, and sprites—but a closer look also reveals

scrap metal, chemical contamination, and nature struggling to thrive amid environmental degradation. (Through July 21)

**Addison Gallery of American Art**

addisongallery.org

Rescued from deep storage, large-scale photographs in **John Goodman: not recent color** depict American urban life in the 1970s and 1980s. (Through July 31)

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



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# A Bridge to the Past

Historic New England's Gilded Age mansion

by NELL PORTER BROWN



A RECENT TOUR of the Eustis Estate, perched on a knoll in Milton, Massachusetts, ends in what the guide calls “the original man cave.” It was the library of William Ellery Channing “W.E.C.” Eustis, A.B. 1871, S.B. ’73, who lived in the mansion with his wife, Edith Hemenway Eustis, and their three children. The room, above the portecochère, features a bay window perfectly aligned with the allée of locusts, framing a picturesque view of the country drive. The room’s interior is anchored by carved black walnut woodwork below a beamed vaulted ceiling. Guide Richard Arsenault also points out the “hidden staircase” and elegant brass gasolier. The corner fireplace and mantle, he adds, are “over-the-top Aesthetic-movement style. Very ornate, asymmetrical, lots of flora—and all of it? Made out of molded terra cotta. It’s *all* just lovely.”

Then he gestures across the room, encouraging visitors to “look at stuff on the



shelves!” They are loaded with books about regional history, boats, and architecture, all supplied by Historic New England, which opened the 80-acre property to the public in 2017. Because neither the library’s chairs nor its bay-window seats are cordoned off, as they would be in most house museums, they indeed invite anyone to relax there and learn more about what it was really like to live and work on this self-sufficient estate during the Gilded Age.

That magnanimity is intentional. “Usually,



**Clockwise, from top: the mansion’s impressive exterior; W.E.C. Eustis’s library, with its bay window, bookshelves, and curtained staircase to his “laboratory”; the small parlor’s “moon-shaped” fireplace; an ornately carved chair; and the dining room, with gold-colored paint on textured walls, original furnishings, carved hutch, and fireplace decorated with 1870s botanical-imprinted tiles produced in Chelsea, Massachusetts**

at most of our other properties, people have to put on booties and go on a designated tour,” says estate program assistant Amy Morgan



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## HARVARD SQUARED

Link. “But here, we wanted to change up the experience in ways that would entice many people, especially young people, so they don’t walk in and feel like, ‘Uh oh! I am not supposed to move, or touch, anything!’”

Visitors are not only free to stroll and picnic on the grounds, which overlook part

of the Blue Hills Reservation, they can also walk through much of the mansion by themselves. Interactive digital kiosks (another new venture for Historic New England) offer vintage family and estate photographs that depict life there from the 1880s through the early 1930s. Restoration work is explained,

## CURIOSITIES: Painting with Flashlights

In 2017, artist Kay Kenny traveled to Arizona in the winter so she wouldn’t have to wait until midnight to take pictures in the sunless desert, under the stars. She set cameras on tripods at different exposures, and then, unseen in her black outfit, she walked around spotlighting objects, as in *Pink Cactus*, using the flashlights like brushes “to paint with the light in the darkness.”

She’s taken hundreds of such nighttime images, also venturing into the pitch-black fields, woods, and farmlands of New England and upstate New York, where she lives. “There was nothing there, no car headlights, no street or house lights, to interfere with what I wanted to have lit—and the vast and wonderful sky,” she says. “It is a poetic tribute to wild imaginings: the nightmares and dreams inherent in the lonely darkened corners of the world.”

“Into the Night In the Middle of Nowhere,” at the Griffin Museum of Photography, in Winchester, Massachusetts, features a selection of these works. Kenny, who is also a painter and long-time art teacher at New York University, will be at the July 18 opening-night reception to discuss her ideas and techniques. Early on, she often captured images of farm animals. “Sheep are a wonderful metaphor for nighttime, and they don’t move, they just stand there and munch,” she says. “And they’re white, so they show up well.”

More spectral and shadowy forms appear in her work, too: mist hovers over still water and meadows, and remote farm buildings are strangely aglow. The photographs do delve into the terrain of the unknown, unpredictable, or frightening—the land of nightmares, blindness, and ferocious creatures stalking innocent prey. Kenny has never felt threatened, even though “people think I am really brave, going out in the dark in the rural areas. But it’s really a lot less scary than walking around New York City at night.” She has sung, *loudly*, to ward off potential encounters. And often, she’s heard animals rustling about in the dark. When that’s happened, she’s assured herself that most of them “don’t really want to be bothered.”

Her work serves to render what we cannot see, or don’t try to know. Urban dwellers, inundated with ambient light and pollution, can’t fathom the power of astronomical phenomena, or the peace that can come with darkness and quiet, she says: “People just really don’t see what they have lost.” These images bring that home.

—N.P.B.

Griffin Museum of Photography  
“Into the Night In the Middle of Nowhere”  
July 18–September 1



KAY KENNY

HISTORIC NEW ENGLAND



**An 1890s portrait of the estate's original Eustis family: W.E.C. and Edith and their children, daughter Mary and twins Augustus and Frederic. The mansion's surprisingly simple kitchen features soapstone sinks, brass piping, and an 1879 coal-burning stove.**

along with Eustis family furnishings, like the Charles Eastlake-styled bedroom set, and the Italian Renaissance pieces in the front hall. (Historic New England's vast collections of objects and archival materials furnished the rest of the house.)

View the original 1878 blueprints by the



prominent architect William Ralph Emerson (a cousin of the Transcendentalist leader and writer Ralph Waldo Emerson, A.B. 1821, A.M. '27, LL.D. '66), as well as landscaping plans, U.S. Census data on household staff members, and biographical notes on Eustis family members. Although the third floor is off-limits to visitors, there are images of its billiard room and smoking porch, and the "laboratory" where W.E.C. Eustis—a metallurgical engineer who ultimately owned three cop-

per mines and smelting foundries in Canada, California, and Virginia—"tinkered" with early radio and other technologies.

Eustis was the grandson of theologian William Ellery Channing, A.B. 1798, A.M. 1802, S.T.D. '20, a founder of the Unitarian Universalist Church, and grew up in a fairly affluent Boston family. But it was his mother-in-law, Mary Porter Tileston Hemenway, a conservation-minded philanthropist, who in 1866 purchased 230 acres and the "Old

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**Changing Landscape: Sculpture at the Eustis Estate (June 22-October 13) includes *The Discarded*, by Morris Norvin; *Green Goddess*, by Serena Bates; and *Involution*, by Elisa Adams.**



richest merchant families, and then married Edward Augustus Holyoke Hemenway, a self-made businessman who opened

new trade routes to Chile and other parts of South America. Their son, public servant and philanthropist Augustus Hemenway, A.B. 1875, donated the first Hemenway Gymnasium to Harvard; his wife, Harriet Lawrence Hemenway, co-founder of Mass Audubon, donated a separate Hemenway Gymnasium to Radcliffe.

When her husband died in 1876, just months before their daughter's wedding, Mary Hemenway was left in charge of a vast fortune. She hired Emerson to renovate and enlarge "Old Farm" (although she lived pri-

marily on Beacon Hill), and later became a regular visitor at her daughter's estate next door—spending time with her grandsons, the Eustis twins, Augustus and Frederic, both members of the Harvard class of 1901. Historic New England, which has 37 other sites, bought the estate in 2012 from Frederic Augustus Eustis II, A.M. '52, Ph.D. '77 (Augustus's son), who lived there with his wife, Elizabeth, until 2014. After they moved out, some \$5.1 million was spent to repair and restore the house and remaining outbuildings, and to convert the fairy-tale-worthy stone 1892 gatehouse into administrative offices.

The mansion is stylish, with early modern amenities, like radiant heat, and stunning examples of detailed craftsmanship. The interior décor highlights rich earth and green tones, and incorporates botanical and other motifs reflecting a fascination with the "exotic" Far East at the time, Arsenault says: there are bamboo branches painted on the small parlor's walls, and natural-leaf imprints in the dining room's tiled fireplace surround. But despite its size, grand entrance hall, and open central staircase, the Eustis Estate is not an explicitly opulent

Farm" in Milton, and later gave the young couple some of that land and built the nearly 19,000-square-foot mansion as a wedding gift. Construction on the ornate domain—with its local stone, bands of red and yellow brick, six chimneys, Romanesque archways, and prominent gables—began in 1878 and was finished in 1883.

Mary Tileston was accustomed to wealth, having hailed from one of New York City's



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**The carved-wood bedroom furniture, in the style of nineteenth-century British designer Charles Eastlake, belonged to the Eustis family; a long, tree-lined pathway offers a gracious introduction to the house.**



telephone closet—or see the 1890s-era Western Union wall phone and box that still hang outside the vestibule.

On the second floor, amid a bedroom and the day and night nurseries, are two washrooms with the original tinned-copper bathtubs and marble-topped sinks. “Notice,” he says, “you have not seen an original toilet yet. Victorians wouldn’t dream

of washing in the same place they used the facilities.” A water closet for family use was at the corner of the second-floor central hallway.

As for the household staff, the tour reveals their quarters—five small rooms and a common space above the kitchen. Arsenault notes the lower-quality woodwork and “ugly” radiators (instead of heating grates), but points out each room’s large windows and reminds visitors that having “central heat, and food, and running water, was probably considered quite a luxury” for servants who came from poorer, rural living conditions. It’s not known what the Eustis staff was paid, but in late nineteenth-century New England, he says, rates typically ranged from \$1 to \$3 a day for a laundress and housekeeper, respectively; they worked seven days a week, with Sunday mornings off, presumably to attend church services.

THROUGHOUT A VISIT, little personal information is shared about the Eustis family; Historic New England focuses on the architecture, the Aesthetic movement, and the restoration. But enlarged, framed vintage photos taken by W.E.C. Eustis, a serious amateur photographer with a basement dark-room, do depict a lively household, gather-

ings with friends and family members, and activities like bicycle- and horseback-riding.

Along with his other passions, sporting and yachting, he managed the fully self-sustaining estate. In its heyday, Amy Morgan Link reports, there were several orchards, pig and dairy barns, a chicken house, a small pond (where ice was harvested), stables, and two greenhouses—along with out-buildings for carpenters, painters, and gardeners: “all of these things that were there simply to take care of this property.”

The flagship site is now listed on the National Register of Historic Places. But it’s also rented for weddings and film shoots and, through public events and rotating art exhibits, is meant to serve as a year-round gathering point. This summer’s exhibit, *Changing Landscape: Sculpture at the Eustis Estate* (from June 22 to October 13), presents more than 80 works by members of the New England Sculptors Association. Sculpture walks are planned (July 14, August 4, and September 15), as is a family drop-in art workshop (July 20). The show bridges opposing drives—for innovation and preservation—underscoring the idea that landscapes and historic events and architecture do evolve and are viewed differently over time. In addition to the regular house tours, docent-led events will focus on the life and work of staff members (July 26 and September 6), and technological advancements, such as the 1902 “powerhouse” built by W.E.C. Eustis (August 16). A Victorian Birthday Party (August 25) will celebrate the life of children during that era, with lawn games, cake, and lemonade.

Historic New England hopes the estate can enliven the past and offer new perspectives on contemporary culture, architecture, and the use of space. That the house itself was so intact certainly helps. When asked why it was never much altered, Link says the family, historically, was preservation-minded: Mary Hemenway helped save the Old South Meeting House, in Boston, among other projects. “They never changed the kitchen, which is extraordinary. That’s usually the first room to get renovated. But I just think there was an understanding that they had something here that was very important.”



showplace of the magnitude of the historic Newport, Rhode Island, mansions. These rooms, designed on a human scale and used by a family, have a more intimate ambiance.

The house is remarkably well preserved, considering that four generations of Eustises lived and played there. No significant structural changes were made, says tour guide Arsenault, as his group enters the kitchen, anchored by an 1879 Walker and Pratt cast-iron, coal-burning stove. “We only did two things in this room: we painted and removed the modern stove. Otherwise, this was how the family lived with the kitchen, with modern dishwasher, until 2014,” he explains—using original soapstone sinks, old brass pipes, and a copper water-heater. Moving on, he opens a faux-wood painted vault on one wall, where the silver was kept, and slides up the door of a dumbwaiter in the butler’s pantry.

He also highlights contemporary high-tech features, such as the “electric annunciator” on the wall: buttons with bells and lights, labeled for 20 different rooms, that—in addition to six ceramic speaking tubes embedded in the wall—allowed discreet communication among family members and the staff. And in the home’s first-floor hallway, visitors can step into the lighted

## OUTDOOR ADVENTURES: Your Guide to the Best Summertime Activities

The sun is shining, the weather is warm, and the schoolyear crowds have thinned — so it's the perfect time to explore the city at a more leisurely place. From food and fitness to music and markets, here's where to soak up some al fresco fun.

**Gourmet Delights:** Our area overflows with phenomenal restaurants — so many that it's impossible to try them all. The solution? Visit the Taste of Cambridge on July 16 to sample the city's top destinations, no reservation required. The lineup is stellar: fiery Thai from Davis Square's Dakzen, barbecue from The Smoke Shop, Greek bites courtesy of Saloniki (the newest spot from Rialto founder Jody Adams), tacos from Lone Star Taco Bar, and more. The event happens at University Park on Sidney Street from 5 PM until 8 PM. Tickets start at \$50, and proceeds benefit local nonprofits. Learn more at [www.tasteofcambridge.com](http://www.tasteofcambridge.com).

Or wander through the seasonal Farmers' Market at Harvard, which runs on Tuesdays throughout July and August from 12 PM until 6 PM. This is your chance to buy (and eat!) hyperlocal: Try sweets from Union Square Donuts, tamales from Tex Mex Eats, and fresh seafood from Red's Best. See the full lineup at [www.dining.harvard.edu/farmers-market](http://www.dining.harvard.edu/farmers-market).

And for something even stronger, stop into Boston Landing's beer garden, popping up at Athlete's Park on July 25 and August 22 from 4 PM until 7 PM. They'll spotlight below-the-radar breweries including Braintree's Widowmaking Brewing and Weymouth's Barrel House Z. See more summer programming at [www.bostonlanding.com](http://www.bostonlanding.com).

**Fitness Al Fresco:** Do the Harvard Stadium steps look a tiny bit intimidating? You don't need to be Rocky to conquer them anymore. Simply join Healthworks trainer Kathryn Zainea every Monday evening at 6:30 PM, weather permitting, for a co-ed class. The one-hour workout starts on the turf with warm-ups and stretches and progresses to stairs, relay races, and circuits. Out of shape? Don't worry: The full-body conditioning workout goes at your own pace and is open to all fitness levels. For more details, visit [www.healthworksfitness.com/summer-series](http://www.healthworksfitness.com/summer-series).

For a mellower adventure, sign up for a two-hour sunset kayak tour along the Charles River with Paddle Boston. You'll leave from Kendall Square and glide past landmarks including the State House, the Prudential Center, and the Citgo sign. Guides are well-versed in Boston lore, so you'll get a history lesson, too. Sign up at [www.paddleboston.com](http://www.paddleboston.com); all abilities are welcome.

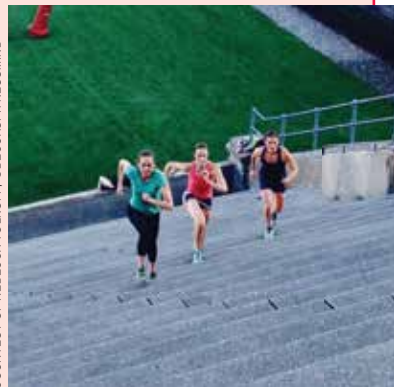
**Arts & Culture:** Club Passim is the indie heart of Cambridge's music scene, and they'll host a free outdoor concert series spotlighting up-and-coming performers this summer. The shows happen in rotating locations throughout the city — including Daneyh Park, the Harvard Common Science Center Plaza, and Kendall Square — with a diverse lineup ranging from Irish folk to 1960s pop. Learn more at [www.passim.org/live-music/passim-presents/](http://www.passim.org/live-music/passim-presents/).

And on July 26, Harvard Square transforms into a Latin dance party with the sixth annual Salsa Squared dance-off and salsa-sampling fiesta at Brattle Plaza. Take a professional dance lesson sound-tracked by a DJ, get liquid courage at a beer and sangria garden, and snack on chips and salsa provided by neighborhood restaurants. Plan your performance at [www.harvardsquare.com](http://www.harvardsquare.com).

~ KARA BASKIN



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# Japanese Elegance

*Gem-like small plates in downtown Boston*

by NELL PORTER BROWN



**Clockwise from above: sashimi carpaccio; pan-roasted shoyu duck and braised daikon radish; kaisecki sashimi; and the stunning Kumo Skybar and Lounge**

**T**WO SHORT blocks from the touristy bustle of Faneuil Hall Marketplace is the cool, tranquil domain of Kamakura.

Named for the hometown of owner and executive chef Youji Iwakura, this refined Japanese restaurant takes up three minimally decorated spaces in a narrow building. On the ground floor, diners at the “chef-tasting” counter and tables are treated to a modern version of *kaisecki* cuisine (intricate, small-plate dishes) through a \$156 10-course tasting menu. The sashimi carpaccio (top right), reflecting the entire meal’s beautiful presentation, comes arrayed across the plate like a delicate flowered fan.

Upstairs, an eight-course *kaisecki* tasting menu (\$122), offered in the more traditional style of a tea ceremony, is available, along with à la carte dishes. The rectangular space has large street-side windows, white-leather upholstered chairs, wood tables, and a tidy bar with glass shelving and subtle



under-counter lighting.

But if it’s open, head straight to the seventh-floor lounge with retractable roof. Sit at the open win-

dows with views of the historic Boston Custom House and tower. Breathe in the salty ocean scent wafting from the wharves by the New England Aquarium.

This is a prime spot to meet up after a long hot day exploring the city—or for a late-night rendezvous over sake. Or try the Japanese beers and wine, and the ingenious “shoyu what i got” cocktail (\$14), with mezcal, sea fennel, orange bitters, and a hint of aged Japanese-style soy sauce.

Any drink goes well with the mushroom medley (\$17), a mound of fungi in a brown dashi sauce, with threads of chili pepper and sautéed *yu choy* (a cross between broccolini and bok choy). The *kenchin shojin* soup (\$8) is named for the Buddhist temple in Kamakura.

The clear vegan broth holds an aptly wholesome mix of barely cooked baby Brussels sprouts, carrots, and mushrooms and a fried tofu-skin pocket of puréed vegetables and seaweed. Beef and duck are on the menu, but summertime feels like fish season. Chunks of grilled cod marinated in soy sauce, sake, and mirin (\$18) came in a yellow miso glaze and had a faintly lemony flavor—that was likely the irresistible *yuzu kosho*, a condiment made from chiles that are fermented in salt and the *yuzu* citrus fruit.

Delivered last to the table was the *ikura onigiri* (\$15): a molded mound of fried rice topped with salmon caviar and strands of nori. The waitress poured on the wasabi dashi broth, softening the grains, creating a dish that merged crispy and tender rice and faintly sour broth, with salty globules of roe.

Savoring each spoonful, we didn’t want to rush the meal—or to end the breezy evening. Down on the street, the crowds had dispersed, heading for homes and hotels. The mood had quieted. As we left Kamakura, the sunlight still had that fading golden glow. But the observation deck atop the Custom House had already closed for the day. ▢

# Right Now

The expanding Harvard universe



## SHORT-TERM TRAP

# Long-Term Investing, Short-Term Thinking

**R**OADS, BRIDGES, and high-speed telecommunications equipment have something in common: they are in constant need of repair and upgrade. But who wants to plan and pay for such critical workaday infrastructure projects? Likewise, the slow but inexorable pace of rising seas caused by climate change threatens coastal civilizations worldwide, but attempts to prepare for or mitigate the problem have fallen short. Faced with long-term problems like these, governments are often slow to contribute capital—but the problem is not a lack of money, says Lovett-

Learned professor of finance Victoria Ivashina. What's missing is a compelling long-term view about the necessary investments. "It's not enough to say you're going to [think] long-term," says Ivashina. "There's a certain level of long-term discipline required."

Institutional investors—pension funds, sovereign wealth funds, and endowments, among others—have trillions of dollars to invest. The Organization for Economic Cooperation and Development estimates that pensions in nations under its purview had more than \$35 trillion in assets in 2015. Life insurers in those same countries had about

\$15 trillion. These investors, who manage pensions, provide retirement security, and even support decades-long research projects, have long-term orientations. They would seem to be the perfect partners in projects that require commitments spanning decades. Often, though, argue Ivashina and Schiff professor of investment banking Josh Lerner in *Patient Capital: The Challenges and Promises of Long-Term Investing*, such institutions are saddled with perverse incentives that push them to chase short-term goals, potentially jeopardizing millions of people's retirements and leaving drug development, infrastructure, and other innovative projects unfunded. If, on the other hand, institutions and their private-equity partners invest their money judiciously, Ivashina and Lerner state that they can spur change while stabilizing long-term growth for themselves.

Part of the problem, the coauthors explain, is that institutional investors and the private-equity funds they work with rely on metrics that prioritize the short term. Internal rate of return (IRR), a common benchmark, measures the annual yield of a fund's investments; the quicker a private-equity manager grows an investor's money, the better the IRR. But the number can be gamed, Ivashina explains. A private-equity manager can use a credit line to fund an investment, deferring payment for as long as possible, in order to decrease the time between investment and payoff. Acquiring a firm, then selling it as quickly as possible—flipping—can also boost IRR. These tricks are meaningless at best, and often hurt long-term growth for the investors.

There are strong incentives for private-equity managers and institutional investors to engage in these schemes that boost IRR. Inching into the top IRR quartile (or that of any other easily manipulated metric) can earn institutional and private-equity fund manag-



ers big rewards. "It's not a continuous function," Ivashina explains. "It's not like I get a little bit more money as my performance increases. It's all or nothing." This perpetuates the cycle: there's a chase to pick top-quartile funds, so there's a chase to be a top-quartile fund, regardless of the long-term growth and stability of the fund.

If pension-fund managers are rewarded for favoring the proverbial hare over the tortoise, they will do so. To solve this problem, and help inculcate the discipline necessary to drive the long-term investment needed to address critical societal problems, Lerner and Ivashina suggest compensation schemes that de-emphasize short-term rewards. Giving a pension-fund manager some type of carried interest—a share of an investment's profits—or the option to invest alongside the fund are strategies that might encourage more scrutiny of short-sighted tricks. Another might be to use an alternative performance measurement known as the public market equivalent (PME), which computes the ratio of an investment's private return to what a like sum would have yielded in public markets. No statistic is perfect, the authors acknowledge, but some align more with a long-term outlook.

Extrinsic incentives can go only so far, however. Some of the most successful funds pick employees with a deep connection to their mission. The Canada Pension Plan Investment Board (CPPIB) and Yale Investments Office (YIO), two exemplars of long-term investment, both embrace this strategy, Lerner and Ivashina note. CPPIB often recruits prominent Canadian investors who have had successful careers elsewhere, paying them well to ensure that millions of Canadians retire comfortably. Most of YIO's investment professionals are graduates of the university, and often accept below-market salaries to bolster their alma mater's endowment. In both cases, *intrinsic* incentives encourage employees to focus beyond the short-term.

But sticking to a long-term vision is also made more difficult by media scrutiny. News organizations barely covered a major hit to Harvard's endowment in 1973, Ivashina and Lerner write, largely because networks like CNBC and Bloomberg didn't exist. But 35 years later, Harvard felt compelled to publish a statement detailing its losses within weeks after the collapse of Lehman Brothers. This scrutiny makes it easier to stick with investments that appear safe from the outside, even if the likelihood that they will pay off is low. Private-equity investment often re-

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wards innovative strategies—breaking into new or underdeveloped markets—but media coverage can make it harder to justify risky decisions if they *don't* pay off. In addition, the industry's pay scales attract attention. Though most institutional investors make less than those dealing in private markets, their high salaries relative to non-investment personnel often spark public shock and outrage when institutions publicly file their financial statements. Some top institutional managers move to the private sector, where they will be paid more and scrutinized less. "It's a bit of a difficult spot" for institutional managers, Ivashina said. "They subscribe to the mission, they take a pay cut, and yet they still face the critique that it's unfair."

Pressure to follow short-term strategies and stray from a mission can come from internal sources, too. "Good governance," Ivashina and Lerner write in their book, "is the first line of defense to ensure that good judgment is exercised and patience prevails." Some boards include a significant number of government appointees, ex-of-

ficio officers, and employees—each group representing different priorities. A policy of monthly meetings might push the group toward frequent short-term changes, especially if there is high turnover among board members. Lerner and Ivashina suggest instead a board composed of mostly financial experts who have relatively long tenures and meet infrequently. That way, members will have a chance to form a team dynamic over time and patiently pursue a long-term mission. To prosper for decades and deliver solutions to the most critical problems, they emphasize, patience is more than a virtue—it pays.

—JACOB SWEET

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## SURVEILLING CERVIDS

# From One Animal to an Ecosystem

EUROPEAN ROE DEER are much smaller than any deer Americans are used to seeing. At 45 pounds and just over two feet tall, an adult is closer in size to a greyhound than to its larger cervid cousins. And unlike highly social species like red deer or elk, roe deer like to be solitary. They spend most of their lives alone, within a range of one square kilome-

ter—and the reason why is a mystery. These animals are built for movement: they can sprint at 30 miles per hour. "What makes them stay in such a small space for their entire lifetime?" asks Nathan Ranc, a fifth-year graduate student in organismic and evolutionary biology (OEB). And how do they choose their home territory?

These questions underpin all of ecology,

because the answers influence how animals mate, form social groups, and use resources in their environment. To study how roe deer form their home range, Ranc says, it's important to understand each animal as an individual, with a mind and a memory that differ from that of other deer. In the Alps of northern Italy, Ranc (co-supervised by OEB professor Paul Moorcroft and Francesca Cagnacci of the Fondazione Edmund Mach) and his colleagues are trying to build a model that can explain each of the factors that determine why particular deer choose to live where they do.

Home ranges in this species are particularly hard to understand because roe deer aren't especially territorial: they don't try to keep other does or bucks off their territories (except during the summer mating season, when males will fight off other males). This generally accommodating behavior contrasts with that of a territorial species like the Yellowstone coyotes Moorcroft has studied. In 2006, he and colleagues proposed a model of home-range formation among those predators that provided a powerful incentive to stay put: moving outside their own range might get them killed by other coyotes. But for roe deer, if there is no risk of confrontation in foraging afield, why not move?

Two different theories might explain their behavior: one is that by getting to know a place, a deer can better remember what forage is available where, and at what time of year. This matters because roe deer are picky eaters: unlike grazers that devour vast amounts of



**Above and right: Roe deer caught by the researchers' cameras. The map below displays a deer's movement (as captured by a GPS collar, which died at the red square). Darker shades of blue show older locations and lighter blue, the more recent ones.**

grass, they are browsers, choosing the highly nutritious tips of shrubs and herbs. A second theory hinges on their vulnerability to predators. The roe deer's main predator is the Eurasian lynx, which ambushes its prey. To escape an attack, Ranc says, these tiny deer have only a split second to decide in which direction to run, "and it better be a good one." Intimate knowledge of escape routes may give them a better chance of survival.

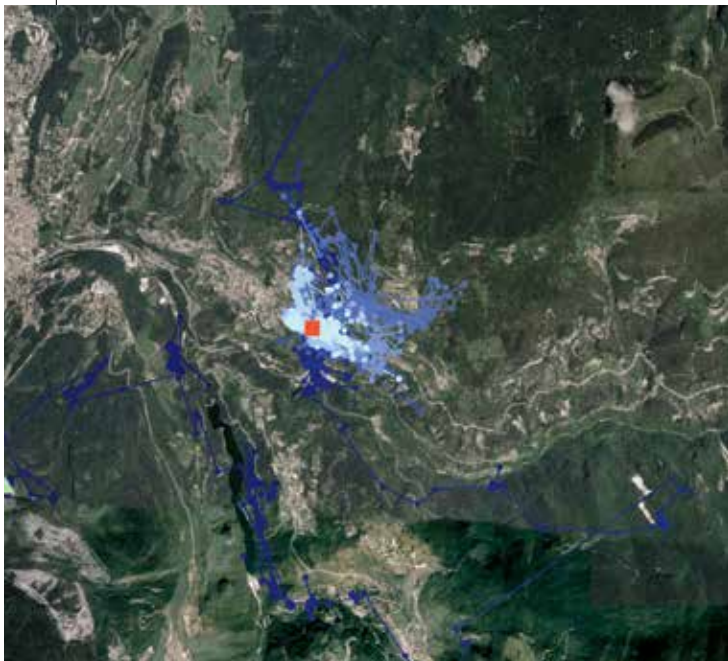
To study the first hypothesis, Ranc and his colleagues have fitted 26 deer with GPS collars that register a location every hour and also include accelerometers, allowing the researchers to more precisely reconstruct the animals' movement. In addition, supplemental food—corn—is left throughout the landscape, and the researchers adjust its availability. The animals quickly learn which places are stocked with corn and, when the corn is removed, they learn that, too, and stop frequenting those locations. The individuals that most prefer corn are more likely to seek out the new locations, but all else being equal, the deer prefer to stick to places they know. "We



study how roe deer learn about the changes that we make and how those changes make them redefine their home range," Ranc explains. He says the team hopes to publish its results in the next year: "We have evidence that roe deer rely on past experience to make their foraging decisions."

In a second project, in Aspromonte National Park in southern Italy, the team is studying a roe deer population in a region where they had been hunted to extinction and only recently reintroduced. "Their spatial memory is nil" in these new areas, Ranc says, creating ideal conditions to study how their home ranges emerge.

He sees the work as part of a turn in ecology toward understanding the importance of *individual* animals' behavior. Until recent decades, "a lot of our understanding of the human impact on wildlife has excluded the idea that animals have created a unique knowledge about a unique place," he explains. "And that knowledge is not necessarily transferable." Animals that have been pushed out of a territory and then reintroduced will have lost the deep knowledge of the local environment that is otherwise





passed down through generations.

A broader goal of studying how animals use space is to understand how humans can conserve and coexist with them. This is, for Ranc, what the work is really about. He caught a passion for the wild as a boy growing up in France, watching animals in the woods through binoculars. Many of Europe's large animal populations had rebounded by the 1990s, after hitting rock bottom in the twen-

tieth century. "Now, in Europe, he reports, "wolves, bears, lynx, and bison are all increasing in population size and range," even though in many other parts of the world, the situation for wildlife is "dire. There's no sugar-coating. It's catastrophic."

He finds it more motivating to think about conservation success stories, and about how careful study of the living patterns of species like the roe deer can help

the animals thrive alongside human beings. This is not only interesting as fundamental research, he says, but "it also helps us understand how animals react to change—and humans make a lot of changes."

~MARINA N. BOLOTNIKOVA

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## TWIN TALES

# ZIP Code vs. Genetic Code

**W**HEN CONSIDERING the risk of a given disease—cancer, cardiovascular problems, Alzheimer's—what matters more: the genes inherited from parents and grandparents, or the environment? Is disease influenced more by DNA, or by factors such as air pollution levels, socioeconomic status, or even regional weather conditions?

It's common to think of disease and health "as this tension of ZIP code versus genetic code," explains Chirag Patel, assistant pro-

fessor of biomedical informatics at Harvard Medical School.

But a study by Patel and his research team challenges this "either-or" thinking, using Big Data to tease apart the complex interplay of environment, genes, and other factors in disease. They analyzed an insurance database of almost 45 million people in the United States, Patel explains, zeroing in on 700,000 pairs of non-twin siblings and 56,000 pairs of twins, in what is likely the largest study of twin pairs to date. Studying

identical twins is a common way to consider nature-versus-nurture questions because such siblings have identical genes and often grow up in the same environment. In typical twin studies, researchers must recruit participants and examine just one or two diseases at a time. But this massive preexisting database enabled Patel and his team to consider 560 different diseases at the same time.

"You have this huge sample size, which we all love in science," he says, "but these types of data are not meant for this work." Preparing the database for study was therefore a challenge. Because the data did not specify which siblings were twins, for example, postdoctoral fellow Chirag Lakhani, who led the analyses, isolated the twins by searching for family members born on the same day. The team also had to determine which twins were identical (with identical DNA) and which fraternal. Male-female twin pairs cannot be identical, but same-sex twins have an equal chance of being identical or fraternal. Working with colleagues at the University of Queensland in Australia, the Harvard team developed a statistical technique for estimating which of the same-sex pairs were identical. When they compared their findings with previous small-scale studies on twins and disease, "we found by and large that there was a strong correlation with the things that we were seeing," Patel says.

Of the 560 diseases studied, 40 percent had some genetic component, while the shared environment (elements such as air quality and aver-



age temperatures) played a role in at least 20 percent of the diseases. Unsurprisingly, most diseases involved a mix of genetic and environmental factors. But some conditions stood out for the strength of their genetic links, including pervasive developmental disorders such as attention deficit hyperactivity disorder, and psychiatric diseases such as schizophrenia or depression. In contrast, lead poisoning and eye diseases such as myopia and astigmatism were the most heavily influenced by environment.

The researchers acknowledge some gaps

## Some conditions stood out for the strength of their genetic links...

in their work. For example, all people in the study were covered by employer-sponsored health insurance, so at least one person in the family had a job, which made it complicated to sort out the influence of income on disease. “Trying to dig deeper into that question is a priority for us,” Patel says. In the future he hopes to do similar work with Medicare or Medicaid data, “which has coverage for people who would be facing health disparities.” Moreover, none of the subjects were more than 24 years old, so the study couldn’t capture how the influence of genes and environment might change as people enter middle age and beyond. Nor could the researchers explore how changes in an environment over time might influence health.

The work is important for confirming that large datasets can help researchers examine how numerous genetic and environmental factors interact at the same time, although Lakhani stresses that it takes painstaking effort to ensure that the data are used accurately. But the research also raises intriguing questions about additional disease factors. “For diseases that have neither a large shared environment, nor genetic, component,” Patel says, “we, the scientific community, need to get more serious about measuring specific environmental factors, such as diet, that can make twins different, or figure out how much is actually due to random chance.” ~ERIN O'DONNELL

CHIRAG PATEL GROUP WEBSITE:

**[www.chiragjgroup.org](http://www.chiragjgroup.org)**

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COMPASS



# JOHN HARVARD'S JOURNAL COMMENCEMENT 2019



## Women of the Year

CONCLUDING THE YEAR in which Harvard transitioned from its first woman president to its twenty-eighth man to hold the office, the University showcased a dazzling array of female leaders during the 368th Commencement, May 28-31. Their spheres of action ranged from the pinnacle of elected office to grassroots crusades for fundamental rights: the principal speaker, German chancellor Angela Merkel; president emerita Drew Gilpin Faust, an honorary-degree recipient; a public-interest lawyer; a labor organizer; the past president of Planned Parenthood; U.S. poet laureate Tracy K. Smith,

the health of the poor citizens of Flint, Michigan.

Their gender may have been irrelevant: the chance result of many Harvard tubs severally selecting apt speakers and honorands. But collectively, they and other important guests during the week conveyed a significant message about engaging in civic life, fighting for fundamental values, and—of increasing importance to the University and to that new president, Lawrence S. Bacow—modeling, and really *meaning*, service in some cause larger than oneself.

MUCH of the week was cool and gray—and perhaps a metaphor for the prevailing temperament.

Tuesday morning, the Phi Beta Kappans queued up for the annual Literary Exer-

**Clockwise from left: Bright-red clackers helped public-health degree candidates promote hand-washing; master's candidate Khadijah Fatima Qamar brought her son, Abdul Latif; and Lowell House residents (from left) Isabella Beroutsos of New York City, Xenia Viragh of Bangkok, Belén Mella of Sunny Isles Beach, Florida, and Alexandra Zaoui of London exulted. (Orange on caps promoted fossil-fuel divestment.)**

cises in Sanders Theatre, just in time to get moistened, to and fro. Poet Dan Chiasson, Ph.D. '01, knowing his audience well, presented them with a new poem titled "The Math Campers." Orator Eric Lander—faculty member, genomics pioneer, and founder and leader of the Broad Institute of MIT and Harvard—spoke seriously about science and knowledge. But his paean to discovery was anchored in concern about "failures of imagination," the inability to conceive "What could possibly go right? and What could possibly go wrong?" in the very contempo-

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

the chief marshal; and the brave pediatrician who exposed the lead water pipes that threatened





**Clockwise from top left:** Eliot House friends (from left) Brittney Deadwiler of Union City, California, Hilda Jordan of Utica, New York, Priscilla Badu of Alexandria, Virginia, Omobolanle Hambolu of Lawrenceville, Georgia, Makeda Daniel of Boston, Leah Ghebre Daniel of Randolph, Massachusetts, and Janae Keanna Strickland of Wayne, Michigan; new masters of public health Kayla Innis of Grand Rapids and Ryan Ortizo of Saipan, Northern Mariana Islands; the mortarboards of Matherites (from left) Leticia Ortega of Houston, Anshi Moreno Jimenez of Boston, and Ana Andrade of Saugus, Massachusetts; philosophy Ph.D. Daniel Haehn of Cambridge; Christina Taina Desert, M.Div. '19, of Meridian, Idaho; and a celebratory Kennedy School cohort

rary realms of genetic engineering (“modified babies with new traits”) and computer science/artificial intelligence/social media (enabling “some governments to become surveillance states” and the dissemination of “fake images, audios, and videos”).

Other figures returned to familiar Harvard haunts as well, to raise equally weighty concerns. Fiftieth-reunioner Al Gore ’69, LL.D. ’94—the College’s Class Day speaker on Wednesday afternoon, his *third* Tercentenary Theatre address—warned about climate change, his chief issue for a quarter-century. He earned cheers for advocating divestment from fossil-fuel holdings (as the Corporation and administration have declined to

of whom chanted “Divest—and reinvest” after earning their degrees). His larger theme was the national discourse. “Veritas—truth—is not only Harvard’s motto emblazoned on so many of these banners here today,” he began. “But it is also democracy’s shield, and the right to pursue truth is the most fundamental right of them all. That right is now at risk. And as a result, freedom itself is at risk.” Amplifying, he said, “Supporters of authoritarianism define loyalty to America’s core principles as treason against its new would-be sovereign.” A desire for more power “explains the appeal to

do; the cause is popular among students, some

would-be autocrats of multiple ‘bromances’ with extreme authoritarians—at least one of whom...has been allowed to sink his teeth into America’s democratic electoral process and play with it like a chew toy.”

At the Business School, Michael R. Bloomberg, M.B.A. ’66, LL.D. ’14, instructed the M.B.A.s-to-be that capitalism fared better when bosses treated their employees well, conducted themselves with



**Lawrence S. Bacow**



integrity, embraced philanthropy, and, yes, showed some awareness of matters like climate change.

But the real pride of place belonged to newcomers who did *not* exert leadership from past positions of power or (earned) wealth. Roberta Kaplan '88 told the Law School crowd that "As a closeted high-school student in Cleveland, Ohio, in the early 1980s; as a closeted college student here at Harvard in the mid 1980s; and as an only slightly-less-closeted law student at Columbia in the late 1980s," it had taken personal bravery for her to acknowledge her identity—and then to take on litigating *United States v. Windsor*, which undid the Defense of Marriage Act. Foreshadowing



**Roberta Kaplan**

Merkel, she said "[I]f you believe that it is possible to break, believe that it is possible to repair."

During a month when several states (including some with unaddressed crises in maternal health and infant mortality) acted to curtail or outlaw abortion, Cecile

Richards, former Planned Parenthood leader, told public-health students they must choose "the path of most resistance"—not simply practicing their chosen profession, but embracing activism: "I hope that every single one of you is thinking about running for office." Proving that successful advocacy need not depend on holding office, Mona Hanna-Attisha told the Medical and Dental School graduates Thursday afternoon that when she publi-

cized her findings about the poisoning of Flint's water supply (the result of a financial overseer's decision to save money), she was "met with denials and attacks," called "wrong" and "hysterical," and even

briefly regretted her decision to speak up. But she persevered because "Every single number in my research was a child, children that as a physician I have literally taken an oath to protect." And Radcliffe Medalist Dolores Huerta (honored on Friday, the fairest day of the week, the weather gods' gesture to the women of and at Harvard), proceeded against even longer odds, from a position of

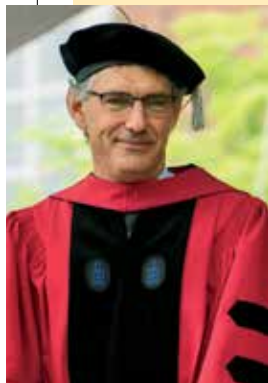


**Mona Hanna-Attisha**

## Honoris Causa

Five men and four women received honorary degrees. University provost Alan M. Garber introduced the honorands in the following order, and President Lawrence S. Bacow read the citations. Fuller background on each is available at [harvardmag.com/honorands-19](http://harvardmag.com/honorands-19).

Ingrid Daubechies, Duke Professor of mathematics and electrical and computer engineering, Duke University. Doctor of Science. Following in Fourier's footsteps, a brilliant mathematician enthralled by how things work; her wizardry with wavelets shows that manifold utility is the first derivative of theoretical ingenuity.



**Emmanuel Saez**

Emmanuel Saez, Chancellor's Professor of tax policy and public finance, University of California, Berkeley. Doctor of Laws. An economist extraordinaire whose studies, both theoretical and empirical, elucidate telling trends and animate crucial debate; as a scholar of inequality he has few equals.

William Chester Jordan, Dayton-Stockton professor of history, Princeton University. Doctor of Laws. Esteemed William of Orange and

Black, a magisterial figure in medieval history; surveying the ravages of the Great Famine, he has laid out a bountiful feast of erudition.

Dame Marilyn Strathern, Wyse professor of social anthropology emerita, University of Cambridge. Doctor of Laws. Intrigued by seeing how people live, inventive in subverting conceptual norms, an empathic ethnographer who crafts new lenses on the varieties and complexities of human experience.



**Dame Marilyn Strathern**

Lonnie G. Bunch III, founding director of the National Museum of African American History and Culture and secretary-elect of the Smithsonian Institution. Doctor of Laws. Eminent expositor of the African-American experience, fervent in efforts to lift every voice; he attests that for us to look honestly forward we must face the stony road of the past.

Wu Hung, Ph.D. '87, Vanderstappen Distinguished Service Professor in art history and East Asian languages and civilizations, University of Chicago. Doctor of Arts. From the

caves of Buddhas to the contemporary art scene, from the painted screen to the public square, he expertly illumines the vast sweep of Chinese art and enlarges our vision of visual culture.

David Remnick, editor, *The New Yorker*. Doctor of Laws. Prolific in profiling politicians and pugilists, adroit in eliciting his writers' best, intent and indefatigable in pursuit of truth, a journalist and editor whose work contains multitudes.



**David Remnick**

Drew Gilpin Faust, Harvard president emerita. Doctor of Laws. A luminous leader of this republic of learning, an opener of doors ever true to high ideals, a scholar of the past with a will to seize the future; out of many Harvards she drew one.

Angela Merkel, chancellor, Federal Republic of Germany. Doctor of Laws. Quantum chemist turned stalwart statesperson, resolute in devotion to democratic values; a wall came down and she rose up, leading her nation with strength and savvy and guiding Europe through challenge and change.



**Lonnie G. Bunch III**

even lesser authority, when she co-founded the United Farm Workers of America. She works with people, she said, who “may not speak English, they may not be citizens of the United States, they might be very, very poor....But the one thing is...that the power is in our person.”

WHERE DO PEOPLE find the strength to undertake the risky work of pursuing what’s right? General Mark A. Milley, Chief of Staff of the U.S. Army, told the ROTC cadets about the importance of character within an organized institution like the military

(see page 18). And student orators Genesis Noelia De Los Santos Fragoso ’19 and Lucila Takjerad, M.P.A. ’19, galvanized the Morning Exercises through with their personal journeys (from a Boston housing project and civil war in Algeria, respectively), abetted by family, friends, and strangers’ small acts of kindness. The messages of human diversity and humane inclusion could not have been embodied more strikingly.

Under cloudy but ideally comfortable conditions, especially for those swathed in academic duds, the honorary degrees conferred thereafter extended the metaphor—and reinforced the spectrum of issues on the University and world agendas. The exemplars recognized ranged from a stellar curator of the African-American experience and a social anthropologist who changed the understanding of gender to a leader in explaining economic inequality and a pre-eminent practitioner of factual journalism.

In his afternoon address, President Bacow, deliberately brief to reserve time for the guest speaker, outlined many of the challenges sounded during the week: “the coarsening of public discourse”; gun violence; “the existential threat posed by climate change”; and “the scourge of sexual harassment and sexual assault”—including at Harvard. Yet in his immersion in the University and its people he found a “spirit of hope—the willingness both to see the world as it is, and to consider how we can help make it better” through the action “of both knowledge and education at work in the world.” In place of the concerns about external threats to higher education that he voiced during his installation last year, he

seemed buoyed by examples of Harvard people engaged in bettering humanity—both for their innate value and for their role in justifying institutions like the University, in the face of continuing skepticism.



**Genesis Noelia De Los Santos Fragoso**

In her address, Chancellor Merkel if anything broadened that theme (see page 21). She recalled the Berlin Wall of her youth, when East Germany spied on its citizens and shot them as they sought freedom. And then, in 1989, “Something which many people, including myself, wouldn’t have believed possible, became reality”: the Wall came down, and,

she learned, “Anything that seems to be set in stone or inalterable can, indeed, change.” That opening of possibilities led to other life lessons she imparted—ones deeply aligned with the values of a university. In effect, she delivered not a program, but a comprehensive critique of fearmongering, inwardly directed nationalism, and other limiting habits of mind—newly prevalent, it went

without saying, in this country, and on the rise in her own.

The day before, Juan Manuel Santos, M.C./M.P.A. ’81, NF ’88, who was awarded the Nobel Peace Prize for his role as president in bringing Colombia’s horrific civil war to an end, had told his Kennedy School audience that “what seemed impossible became possible” in his country through “good will, perseverance, courage, adequate planning—yes—but above all, by recognizing each other as *human beings*.” Drawing on her very different life and leadership experience, Merkel told her huge audience, “Do we prioritize people as individuals with human dignity and all their many facets? Or do we see in them merely consumers, data sources, objects of surveillance? These are difficult questions. I have learned that we can find good answers even to difficult questions if we always try to view the world through the eyes of others. If we respect other people’s history, traditions, religion, and identity. If we hold fast to our inalienable values, and act in accordance with them.”

It seemed the perfect message, hard-earned, not only for the day and the place, but for these times, and the ages.

## They Said

**“I began to let that idea of myself go”**

*In his baccalaureate address, President Lawrence S. Bacow addressed an anxiety many students probably felt: “After years of amassing options, you are now faced with the prospect of having to exercise them—the act of walking down one avenue and necessarily forsaking others. Making these choices...can be unsettling, because for the first time in your life, you may feel as if your world is narrowing. I’m here to tell you, it’s not.” He then explained why:*

After I finished my second year of law school, here at Harvard, I started a summer job at...a law firm. Now, I had spent my entire life up to that point imagining that I would become a lawyer, just like my father. I thought it was what I wanted to do, and I knew it was what my father and other people expected me to do. One afternoon that summer, I was accounting for my billable hours, filling out a time sheet that broke every hour of my workday into six-minute increments—it is what lawyers do.



**President Bacow’s first baccalaureate**

9:00 to 9:06 – Finalize the deposition of Mrs. Jones

9:06 to 9:12 – Call Dr. Smith to review his expert report

9:12 to 9:18 – Continue to review expert report with Dr. Smith

9:18 to 9:24 – Summarize telephone conversation with Dr. Smith

You get the idea. Now, before I continue, I want to say that the law can be deeply interesting and that that form of practice can be deeply satisfying for many people.... I, however, had a totally different reaction to



this experience. In fact, as my pencil hovered over 9:24 to 9:30, that particular window in time (six minutes), my mind offered up a line from the T.S. Eliot poem “The Love Song of J. Alfred Prufrock”: *I have measured out my life with coffee spoons*;

That line repeated itself to me over and over and over—six minutes, six minutes, six minutes—and I realized that I was doing something because of what other people thought I should do and not, perhaps, what I thought I should do. When the summer ended, I began to let that idea of myself go, and started figuring out how I really wanted to spend the rest of my life.

Was it easy? Absolutely not. My father was not happy that I abandoned the law. In fact...I had to become president of Tufts before my father finally admitted that I made the right decision.

### “You’re to be judged by the content of your character”

*At the ROTC Commissioning Ceremony Wednesday morning, General Mark A. Milley, Chief of Staff of the U.S. Army, and President Donald Trump’s nominee as chairman of the Joint Chiefs of Staff, had blunt things to say about the qualities of leadership, within the military in a democracy—and beyond. The new ensigns and lieutenants would need to be extraordinarily competent as part of their obligation to the men and women looking to them not only for personal leadership but for evidence of competence and character.*



**General Mark A. Milley**

*Those troops “don’t want to follow someone who’s immoral, who’s out there doing things like lying, cheating, carrying on.... They’re looking to you to have the spine of titanium steel to stand up and do that which is right, even when it’s going to cost you your career... who is not afraid to speak truth to power no matter what the cost will be to yourselves. Someone who is honest, who has standards, and never, never, hides behind his soldiers.”*

*Enlisted personnel, he continued, are also “looking to you to be humble....” Referring to the ancient Greek concept of hubris, he said, “We see that in our daily lives all over the place: we see that in the military, we see it in politics, we see it in sports, we see it in commercial life.... We see people who really think that they are above everything else....” Military officers,*

*he noted, “take an oath—an oath that says, ‘I’m willing to die,’ an oath that says, ‘I’m willing to sacrifice’—and it’s not an oath to a king or queen or a dictator or a president or any individual. We don’t do that.... We...do not take an oath to a tribe, a person, a country, or a flag, or an individual. We take an oath to an idea embedded in this document called the Constitution of the United States. And it’s an incredibly powerful idea.... That idea has brought down tyrannies and dictatorships.... The idea that’s embedded in this oath—and that you’re willing to die for—it says that everyone under those colors of red, white, and blue—and that flag—every one of us is born free and equal, and...you’re to be judged by the content of your character, not the color of your skin.”*

### “The destination is freedom”

*On Class Day, Design School graduates heard Teju Cole, Vidal professor of the practice of creative writing, speak about professional ethics, and doors.*

Design is not an intellectual exercise. It comes with ethical burdens. The work you will go on to do from here...will in aggregate be influential. But the question of what kind of influence you will have is up to you. We face challenges and we need you to be a door for us.... There are those who agree to build prisons. There are those who agree to build detention camps. Oppression has always had great use for architects and designers and urban planners. Redlining was a technical skill. And everything that betrays our collective humanity depends on people just like you with skills just like yours.

Fascism in guises large and small requires signage and advertising. It requires vivid design and the architecture of enmity. History assures us that many, many people get swept up in the flood of its seduction. Will you be one of those who refuses to participate? Even when you know that there will be no medals for your refusal? Even when you’re assured that your refusal will only earn you mockery, poverty, or worse? You are the makers. I want to dream for you, and implore of you, a participation in a making worthy of your skills....

[E]xpertise is not the destination.... The



**Teju Cole**

## The Personal President

*In a year of rather stern speechifying about political polarization and the need to engage on such divisive issues as access to abortion and controlling climate change, President Bacow had serious things to say (see page 17). But he also indulged in some asides that revealed a quick wit that appears often in private conversations, the long-established ties that preceded his move into Mass Hall, and a bit about his cultural roots.*

Introducing the honorary-degree recipients at the annual Wednesday dinner in Anenberg Hall, he noted that he had the “distinct pleasure of sharing initials” with the first: museum leader Lonnie Bunch. And of economist Emmanuel Saez, said Bacow (holder of four degrees in economics, law, and public policy), the Berkeley professor was known as “a shy data jock—by the way, I can relate to that.”

When Daniel Fenn ’44, A.M. ’72, received his Harvard Medal Thursday afternoon (see page 68), reflecting 75 years of alumni service, the president went off script to recall meeting the honorand when Bacow was “a 20-year-old graduate student at the Harvard Kennedy School in 1972.”

And as someone who speaks openly about his Judaism and roots in Jewish culture (the chaplain of the day Thursday morning was the Bacows’ rabbi, Wesley Gardenswartz), it was both natural—and very funny to those who have seen her work, most notably during the \$9.6-billion Harvard Campaign—to hear Fenn’s fellow medalist Tamara Elliott Rogers, former vice president of alumni affairs and development, described as wielding “just the right balance of *chutzpah* and humility.”

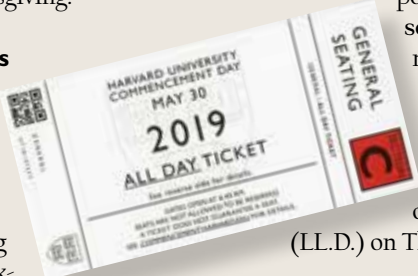
# Commencement Confetti

## Better to Receive?

Before the work of *conferring* thousands of degrees, President Lawrence S. Bacow received one, on May 20, from Yale—continuing a kindly Harvard-Yale (and Princeton) custom. Hailing him as the “vanguard of veritas,” as a champion of higher education, the citation said “you have acquired a *shem tov*—a good name—by acting with wisdom and integrity.” (Bacow has used the term, one he no doubt cherishes, in some of his speeches.) Lest the lovefest go too far, Yale’s program notes wished “adventure, joy, and fulfillment—on all days except the Saturday before Thanksgiving.”

## Technoprogess

Last year, Commencement tickets got a scannable QR code. For 2019, the separate morning and afternoon tickets morphed into a single “all-day” version. Given the adoption of online balloting for Overseers and Alumni Association directors (see page 71), progress toward e-ticketing for Harvard’s Big Day seems inevitable, if gradual. Maybe by the 400th?



## Tandem Honorands

After president emerita Drew Gilpin Faust received an honorary degree Thursday morning, her close collaborator Tamara Elliott Rogers ’74, former vice president of alumni affairs and development, became a Harvard Medalist during the afternoon ceremonies. The two worked together at Fay House, when Faust was Radcliffe Institute dean, and then in Mass Hall. And at the Phi Beta Kappa Literary Exercises on Tuesday, the poet was Dan Chiasson, Ph.D. ’01, poetry critic for *The New Yorker*. His boss, editor and author David Remnick, received an honorary doctorate (LL.D.) on Thursday.

## The Fay Prize

The Radcliffe Institute bestowed the Captain Jonathan Fay Prize for outstanding undergraduate theses on three precocious seniors, drawn from the 72 Hoopes honorands recognized for outstanding scholarship: Mark Czeisler (son of Charles ’74, Baldino professor of sleep medicine), for neurobiological research on mammals’ circadian rhythms; Manuel Medrano, an applied mathematician, for

work on deciphering khipus, the knotted Incan recordkeeping devices; and Anwar Omeish, a social-studies concentrator, who analyzed the political philosophy of Frantz Fanon.

## Get Your Program!

In a largely humor-free Commencement week, *The Harvard Lampoon* engineered one hack, handing out a “Program & Coupon Book” Thursday morning as ticket-holders lined up to enter the Yard. Contents, among the ads, included a send-up of the *Crimson*’s senior survey; alternate lyrics for “Fair Harvard”; and a schedule of the day’s events (from “Graduation carolers will wake up grad-



**MADAME CALLER.** During a Commencement that featured many women leaders, Harvard made its own gesture toward gender equity. Watts professor of music and professor of African and African American studies Kay K. Shelemay served as Commencement Caller, the first woman in the thankless role of mustering unruly students, faculty members, alumni, administrators, and honorands for orderly procession from the Old Yard into Tercentenary Theatre. However she prepared, it worked: the Morning Exercises went off with clockwork precision.



**SPECIAL SONG—AND SINGER.** Absent the regular Faust-era artist/entertainer honorand, there was still a pop-up performance. As Lonnie B. Bunch III was about to receive his degree, singer Davóne Tines ’09—in a smashing chalk-stripe suit and Harvard bow tie—emerged from the wings to deliver “Lift Every Voice and Sing” (often considered the “Black National Anthem”) in tribute. The title and a line from the lyric (“Stony the road we trod”) both figured in Bunch’s citation (page 16).



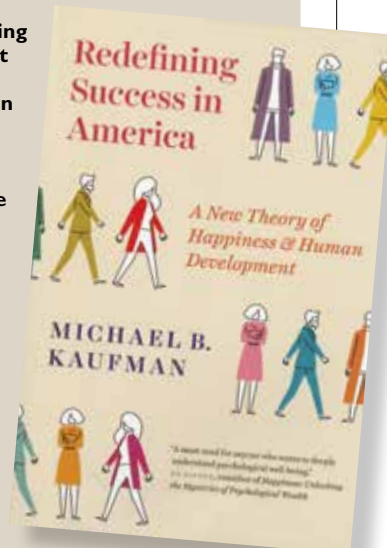




SUSAN YOUNG PHOTOGRAPHY

**REUNIONS BEYOND THE ROUTINE:** Reunions typically feature face time with old friends and familiar faculty members; drinks; and panels on new ways in which the world has gone to hell in a handbasket. But occasionally they can turn into something akin to the learning experiences of one's youth. On May 25, the Harvard Art Museums debuted "Prince Shōtoku: The Secrets Within," an exhibition focused on the diminutive sculpture of the prince, depicted at age two, at a miraculous moment: the purported arrival of Buddhism in Japan. The associated scholarship details the remarkable contents secreted within the statue, intact and dated to 1292, acquired as part of a promised 2006 gift from Walter C. Sedgwick '69 (his grandfather Ellery Sedgwick, A.B. 1894, owner-editor of *The Atlantic Monthly*, purchased it in 1936). Visiting the gallery in lieu of reunion events, Walter Sedgwick said his highest aspirations for seeing the work used in a teaching-museum context had been more than fulfilled.

Separately, the fifty-fifth reunion dinner on Tuesday evening heard a presentation on a new book, *Redefining Success in America* (University of Chicago), by Michael B. Kaufman, M.B.A. '94, now a psychologist. He exhumed records from the legendary Harvard Student Study, based on members of the classes of 1960 and 1961—including Stanley King's in-depth interviews with 49 young men—and, during the past 15 years, followed up with many of them. His resulting theory of happiness and human development looks beyond the pursuit of status and wealth to the factors that determine a fulfilling life: mutually beneficial relationships; awareness and pursuit of one's own goals; and capacity to deal with serious setbacks. The class members' lived experience perhaps suggested as much, but Kaufman's talk was the first formal outreach by researchers to share the findings with the subjects who made it possible.



uating seniors with jolly tunes about the value of education," at 5:00 A.M., to a description of Morning Exercises as "a 3 mile swim and a 2 mile jog," and on from there).

### Keeping 'em Caffeinated

Having sold a reported 2,000 cups of coffee to not-yet-awake Commencement-goers last year from a serving station near Boylston Hall, the budding entrepreneurs from Harvard Student Agencies doubled down this year, with a second location at the Meyer Gate/Science Center entrance to the Morning Exercises. Still, no cup-holders on the folding chairs in Tercentenary Theatre.

### Where They're Headed

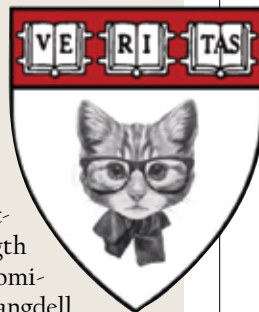
The *Harvard Crimson's* annual senior survey—distributed to 1,542 members of the

class of 2019, of whom 717 responded—yielded results, especially about employment, closely matching the past several years' surveys. Of respondents heading off to work, nearly *half* will report to duty in three industries—consulting (18 percent), finance (16 percent), and technology (14 percent)—the newspaper reported. Sixteen percent of respondents among

those newly admitted to "the fellowship of educated individuals" are gluttons for punishment: they are entering graduate or professional school directly. And the class as a whole is a *strongly* coastal cohort, heading in much greater numbers to New York (23 percent), Massachusetts (21 percent), and California (14 percent) than to the heartland, where Harvard has been trying to develop and promote its ties.

### Feline Fail

Despite the obvious diversity implications (no nonhumans were represented) and the strength of the case (the nominee "hangs out at Langdell Hall...inspiring and comforting students"), a Law School petition that Remy the cat be granted an honorary degree was unaccountably ignored. As this issue went to press, a dignified Remy declined to comment.



### TAURUM RUBRUM: PRODUCT PLACEMENT

As Latin Salutatorian Kabir Gandhi '19 so aptly put it in his morning address, "*Bibliothecae autem—et nimirum officinae alchimicae—constantes stant. Primo, eas in arces mutavimus, in quibus noctu solitudine lucubravimus (et multum 'Taurum Rubrum' bibebamus).*" For those who lack his facility in Latin, Mandarin, and English: "Our libraries, however, and indeed our laboratories, stand unshaken. At first, these spaces were our fortresses, in which we worked through the night to finish our tasks in solitude (and while we were at it drank plenty of Red Bull)."

destination is freedom. What can we do to free others ...[H]ow do we become a door for others to pass through...to get from here to there?

### “Every change begins in the mind”

*Chancellor Angela Merkel drew on the fall of the Berlin Wall to begin telling the graduates and their guests about the possibility of making a better world:*

Anything that seems to be set in stone or inalterable can indeed change. In matters both large and small, it holds true that every change begins in the mind.

My parents’ generation discovered this in a most painful way. My father and mother were born in 1926 and 1928. When they were as old as most of you here today, the betrayal of all civilized values that was the *Shoah* and World War II had just ended. My country, Germany, had brought unimaginable suffering on Europe and the world. The victors and the defeated could easily have remained irreconcilable for many years. But instead, Europe overcame centuries-old conflicts. A peaceful order based on common values, rather than supposed national strength, emerged. Despite all the discussions and temporary setbacks, I firmly believe that we Europeans have united for the better. And

the relationship between Germans and Americans, too, demonstrates how former wartime enemies can become friends. It was George Marshall who gave a crucial contribution to this through the plan he announced at the Commencement ceremonies in 1947 in this very place. The transatlantic partnership based on values such as democracy and human rights has given us an era of peace and prosperity, of benefit to all sides, which has lasted for more than 70 years now...

Changes for the better are possible if we tackle them together. If we were to go it alone, we could not achieve much. The second thought I want to share with you is, therefore, more than ever, our way of thinking and our actions have to be multilateral rather than unilateral. Global rather than national. Outward-looking rather than isolationist. In short, we have to work together rather than alone.

*She posed the problem of taking action because it is the right thing to do, or simply because it is possible, and cautioned the graduates not to*

*... always act on our first impulses, even*



Angela Merkel

when there is pressure to make a snap decision. But instead take a moment to stop, be still, think, pause. Granted, that certainly takes courage. Above all, it calls for truthfulness in our attitude toward others. And perhaps most importantly, it calls for us to be honest with ourselves. What better place to begin to do so than here, in this place, where so many young people from all over the world come to learn, research, and discuss the issues of our time under the maxim of truth? That requires us not to describe lies as truth and truth as lies. It requires us not to accept shortcomings as our normality. ▢

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### “The Duties of Imagination”

Scholarship “is arguably the most transformative force in the world,” said Broad Institute president Eric Lander at the 2019 Phi Beta Kappa Literary Exercises. Poet Dan Chiasson, Ph.D. ’01 (at left), read a poem specially written for the occasion.

[harvardmag.com/pbk-19](http://harvardmag.com/pbk-19)



### “Be the Voice of Health”

Pediatrician Mona Hanna-Attisha, who first exposed lead poisoning in the water of Flint, Michigan, inspires Medical School graduates.

[harvardmag.com/hanna-attisha-19](http://harvardmag.com/hanna-attisha-19)



### Dolores Huerta on the Power to Change

The labor activist talks about her life’s work: convincing ordinary people that they have power.

[harvardmag.com/huerta-19](http://harvardmag.com/huerta-19)

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### Truth, in Crisis

Al Gore’s fiery Class Day speech delivered an analysis of the nation’s current state of affairs, a history lesson, and a call for Harvard to divest its endowment from fossil fuels.

[harvardmag.com/gore-19](http://harvardmag.com/gore-19)

CLOCKWISE FROM TOP RIGHT: JIM HARRISON; TONY RINALDO; STEVE LIPOFSKY/HARVARD MEDICAL SCHOOL; JIM HARRISON





## Eating Greener

*Dining...and learning*

IT STARTED with apples. In the 1990s and early 2000s, Harvard University Dining Services (HUDS) focused on small changes to the food-buying process as it sought to become more sustainable. What kinds of foods could it buy locally? Apples worked. “It was sort of, maybe pun-intended, the low-hanging fruit,” said HUDS director of strategic initiatives Crista Martin.

But there came a point when it had done all the easy stuff. HUDS was buying from plenty of local companies, but in a traditional manner: when a product was available, Harvard bought it; when none existed, HUDS sought it elsewhere. “But when

we wanted to expand that and change the paradigm a little bit, it required a lot more work,” Martin said. Today, HUDS follows principles from the Menu of Change Initiative, developed by the Culinary Institute of America and the Harvard Chan School of Public Health, and the Sustainable and Healthful Food Standards released by Harvard’s Office for Sustainability in April. Both encourage more plant-based products and less inhumanely produced meat.

HUDS still purchases from local vendors, but now, it wields more influence—requesting changes from vendor companies to *make* products sustainable. “We’re about to talk to our chicken supplier and say, ‘Listen, when are you going to start making these changes to your product?’” said HUDS

**HUDS leadership meets with Red’s Best CEO Jared Auerbach in the organization’s headquarters on Boston Fish Pier.**

**From left to right: David Davidson (HUDS managing director), Bruce Calvert (director for residential dining operations), Martin Breslin (director for culinary operations), Jared Auerbach, Crista Martin (HUDS director for strategic initiatives and communications), and Akeisha Hayde (executive chef for residential dining)**

managing director David Davidson, over lunch in Dunster House’s dining hall (see Harvard Portrait, May-June 2018, page 17). HUDS does not purchase meat of chickens that have ingested antibiotics, and its eggs are certified cage-free, but it can still push its vendors toward more humane practices, like leaving bales of straw for chickens to peck—a diversion from the cramped, stimulus-free environment chickens endure in many factory farms.

In fiscal year 2018, HUDS served 2,731,078 meals to undergraduates. In a week, it buys about 1,600 pounds of fish. During the academic year, students consume 15 to 20 tons of squash. Dining services are not subsi-

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dized by Harvard; funds come from the meal plans of Harvard's undergraduates, which are required for all students living on campus. With a set amount of revenue each year, and a population of opinionated student-customers from around the world, HUDS pursues steps that will improve taste and quality and, increasingly, lessen the environmental impact of its food.

In doing so, HUDS hopes to expand a Harvard education into the dining halls, doing its best to engage students in the nuances of the food they eat, and reflect student values in its menu. When no good options exist, HUDS works with its partners—at Red's Best, Commonwealth Kitchen, Costa Produce, and others—on long-term solutions. And when Harvard finds a solution, other universities follow.

HARVARD, as noted, buys lots of fish. In the winter, when local produce becomes scarcer, it is a good way to continue to "buy local" and show students what it means to eat in New England, Martin said. But fish, and fish stocks are unpredictable—and when feeding thousands of consumers at every meal, unpredictability, both in price and quantity, poses challenges.

Jared Auerbach, founder and CEO of Red's Best, a wholesaler for small, independent fishermen, struggled too with what he called "a misalignment of supply and demand." For years before he started selling to Harvard, he discussed with HUDS what a modern local fishery looked like. What are the challenges, and how could large-scale, influential buyers like Harvard direct their purchases to have a positive effect on the system? "We have this beautiful, amazing fishery right now where we're interacting with Mother Nature in this beautiful appropriate way," Auerbach said. "But that leads to what you'd expect from Mother Nature, which is unpredictable and everchanging and unknown." Buyers, accustomed to just a few types of fish, may want haddock on a day when a fisherman catches hake. The disparity can lead to purchasers looking thousands of miles away for overharvested fish, which are environmentally unfriendly to catch and to ship.

The solution: *variable* fish, but at a *fixed* volume and price point. What Harvard gets depends on the weekly catch—hake, haddock, skate, dogfish, or monkfish. "And when we buy those underutilized species, it means the fisherman gets a living wage for his fishing

## HARVARD PORTRAIT



### Alexander Rehding

**The son** of a dentist and a psychologist, Peabody professor of music Alexander Rehding thought he'd end up in the medical field. After finishing high school in Germany, he worked in a home-care center—a way to serve his country in lieu of required military service—and realized that field was not for him. Eager to study abroad, he applied to the University of Cambridge. Russian was his favorite subject, but he figured studying it in England would be strange. "And so, I thought, 'Music isn't bad!'" He was a trombonist and pianist, but didn't know much about Cambridge's world-renowned music program. "I was incredibly naïve." To his surprise, he got in. The first three years presented a rigorous and narrow view of music theory, but when he returned for a master's, everything opened up. "It was sort of this flood of new stuff that I was confronted with that I had no idea existed," he recalls. Moving to the United States after a decade in England continued the flood of ideas, including the concept of American football. He met his neuroscientist husband at a Super Bowl party in 2004 after taking a position at Harvard. (They have two kids now, but still know nothing about football.) Though some would consider his work highly interdisciplinary, Rehding prefers to view music as a broad field, and says he'll never be a specialist. He's produced scholarship on ancient Greek and Egyptian music, Beethoven's Ninth Symphony, and modern sirens. "I have a very short attention span," he explains. "I get bored very easily." He lets an interest percolate in the background until he feels compelled to write about it. "I'm super excited about whale song at the moment," he says. "I don't know where that's going to take me."

—JACOB SWEET





**Harvard dining-hall employees take a vegan culinary training class.**

trip," Davidson said. "It means he can earn a living because he can sell everything that he touches—not just the cod." To adjust to a variable product, HUDS director for culinary operations Martin Breslin and residential dining executive chef Akeisha Hayde prepared recipes that can work for several similar fish. The dining halls often display photos and bios of those who caught the catch of the day. Once the program worked at Harvard, other schools started picking it up. It's been adapted by Cornell, Yale, Northeastern, and even K-12 public schools.

of winter squash—a thick-skinned squash that stores through the cold months—from Ward's Berry Farm in Sharon, Massachusetts. "We'll take whatever they harvest off that acreage there," Davidson said. If a farmer produces an extra 50 cases of swiss chard, Jim Elise, who works on Harvard's account with Costa Produce, will let HUDS know and they will usually take it in, he said. Breslin and Hayde can adjust the menu quickly, giving local farmers latitude to produce more than they planned. Costa responds as well, washing, soaking, and cutting the extra pro-

duce to HUDS' specifications for a specific dish. During peak periods of growth, 70 percent of Harvard's produce is grown locally.

It's not just a matter of buying what's available, though. Massachusetts ranks forty-seventh in agricultural production in the United States. Instead of accepting low production as a given, HUDS helps farmers produce more crops. Recently Harvard, along with Tufts University and Boston College, received a \$250,000 grant from the Henry P. Kendall Foundation to incentivize small-scale area farmers to expand their acreage of farmland in production. Sometimes farmers aren't using all of their available land, or not using it effectively, because they need something, Martin said. If HUDS can get these farmers to build a greenhouse, get better equipment, or improve their irrigation systems, it means more local produce for Harvard and the whole region.

The local outreach isn't limited to fish and produce. Many of the products it serves—from specialty sauces to hummus and apple crisps—come from Commonwealth Kitchen, a nonprofit food business incubator in Dorchester, Massachusetts. Commonwealth Kitchen executive director Jen Faigel said that she talks with HUDS about what dining-hall items it would like to add or adjust, and then seeks a solution through one of its business owners. When a local farmer had too much arugula and kale in a saturated market, for example, Commonwealth turned the greens into a pesto, and sold it to the University. Faigel said it often looks to Harvard when one of its business owners—often low-income women and immigrants—is seeking a buyer for specialty sauces: Indian simmer sauce, African peanut sauce, or Haitian pikliz. With a sizable cosmopolitan population to feed, HUDS appreciates getting access to international flavors produced just a few miles away—while supporting local enterprises and reducing the financial and energy costs of shipping.

MARTIN AND DAVIDSON aren't trying to do away with people's favorites. Davidson said the process is more about having a balance. If a short-rib special is on offer one night, the menu will also include an enticing vegetarian alternative, like portabella mushrooms. Martin said some of the most positive feedback HUDS gets from students involves well-seasoned vegetable dishes, like chili-roasted green beans, buffalo cauliflower, and edama-

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### **Masha Gessen on the Stories We Tell About Migration**

The Russian-American journalist challenges "moral defaults" about immigrants.

[harvardmag.com/gessen-tanner-19](http://harvardmag.com/gessen-tanner-19)



### **Education for the Public Good**

A Harvard summit probes how to meld universities' academic and external aspirations.

[harvardmag.com/higher-ed-summit-19](http://harvardmag.com/higher-ed-summit-19)



### **Lowell, Not Coming to Dinner**

Because of his role in exclusionary policies at Harvard, Abbott Lowell's portrait will no longer hang in the eponymous House dining hall.

[harvardmag.com/lowellportrait-19](http://harvardmag.com/lowellportrait-19)

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FROM TOP: TIA ANN CHAPMAN; HARVARD MAGAZINE; HANTSHEROES/WIKICOMMONS

me pot stickers. If people want to pursue a vegan diet, HUDS's goal is to make it easy. If someone wants a double burger off the grill, that should be an option, too. Martin hopes that, in time, some of the double-burger fans will perhaps make it a double Beyond Burger—a plant-based patty that resembles the real thing.

Consumers' decision-making ultimately depends on what they know, and education is central to HUDS's mission. Students who don't know what a Beyond Burger is will be less inclined to try one. If they are made aware of where the dining halls' squash comes

from, they have learned something about local sourcing and the energy use inherent in the food supply. A lot of that education is done through the Food Literacy Project, HUDS's food-education initiative, which employs a student from each House as a fellow. The fellows, along with the program's manager, host more than 100 events a year on campus, from guest lectures and discussions with chefs to cooking classes and farm tours.

Part of teaching students is exposing them to what the options are; another is giving them a voice in the process. HUDS first introduced Beyond Burgers in Annenberg, where students were asked to try them out and decide whether they wanted to see them more often. Most said yes, and the burgers are here to stay. When Davidson hears requests for items not on the menu, he sometimes pitches the proposal to other students, because a static budget means that any addition comes at the cost of something else. Would students sacrifice cookies and brownies for a fresh fruit bar another night of the week? The answer so far, he said, is no.

Students have also played a vital part in Food for Free, a food-recovery program that donates food to community groups throughout the Greater Boston community. Four days a week after dinner, students pack any unused food into individual meal containers; it is then shipped across the Boston area. In 2015, the program's first year at Harvard, HUDS donated approximately 55,000 pounds of food. The 2017 and 2018 totals were slightly above 25,000 pounds each—a decrease Martin attributes to better-planned and more efficient meal production. When



**Student volunteers package excess food for Family Meals, a program through Food For Free that offers individual meals to those in need.**

the program worked at Harvard, HUDS employees let other institutions know how to integrate it into their own dining programs, said Food for Free executive director Sasha Purpura. "They've brought people in and met with them to talk through how it works and why it's safe, how it is not a significant hit on staff time...and their willingness to share has successfully encouraged others to begin the food-donation program."

IN THEIR HUDS ROLES, Martin and Davidson try to be more proactive than reactive. Davidson recalled the challenge the dining halls went through in the fall of 2011 when student activists campaigned for cage-free eggs. HUDS ultimately obliged, costing the program an additional \$100,000, according to former assistant vice president for campus services Ted Mayer. Today, HUDS uses the Menus of Change Initiative as a roadmap for improvements, trying to make adjustments with its vendors continuously, pushing for a plant-forward menu with more humanely

treated animal products before there is external pressure to do so.

"It sounds really simplistic and silly, but I'm really into the stuff that works," said David Havelick, sustainability manager at the Office for Sustainability, which works with HUDS on its long-term food vision. The University can go all-in on veggie burgers, he points out, but if no one eats them, there's simply more wasted food. He recalled a time when the University tried going meatless one Monday—only to see meat consumption triple the next day.

HUDS doesn't foresee any time limit to improving its environmental footprint. It has seen how its initiatives have worked out at Harvard and other schools, and it hopes to keep building on its work. "I think we're beginning to recognize that food is sort of a universal medium for conversation, for discussion, for learning," Martin said. "No matter what your area of expertise or interest, you have the capacity to engage the system and make it better." ~JACOB SWEET

## Educating Educators

BRIDGET TERRY LONG had the good timing to become dean of the Harvard Graduate School of Education (HGSE) on July 1, 2018—the same day that the education-minded Lawrence S. Bacow assumed the University presidency, making for a powerful potential partnership. In fact, her timing was dually deft: she assumed her new responsibilities 18 months before the school's centennial year, in 2020. That presents a nat-

ural occasion to celebrate its past and reflect on its future in an era, she said in a late-April conversation, when people are "desperate to improve education, address achievement gaps, and make better policy." Educating the professionals who can help effect such changes lies at the core of HGSE's mission. Enhancements in how it does so are likely to be at the core of her tenure.

Long, who earned her Ph.D. in economics from Harvard in 2000 and joined HGSE's faculty then, helped lay the foundation for her



deanship by serving as academic dean for her predecessor, James E. Ryan (now president of the University of Virginia), from 2013 to 2017 (when she returned to research for a year).

During that period, a wave of retirements led to significant hirings: a generational renewal, with the arrival of 16 new core faculty members within HGSE's cohort of 70 to 80 scholars and professors of practice. The pace has abated somewhat, Long indicated, but the school remains in the market, bolstering its practitioner-professor ranks this academic year and filling gaps created by the retirement of such senior colleagues as Pascucci professor of practice in learning differences Tom Hehir, an expert on special education and students with disabilities.

Just before Ryan stepped down, he and current academic dean Nonie Lesaux wrote that the faculty had voted to approve a "new framework" for HGSE's master of education (Ed.M.) program, in part by "elevat[ing] the status of the education profession by defining its key aspects, including core knowl-

would "move forward with designing, piloting, and evaluating the components of this redesigned master's program."

That crucial work, Long indicated—a "commitment to getting better" atop current program strengths—is now under way, based on her colleagues' commitment to a "shared mission to think seriously about how we can

semination of colleagues' research; and the "collective impact" of networks of graduates working in a school system together, faculty members collaborating, and research ties being enhanced across the University. Long is especially interested in entrepreneurial faculty members' partnerships with other local institutions, on at least a couple of

## By "reinventing" its teaching, HGSE can deliver "what educators need to be most effective."

contribute to the state of education." She accordingly listed "the education we give our own students" as her first academic priority: "reinventing professional learning" in the field to assure that HGSE is delivering "what educators need to be most effective."

As the faculty reaches decisions and prepares to begin piloting changes perhaps a year hence, she will oversee the work with an eye on the centennial: thinking about what HGSE people have historically effected, and the chal-

lenges of its second century. Conferring with colleagues, Long said, had taught her more about the school's foundational contributions in fields ranging from human development, moral and social development, and leadership to the role of the arts in education: evidence of "our history as a launching pad" and as a source of expertise and practice for constituencies across the nation and worldwide who are

"interested in engaging with these ideas." "Interested in engaging with these ideas." dimensions. One is viewing education as a pipeline, with "better hand-offs" from early-childhood education to proficient learning to higher-level skills. Another is reaching out to the presidents of Roxbury and Bunker Hill Community Colleges and the University of Massachusetts, Boston, to learn about their challenges, as well as to other area schools of education to explore opportunities to cooperate.

As for the substance of the work, Long said, "so much of our history of K-12 education" in the United States has been a search for "silver bullets"—single solutions to perceived problems. That has rarely worked, and seems ever less likely to succeed as the student population becomes more diverse, and as the differences among local communities (their resources, their populations' socioeconomic status) become ever more profound. But faculty members know "ways we can actually improve literacy, or improve supports for teachers in their professional development." HGSE, she said, is regularly engaged in helping communities to understand the trade-offs inherent in the decisions they make to try to close achievement gaps, she said, or to collect and assess data in order to evaluate outcomes. This is fine-grained, expert work, she suggested, "not plug and play."

Clearly, Long is aiming for an HGSE centennial year of community reflection, outward extension, and campus curricular change. Along the way, during her first months as dean, she has found that the school's people and programs "exceeded my expectations in really positive ways." Looking forward, she hopes to "expand, double down, and deepen our impact."



**Bridget Terry Long**

edge and skills that all educators should have." That suggested no small project: identifying the "core skills, knowledge, and ways of thinking that are central to the profession of education," and embedding them in 13 separate Ed.M. tracks that range from arts in education and education policy and management to human development, language and literacy, learning and teaching, and more. In effect, faculty members were committing themselves to rethinking education and teacher preparation as a profession. The Ryan-Lesaux memo said the school

In operating terms, she is emphasizing ways to augment "our impact beyond Harvard Square." Her own work, on access to higher education, financial aid, and outcomes for lower-income and underprepared students (read more at [harvardmag.com/long-18](http://harvardmag.com/long-18)) resulted in changes in policy and practice, she recalled, and "many people at the school do that" through their work.

She is using her new office to elevate such outreach through multiple channels: professional education for practitioners and policymakers (online and in person); dis-

She joined him last September during his visit to Pontiac and Detroit, Michigan, underscoring Harvard's engagement with communities far from the coast (see [harvardmag.com/bacow-michigan-18](http://harvardmag.com/bacow-michigan-18)). By its very nature, HGSE is training graduates who are already on the ground in such places (Detroit's new school superintendent is an alumnus and, Long noted, "one of my students").

"You could pick almost any place," she continued. For example, alumni are at work in school systems in rural America, a new focus of interest, analyzing how students in relatively isolated, small communities, with limited resources, can succeed as learners. "Hey, we're there," she said. "This is what we could build from. We'd love to do more."

~JOHN S. ROSENBERG

## News Briefs

### Faculty-Dean Denouement

DURING the Faculty of Arts and Sciences (FAS) meeting on May 7, President Lawrence S. Bacow was asked his views on the turmoil at Winthrop House, where student protesters had loudly sought the ouster of their faculty deans, Ronald S. Sullivan Jr. (who had decided to represent movie producer Harvey Weinstein in the criminal proceedings concerning his alleged sexual assaults and harassment involving many

women) and Stephanie R. Robinson. Bacow said he would respect the "locus of authority" responsible for making such decisions: in this case, the deans of Harvard College and of FAS.

Those authorities made their decision known on May

### Ronald S. Sullivan

11, when College dean Rakesh Khurana advised the Winthrop community that the faculty deans "will not be continuing" in that role after their current term ends on June 30, 2019.

Having previously initiated a review of the "climate" within the House—a review Sullivan was quoted as calling racially biased (see "Coming to Terms

## Yesterday's News

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

**1924** In a likely first for Harvard, mother and son Martha Brown Fincke, M.Ed. '24, and C. Louis Fincke '24 receive degrees at the same Commencement.

**1939** Modern pedagogy is well represented in the Summer School: J.R. Brewster '25, of the Harvard Film Service, offers for the first time a course in the development of visual education, with special emphasis on audiovisual aids.

**1944** After two years on campus training 6,500 "sky pilots" of all faiths for active service with U.S. troops, the Army Chaplain School departs for Fort Devens.

**1949** Decanal records reveal that the 50-member football team set a scholastic record during the previous spring semester: placing almost half its men on the Dean's List. Most of the rest showed up in the C category. A total of 205 courses revealed only one E and nine Ds.

**1954** A 16-year-old camp counselor asks President Pusey's office for help in winning his camp's College Competition. Rival cabins had received stickers and photographs from Duke and Notre Dame, and stickers and a yearbook from Georgia Tech. Harvard's stickers, pennants, a copy of *The Harvard Book*, "miscellaneous Harvard novels and stories," copies of the *Bulletin* and the *Crimson*, and photographs help Cabin H win first prize.

**1974** More than 2,000 people, many of them students, gather in Harvard Square on the evening of August 8 to mark Richard Nixon's announcement that he will resign the next day.

**2004** Following the legalization of gay marriage in Massachusetts, professor of comparative religion and Indian studies Diana Eck and University chaplain Dorothy Austin, the heads of Lowell House, take their vows in Memorial Church on July 4.

**2009** As the result of "an unfortunate set of circumstances" (as described in an official statement), Fletcher University Professor Henry Louis Gates Jr. is arrested at his home by a Cambridge police officer; ensuing controversies eventually lead to a "beer summit" at the White House.



Illustration by Mark Steele



with Sexual Harassment,” May-June, page 22)—Khurana wrote that his decision to end the faculty deans’ service “was informed by a number of considerations. Over the last few weeks, students and staff have continued to communicate concerns about the climate in Winthrop House to the College. The concerns expressed have been serious and numerous. The actions that have been taken to improve the climate have been ineffective, and the noticeable lack of faculty dean presence during critical moments has further deteriorated the

climate in the House. I have concluded that the situation in the House is untenable.”

The decision was difficult, he continued, because “I have long admired your faculty deans’ commitment to justice and civic engagement, as well as the good work they have done in support of diversity in their House community. I know that some of you are also proud of these efforts. I also know that some of you have been greatly helped and supported by your faculty deans in difficult situations. This decision in no way less-

ens my gratitude to them for their contributions to the College.”

Khurana and FAS dean Claudine Gay then met with students in the Winthrop dining hall at midday to discuss the decision, answer questions, and point toward House leadership during the forthcoming period of transition.

Separately, the day before, Sullivan advised the court that he was stepping down as Weinstein’s counsel, because the trial date, rescheduled for September, conflicts

## University People

### National Academicians

In a year in which 40 percent of its newly elected members were women, a new high, the National Academy of Sciences announced 100 new members, including nine Harvard professors: Joanna Aizenberg, Berylson professor of materials science and professor of chemistry and chemical biology; Cynthia M. Friend, Richards professor of chemistry and professor of materials science; Daniel



COURTESY OF DAVID I. LAIBSON

**David I. Laibson**

Kahne, Higgins professor of chemistry and chemical biology and of molecular and cellular biology; David I. Laibson, Goldman professor of economics; Matthew Rabin, Pershing Square professor of behavioral economics; Bernardo L. Sabatini, Moorhead professor of neurobiology; Zhigang Suo, Puckett professor of mechanics and materials; David R. Williams, Norman professor of public health and professor of African and African American studies; and Amir Yacoby, professor of physics and of applied physics.

### Peak Professors

The Faculty of Arts and Sciences has conferred Harvard College Professorships—its highest honor for undergraduate teaching and graduate education—on five faculty members; each bears that title for five years, and is awarded extra research support and a semester of paid leave or a summer salary.

### The Reverend Relocates

Rev. Jonathan L. Walton, Pusey minister in the Memorial Church and Plummer professor of Christian morals since mid 2012, has boomed out his last Commencement benediction: Wake Forest announced in late April that he would become dean of its School of Divinity and Presidential Chair of religion and society, effective July 1.



STEPHANIE MITCHELL/HPAC

**Paola Arlotta**

This year’s cohort includes Paola Arlotta, Golub Family professor of stem cell and regenerative biology (see “Probing Psychoses,” July-August 2017, page 40); Suzannah Clark, Knafel professor of music; Edward J. Hall, Vuilleumier professor of philosophy; Edward W. Kohler Jr., Microsoft professor of computer science; and Matthew K. Nock, Pierce professor of psychology (see “A Tragedy and a Mystery,” January-February 2011, page 32).

### Other Teaching Honorands

Winners of the Roslyn Abramson Award, for outstanding undergraduate teaching, include Ya-chieh Hsu, Star associate professor of stem cell and regenerative biology, and Durba Mitra, assistant professor of studies of women, gender, and sexuality (see Harvard Portrait, September-October 2018, page 17). The Undergraduate Council conferred its Levenson Memorial Teaching Prize on three esteemed instructors (Jais Brohinsky, teaching assistant in education; Andrew W. Murray, Smith professor of molecular genetics; and Daniel Shapiro, associate professor of psychology, Harvard Medical School) and its Marquand Prize for exceptional



COURTESY OF YA-CHIEH HSU

**Ya-chieh Hsu**

advising on four counselors (Yanina Barrera, resident tutor in Lowell House; Tycie Coppett, proctor; Maximilian Kasy, associate professor of economics; and Irene Pepperberg, research associate). And the Graduate Student Council weighed in with its Mendelsohn Excellence in Mentoring Award, recognizing six advisers (Finale Doshi-Velez, assistant professor of computer science; Alison Johnson, professor of history and of Germanic languages and literatures; Luke Miratrix, assistant professor

of education; Venkatesh Murthy, professor of molecular and cellular biology; Jesse Snedeker, professor of psychology; and Gabriela Soto Laveaga, professor of the history of science).

### Prompting Policymaking

The Harvard Kennedy School has appointed three new faculty directors for the academic



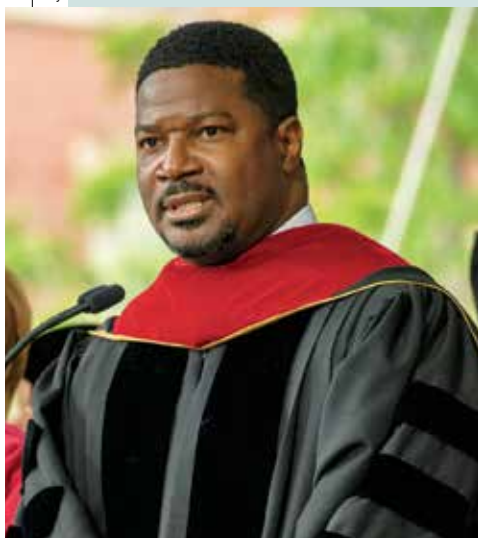
ROSE LINCOLN/HPAC

**Matthew K. Nock**



COURTESY OF ALISON JOHNSON

**Alison Johnson**



JIM HARRISON

with his teaching obligations. He and Robinson remain at Harvard Law School as Clinmenko clinical professor of law and lecturer on law, respectively. —JOHN S. ROSENBERG

## Domínguez Banned from Campus

JORGE DOMÍNGUEZ—formerly Madero professor for the study of Mexico and Harvard’s initial vice provost for international affairs—who retired last year after being ac-

cused of persistent sexual harassment (see [harvardmag.com/dominguez-18](http://harvardmag.com/dominguez-18)), has now been stripped of his emeritus status and the privileges associated with it. FAS dean Gay informed the community on May 9 that Harvard’s Title IX investigation into the case, conducted by the Office for Dispute Resolution (ODR), found that Domínguez “engaged in unwelcome sexual conduct toward several individuals, on multiple occasions over a period spanning nearly four decades.”

Under the sanctions she imposed, Domí-

guez will be disinvited from the FAS campus, and from all FAS-sponsored activities on and off campus. At her request, the University has also disinvited him from the Harvard campus and Harvard-sponsored events. The sanctions mean that Domínguez won’t be allowed to teach classes, have research assistants, access Harvard’s libraries, or have office space and other privileges provided to emeritus professors.

“The ODR findings reveal a longstanding pattern of behavior that, at several points,

centers through which it conducts much of its research. Professor of public policy David Deming will lead the Wiener Center for Social Policy, succeeding Black professor of political economy David Ellwood. Vis-



KRIS SNIBBE/HPAC

**David Deming**

iting Murrow professor of practice of press, politics, and public policy Nancy Gibbs takes the helm of the Shorenstein Center on Media, Politics, and Public Policy, succeeding lecturer in public policy Nicco Mele. And Sumitomo-FA-

SID professor of international finance and development Asim Ijaz Khwaja succeeds professor of the practice of economic development Ricardo Hausmann at the Center for International Development.

## Honor Roll I

The Carnegie Corporation granted fellowships, accompanied by up to \$200,000 in research support, to Ackman professor of public economics Raj Chetty and Goldman professor of European studies and professor of sociology and of African and African American studies Michèle Lamont.... The Canada Gairdner Award, for transformational work in biomedicine and global health, has been conferred on Pershing Square professor of global health Vikram Patel, a mental-health specialist, and Latham Family professor of biological chemistry and molecular pharmacology Timothy Springer, for work on the immune system; each laureate receives a \$100,000 honorarium.

## Guggenheims

Winners of Guggenheim Memorial Foundation fellowships include Kenan professor of English and of visual and environmental studies Marjorie Garber, associate professor of economics Matteo Maggiori, Thompson professor of government Richard Tuck, and writers Mark Danner ’80 (profiled in “Into the Inferno, with Notebook,” January-February 2005, page 25), and Seth Mnookin ’94.



COURTESY OF MICHÈLE LAMONT

**Michèle Lamont**



COURTESY OF MATTEO MAGGIORI

**Matteo Maggiori**

## Memorable May Day

Among those stepping back at the end of this academic year are Diana L. Eck, Wertham professor of law and psychiatry in society, and Dorothy A. Austin, who are retiring from their service as faculty deans of Lowell House since 1998. At Lowell’s May Day celebration, the intramural boat club dedicated their vessel to the beloved couple. After the formal Commencement hoopla in Tercentenary Theatre, they conferred diplomas for the last time in the courtyard of the renovated House (it reopens in August). Earlier that day, Eck had again co-anchored the Morning Exercises broadcast; she is deciding whether to relinquish that role next year.

## Honor Roll II

Newly elected members of the American Academy of Arts and Sciences include a dozen faculty members: Phillips professor of early American history Joyce E. Chaplin; Cox professor of law Jody Freeman; Krupp Foundation professor of European studies Peter A. Hall (author of “Anatomy of the Euro Crisis,” July-August 2013, page 24); Niebuhr



COURTESY OF JOYCE CHAPLIN

**Joyce E. Chaplin**



COURTESY OF DANIEL P. SCHRAG

**Daniel P. Schrag**

professor of divinity Mark D. Jordan; Minot professor of medicine Barbara B. Kahn; McNeil Family professor of health care policy Ronald C. Kessler (see “Psychiatry by Prescription,” July-August 2006, page 38); professor of cell biology Danesh Moazed; Mason professor of music Carol J. Oja (author of “The Intoxication of Celebrity,” May-June 2014, page 67); Smith professor of physics Subir Sachdev; Hooper professor of geology and professor of environmental science and engineering Daniel P. Schrag (see “Fueling Our Future,” May-June 2006, page 40); Titcomb professor of African and African American studies and of philosophy Tommie Shelby; and professor of ophthalmology and of radiology Jeremy M. Wolfe.



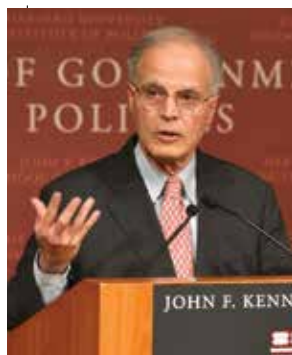
MIKE GUARINO



KRIS SNIBBE/HPAC

**Carol J. Oja**





PAUL MAROTTI/GETTY IMAGES

## Jorge Domínguez

Now that the University's investigation has concluded, President Bacow will initiate an external review of how Harvard's institutional culture may have prevented people who experience sexual harassment from reporting it, and whether there are barriers to responding effectively to misconduct. It will also examine how faculty promotion decisions can be made with due consideration of reports or allegations of misconduct.

Read a full report at [harvardmag.com/dominguez-19](https://harvardmag.com/dominguez-19). ~MARINA N. BOLOTNIKOVA

## Financing the Fencing Coach?

HARVARD avoided the taint of the "Varsity Blues" admissions scandal disclosed on March 12—the payments to have students' standardized tests altered or taken by others, the six- and seven-figure bribes to coaches to designate (nonathletic) applicants as athletic recruits—that swept in institutions such as the University of Southern California, Georgetown, and Yale. But in early April, *The Boston Globe* reported that Peter Brand, Harvard's varsity fencing coach since 1999, had engaged in real-estate and nonprofit financial transactions with the parent of a current and a former student.

He reportedly sold his home for more than \$400,000 above its assessed value, and

violated policies designed to ensure a safe and non-discriminatory educational and work environment," Gay wrote. "I am appalled by the report's findings and heartbroken for those who had to endure the behaviors described."

Now that the University's investigation has concluded,

the parent of a then-fencing recruit, subsequently sold it for a loss of more than \$300,000.

Claudine Gay, who as FAS dean oversees Harvard's athletics program, issued a statement about the allegations against Brand. In a letter to the community, she wrote, "We are now moving quickly to learn more about these claims through an independent review"—which at a minimum would appear to bear on the University's policies dealing with conflicts of interest.

The investigation was continuing as this issue went to press; for links to the underlying news, see [harvardmag.com/fencing-coach-19](https://harvardmag.com/fencing-coach-19). ~J.S.R.

## Undergraduate Education Alterations

CONCLUDING much academic business on May 7 at its last regular meeting of the year, the Faculty of Arts and Sciences enacted two significant pieces of legislation affecting undergraduate learning.

After considering the pros and cons of the "shopping week" that begins each semester—enabling undergraduates to sample and choose classes that really appeal to them, and perhaps make important intellectual discoveries; but making it very difficult in some cases to match enrollment with graduate teaching fellows, or even suitable teaching spaces—the faculty voted to retain the current system for three more years. But in the interim, a new faculty committee will attempt to determine whether incremental improvements can be effected. Among them are algorithms and other tools to attempt to predict enrollments better; a common way of handling lotteries for enrollment-limited courses; and, once the graduate-student union contract is settled, taking into account the new terms for employing them as teaching fellows.

In the meantime, the committee will prepare an alternate system, perhaps for some sort of preregistration with an "add/drop" period, so that when the faculty next deliberates, it can compare the current system, as incrementally improved, with some other vision of how to effect enrollment each semester—and choose how to proceed. Read about the background at [harvardmag.com/shopping-wk-19](https://harvardmag.com/shopping-wk-19) (with links to prior reporting).

Over the strongly held objections of some mathematics professors, who felt that a

commitment to instruction in mathematical reasoning and formal logic was being booted out of the curriculum without substantive debate (see [harvardmag.com/quant-reasoning-req-19](https://harvardmag.com/quant-reasoning-req-19)), the faculty also legislated the final element of the revised General Education curriculum, which debuts in the fall term. It is the Quantitative Reasoning with Data requirement, to be fulfilled not with purpose-built courses like the rest of Gen Ed, but rather through completion of one of a designated range of courses—deemed to contain sufficient content on "mathematical, statistical, and computational methods"—that will enable the young learners "to think critically about data as it is employed in fields of inquiry" across the FAS. It is, in effect, a fourth distribution requirement (along with the broad, divisional ones in arts and humanities, social sciences, and science and engineering), albeit somewhat more narrowly constrained (for an overview, read [harvardmag.com/qrd-plus-preregistration-19](https://harvardmag.com/qrd-plus-preregistration-19)). The dissenting mathematicians *did* secure an amendment to review the new requirement (its "goals, rationale, and scope within the wider context of the College's curriculum") during the 2022-2023 academic year.

And with that, the revised Gen Ed proceeds to the reality test—enrolling students—come summer's end. ~J.S.R.

## Supporting Public Service

DURING his inaugural address last October, President Bacow advanced one programmatic proposal: "It is my hope that every Harvard graduate, in every profession, should be an active, enlightened, and engaged citizen. So I am pleased to announce today we will work toward raising the resources so we can guarantee every undergraduate who wants one a public-service internship of some kind...." During the April 27-29 Visitas weekend for students admitted to the class of 2023, College dean Rakesh Khurana unveiled a down payment toward that aspiration, an initiative called the "Service Starts with Summer Program" (3SP).

Its idea is to habituate students to public service before they matriculate, building on activities many of them may have already pursued while in secondary school, and to introduce them to Harvard's many public-service resources as early as possible. The initiative invites each student to perform public service in her or his hometown this summer, with up to 100 applicants eligible for a \$1,500



JASON MILLER/NCAA PHOTOS VIA GETTY IMAGES

## Peter Brand

then quickly purchased a Cambridge condominium for more than \$300,000 above its asking price. The purchaser of Brand's home, Jie Zhao, a Maryland businessman,

## Speech, Interrupted

During a spring of heightened protests in favor of fossil-fuel divestment (among other causes), student advocates crossed a line on April 4 when they disrupted a Harvard Kennedy School (HKS) Institute of Politics event at which President Lawrence S. Bacow and Graduate School of Education dean Bridget Terry Long were scheduled to talk about universities and economic opportunity. The protesters took to the stage and declined HKS dean Douglas W. Elmendorf's request that they move to the back so the audience could see the speakers. When they declined, Bacow lamented that this was the first time he knew of on campus when speakers were prevented from talking to their intended audience. The forum was relocated within the building, and continued. (Read a full report at [harvardmag.com/divest-disruption-19](http://harvardmag.com/divest-disruption-19).) In a subsequent essay in *The Harvard Crimson* ("What Kind of Community Do We Want to Be?"), Bacow—who established a record at Tufts as an absolute advocate for free speech, coupled with strong advocacy for vigorous speech to counter falsehoods or hateful speech—declared, "The heckler's veto has no place at Harvard."

## Mental Health

Responding to increased student reports of mental-health issues and increased demand for related health services, the provost has created a Task Force on Managing Student Mental Health. Its members are Grafstein Family professor of sociology Mario Small, whose recent book, *Someone To Talk To*, investigates whom people turn to when they face difficulties; Graduate School of Arts and Sciences dean Emma Dench, who has expressed concern about students' long, and often lonely and stressful, pursuit of their degrees; and Pierce professor of psychology Matthew K.

# Brevia



**DESIGN DEAN.** Sarah Whiting, a Yale alumna who earned her master of architecture degree from Princeton and her Ph.D. from MIT—and was a design critic and assistant and associate professor at the Graduate School of Design at the turn of the millennium—returns as dean, effective July 1, succeeding Mohsen Mostafavi, who led the school for 11 years. Whiting, co-founder and partner of WW Architecture, had been dean at Rice University's undergraduate and graduate School of Architecture since 2010. Campus planning will figure in her GSD deanship, as Gund Hall is expanded and reconfigured. Her twin brother, Alex Whiting, is a Law School professor of practice. Learn more at [harvardmag.com/whiting-gsddean-19](http://harvardmag.com/whiting-gsddean-19).

Nock, who studies suicide and self-injury (see "A Tragedy and a Mystery," January-February 2011, page 32).

## Corporation News

On May 23, the University announced that James W. Breyer, M.B.A. '87, a fellow of the Harvard Corporation since 2013, would conclude his service on June 30, after one six-year term; details appear at [harvardmag.com/breyer-19](http://harvardmag.com/breyer-19).

Later that day, senior fellow William F. Lee gave a periodic briefing on the governing board's work during President Bacow's first year. Lee highlighted "good progress" on Allston development;

promoting intellectual collaborations within Harvard and beyond; supporting Bacow's efforts to advocate for higher education; ensuring sound management of the endowment; and sustaining core values, such as freedom of speech, within an increasingly diverse and more-inclusive community. Read more at [harvardmag.com/srfellow-update-19](http://harvardmag.com/srfellow-update-19) for a full report.

## Development Developments

Philip Ragon and Susan Ragon have given \$200 million to Mas-

sachusetts General Hospital to support their eponymous vaccine-research institute (a venture of MGH, MIT, and Harvard), which focuses especially on HIV/AIDS, under the leadership of Ragon professor of medicine Bruce D. Walker. "People Who Don't Get AIDS" (January-February) reported on his work....Stanford has named its Wu Tsai Neurosciences Institute in honor of its alumna Clara Wu Tsai and her husband, Joseph Tsai, a Yale graduate and co-founder of Alibaba Group—the lead donors in an effort that has raised nearly \$250 million for brain science....P. Roy Vagelos, LL.D. '03, a graduate of Penn (and a Columbia M.D.), who was chairman and CEO of Merck & Co., and Diana Vagelos have given \$50 million to his alma mater, where he was chair of the board of trustees, to build a facility that will house Penn scholars' work on energy science and engineering. The couple have previously funded eponymous research programs in the field.

## Federal Force I

As the Trump administration and its secretary of education pursue opposition to the use of affirmative action in admissions (in-



vestigating Harvard and Yale, withdrawing Obama administration guidance on how to consider race legally in pursuit of diversity), Texas Tech University Health Sciences Center has agreed to stop considering race in applications to its medical school. It signed the agreement with the department of education in February, 14 years after affirmative-action opponent Roger Clegg filed a complaint against Texas Tech.

## Federal Force II

In the wake of concerns expressed by national-security agencies, federal funders (including the important National Institutes of Health), the White House, and members of Congress about possible international exploitation of U.S. academic research (particularly such efforts emanating from China), a number of institutions took steps in recent months to clamp down on foreign researchers. Among reported incidents, NIH restricted or delayed Iranian scientists from making presentations; MIT has tightened collaborations with Chinese, Saudi, and Russian universities and researchers; and the University of Texas MD Anderson Cancer Center moved to dismiss three tenured scientists. In some cases, the affected parties have not disclosed their citizenship or international collaborations, as required. Combined with tighter student visas to study in the United States, the enforcement measures suggest a changing climate for research across borders.

## First-Generation Students

First-Year Scholars at Yale—a residential academic immersion for entering under-

graduates from first-to-college and low-income families (see “Mastering the ‘Hidden Curriculum,’” November-December 2017)—is expanding in enrollment and scope. Yale announced it would include 72 students this summer, an increase of 20 percent, and would augment the for-credit writing curriculum with a quantitative-reasoning course. Adding the latter requires the program to lengthen from five weeks to six. Those enrolled receive tuition, room, board, travel expenses, a living stipend, and a waiver of any summer-effort component of their financial-aid awards. Harvard unveiled its four-day pre-orientation First-Year Retreat and Experience offering last year (see [harvardmag.com/fyre-18](http://harvardmag.com/fyre-18)).

## What They Earned

The University's annual tax filings, released in May and covering the fiscal year ended June 30, 2018, reveal that departing President Drew Faust had total compensation of \$1,707,070, including \$500,000 in deferred compensation awarded her by the Harvard Corporation and vesting in her final year. Provost Alan Garber earned \$880,900 in total compensation, and Michael D. Smith, the former dean of the Faculty of Arts and Sciences, who stepped down last August, earned \$730,382. At Harvard Management Company, which invests the endowment, president and CEO N.P. Narvekar earned \$9,251,786 in total compensation, including \$2.75 million in reimbursement for compensation forfeited when he left his former position as head of Columbia's endowment. Compensation for other HMC investment professionals reflects in part changes in personnel since Narvekar assumed control, and in the overall compensation system he has since implemented. Complete details appear at [harvardmag.com/fy18earnings-19](http://harvardmag.com/fy18earnings-19).

## Nota Bene

PULITZER PLAUDITS. Eliza Griswold, NF '07 and a 2016-17 Harvard

Divinity School Berggruen Fellow, was awarded the Pulitzer Prize for General Nonfiction for her book *Amity and Prosperity: One Family and the Fracturing of America*. A *Wall Street Journal* team that won the national-reporting prize included Rebecca Davis O'Brien '06, a former *Harvard Magazine* Berta Greenwald Ledecy Undergraduate Fellow. And Jeffrey Stewart won the biography prize for *The New Negro*, a life of Alain Locke (A.B. 1908, Ph.D. '18)—both assessed in “Art and Activism” (March-April 2018). Details are at [harvardmag.com/pulitzers-19](http://harvardmag.com/pulitzers-19).

RADCLIFFE FELLOWS. The Radcliffe Institute has announced its 2019-2020 cohort of fellows, including 11 Harvard faculty members—among them Kemper professor of American history Jill Lepore and professor of history, race, and public policy Khalil Gibran Muhammad (see “Writing Crime into Race,” July-August 2018, page 57). A report, including information on all the fellows, appears at [harvardmag.com/rias-fellows-19](http://harvardmag.com/rias-fellows-19).



**Khalil Gibran Muhammad**

STU ROSNER

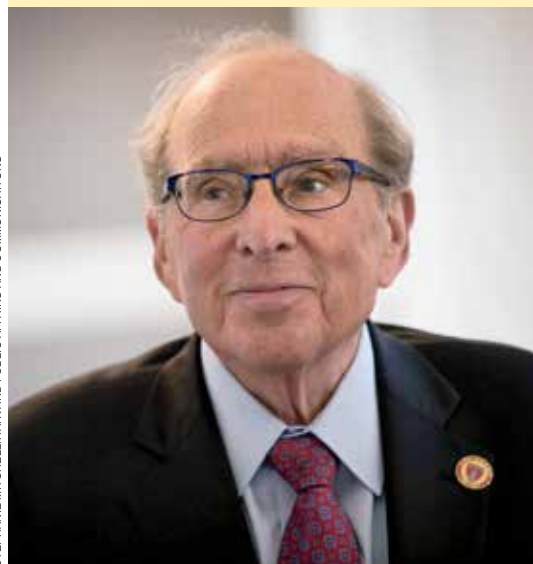
EC 10 EVOLVES. “Principles of Economics,” often the College's most-enrolled course, is getting a makeover, as course leader N. Gregory Mankiw, Beren professor of economics, passes the reins this fall to Jason



**Jason Furman**

Furman, professor of the practice of economic policy (see “The New Monopoly,” March-April, page 11), and Goldman professor of economics David I. Laibson, the new faculty dean of Lowell House, a behavioral economist and former

chair of the department (see [harvardmag.com/pershingsq-gift-19](http://harvardmag.com/pershingsq-gift-19)). Their preliminary plans call for incorporating more real-world and applied contents, alongside



**DENTAL DEAN.** R. Bruce Donoff has announced the conclusion of his 28-year Harvard School of Dental Medicine deanship at the end of 2019. Announcing the news, President Lawrence S. Bacow conveyed this story: “Earlier this year, Harvard welcomed a Scholars at Risk Fellow who had been attacked and beaten in his home country because of his sexual orientation. The hate crime left him with broken front teeth and in dire need of reconstructive surgery. Bruce quickly and quietly led an effort to ensure that our colleague received the care he needed. It was a remarkable display of generosity—customary of the person of decency and integrity who I know Bruce to be.”

the course's traditional introduction to economic theory.

**LEADERSHIP ONLINE.** Harvard Kennedy School has introduced its "Public Leadership Credential," a six-unit online program (two segments each in evidence for decisions, leadership and ethics, and policy design and delivery), leading to a credential and, for those so inclined, a possible pathway into the mid-career M.P.A. The credential broadens access to the school's lecturers and expertise; opens new avenues for revenue; and, like Harvard Business School Online's foundational offerings, can expand the pool of potential degree-seekers on campus.

**URBANISM ONLINE.** The Graduate School of Design's "future of the American city" project—conducting research initially in Miami, on subjects ranging from transportation to adapting to climate change—has launched an e-resource (<http://fotac.gsd.harvard.edu/>) to disseminate its findings.

**MISCELLANY.** The Arnold Arboretum has installed a solar array with 450 kilowatts of capacity, and associated storage, to provide up to 30 percent of the energy required to run its Weld Hill Research and Education Building. ...Rothenberg professor of the humanities Homi K. Bhabha, director of the Mahindra Humanities Center since 2005, concluded his service as of July 1. ...Harvard University Health Services announced that effective June 17, it will stop providing in-person overnight urgent care; calls for service made between 10:00 P.M. and 8:00 A.M. will be referred to a nurse advice line, a model it tested beginning last December. ...Of the 1,950 successful applicants to the College class of 2023 (see Brevia, May-June, page 30), some 83 percent accepted—up 1.3 percentage points from last year; that high yield left only a few spaces open for applicants on the waiting list. ...Loeb associate professor of engineering and applied sciences Jelani Nelson, an algorithm specialist whose University appointment was widely hailed (Harvard Portrait, May-June 2015, page 19), is departing for a professorship at the University of California, Berkeley.

stipend for completing 100 hours of service. During the summer, they will be in contact with faculty and public-service staff members through webinars, and with Harvard student peers and fellows through summer work. The whole class will then be invited to participate in a pre-orientation day of service in Cambridge, Somerville, or Boston.

Khurana said, "We were inspired by President Bacow's call for a public-service role for the University," and sought ways to

"infuse our mission" of educating students through transformative experiences "that will prepare them for a life of service and leadership"—in this case, "right from the start" of their undergraduate years.

The program's origins, details, and role in public-service programming—and pending changes to integrate those activities with students' academic and curricular work—are detailed at [harvardmag.com/service-summer-19](http://harvardmag.com/service-summer-19). ~J.S.R.

## THE UNDERGRADUATE

# Documentary Styles

by CATHERINE ZHANG '19

AT FIRST, we were geniuses. Erudite intellectuals with a subtle eye for shifts in mood and a proclivity for name-dropping the film theorist Walter Benjamin. We bandied words like "juxtaposition" and "interiority," belabored skepticism of documentary's "objectivity," and referred to every directorial decision as "interesting..." This was before we'd discover our own footage was shaky, our two-minute sound excerpts full of microphone noises and rustling. Each week we'd watch experimental films from Harvard's Sensory Ethnography Lab—which *The New York Times* lauded for producing "some of the most daring and significant documentaries of recent years"—and bask in all of our grand possibilities.

Our first assignment in Visual and Environmental Studies 52 ("Introduction to Nonfiction Videomaking") was to film a two-minute scene without zooming or cutting. I rented a tripod and Sony Z150 camera from the equipment lab in the basement of Sever and lugged them to the Dudley Co-op, where my friend (and the other current Ledecy Fellow) Isa was in the kitchen chopping broccoli. At first, my hands fumbled while tilting the camera, and I struggled to extend my tripod to the right height. But after some practice, the motions became intuitive. Tucked into a corner, my back pressed against the refrigerator door, I watched life unfurl in front of me: Isa flit-

ting from the spice cabinet to the industrial oven, radiant in her magenta jacket; friends sniffing around for the previous night's sourdough; the exuberant greetings; the vegetables sizzling; the spontaneous harmony of all these activities occurring at once, so that the kitchen ceased to be a kitchen but became its own little society instead.

"Part of the attraction to film is its affinity with life itself: the movement on the screen evoking the movement we ourselves experience outside the cinema, the seeing evoking our own seeing, and hearing evoking hearing," my *Cross-Cultural Filmmaking* handbook had said. What I found engrossing about filming was the ability to communicate how I experienced the world to those outside my walled-off interior space: the humor of plastic bags of pasta hanging over Isa's head, the politics of care expressed by tattered "Support the Strike" signs. Later, my classmates praised my "intimate framing" of the Co-op and marveled at the poise with which Isa holds herself. I was moved by my sense that they could see in her what I see through the rhythms of our three-and-a-half-year friendship.

Junior year, most of my friends took part in a mass exodus from River Central to the Co-op at 3 Sacramento Street, north of the Yard. Without geographic proximity, our relationships felt tenuous, fastened only by memories of prior happiness. I regularly misinterpreted their introversion as coldness or dislike. So when I formalized



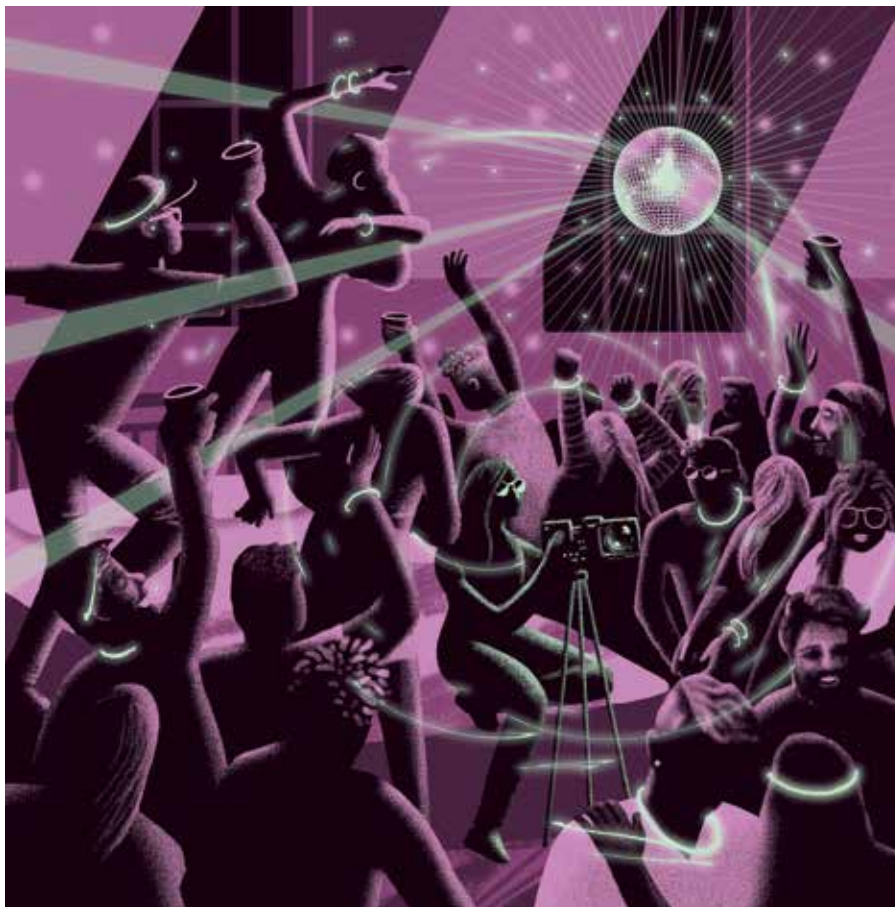
my relationship to the Co-op by signing on as a “quarterboarder” this semester, it felt like liberation from insecurity. I served trays of misshapen gnocchi for dinner and blew rainbow bubbles in the front yard; on Thursdays, I bought into the weekly beer fund. As graduation approached, I felt an ardent desire to preserve memories of my friends before we once again splintered away. In February, I asked the Co-op community if I could film my first documentary there.

The discussion of my potential film seemed only to confirm earlier insecurities. “It’ll only be shown to the nine people in my class,” I said nervously, as 20 pairs of eyes stared at me over Sunday dinner. One by one, my friends expressed their reservations: they worried that they’d feel alienated in their own home, that the film would be “fetishizing” or “commodifying” the space. They feared that a tidy, somehow misleading narrative would be imposed on their lives. I felt like a little girl getting let down by a crush who was never in her league. *How stupid*, I thought. *How ignorant of the way things work*. I began to cry. The humiliation of crying publicly—face flushed, immobilized at the head of the dining table—triggered a secondary wave of sobs, and then a third, for turning a trivial matter into a personal referendum. *I’m so sorry, I’m so sorry*, I said. I cried on the entire walk home, all the way back to River Central.

“In a small close-knit society, who you choose to feature, and who not, may have significant repercussions....Try to be as sensitive as you can to how your filming might affect people’s lives and relationships to each other,” my *Filmmaking* handbook had told me. I became so worried about intruding where I didn’t belong that my friend

Hirsh became exasperated with me: “You seem to have a moral opposition to shooting anything.”

FOR MOST OF MY TIME at Harvard, my perceptions of filmmaking have been dominated by cocky, well-intentioned men whose “Do now, apologize later” approach is a source of resentment and envy. On one hand, they sometimes act as though everyone else exists at their disposal. On the other hand, they fundamentally believe in their capabilities. Unlike me, they do not undermine



their accomplishments with vague statements like “I did a thing.” I met a few of them freshman year, when I signed up to become a director for the sketch comedy troupe *On Harvard Time*, and became so intimidated during the first workshop that I dropped out.

For the first few years of college I restricted myself to behind-the-scenes work, organizing shooting schedules and trying out sketch writing. I nudged my way into artistic production: a private email, a small addition to a joke-brainstorming document. As my age began to confer more authority, I made my way onto set as a producer.

But by senior year, I was tired of depending on other people to articulate my vision. “I want more immersive experience in the actual camera work instead of just logistics and management,” I wrote in my VES 52 application.

Several weeks after the deadline for the semester’s main project proposal, I settled on making my documentary about hip-hop at Harvard from the late 1980s to the present. In 1988, two white Jewish sophomores living in Cabot—David Mays ’90 and Jon Shecter ’90—circulated a one-page news-

letter to advertise their hip-hop show on WHRB. That newsletter went on to become *The Source*, a pioneering force in hip-hop journalism and the longest-running rap periodical in the world. Hip-hop is filled with braggadocious, self-promoting characters who have little patience for abstract conversation about the ethics of things; in this sense, they’re ideal subjects for vicarious living, enabling me to imagine a world in which paralyzing morality complexes do not inhibit me. I spent spring break sending cautious emails confirming that I had explicit permission to film. “Would it be okay if...?” they’d

always begin. I lined up shoots very slowly.

Most sequences I filmed entailed one-on-one interactions with familiar faces: a beat-making demonstration in an Adams dorm room, a tour of Harvard’s hip-hop archive with my more confident friend Marcelo. But in order to demonstrate how widely hip-hop permeated Harvard’s campus, I needed to meet students after hours, at a party. I sent a few tentative Facebook messages to the WHRB president, who directed me to the pregame for the radio station’s hip-hop and electronic section.

Even so, I texted a friend, asking if I could film his birthday party instead: “If you could

just play ‘Gold Digger’ for like *two* minutes, I’ll be all set.” He never answered.

When I arrived at the WHRB event, I saw a group of mostly strangers bathed in lilac lighting. I panicked, keenly aware of the intrusiveness of the camera, notifying everyone that their movements were being watched. The host of the party gave me a slight nod, and I shuffled over. “I’m nervous that guests will be mad at me because

“...the people you film may not know fully what they’re consenting to. Then again, neither do you.”

I didn’t get their permission,” I said to him, as if actively constructing a reality in which they’d be upset, to absolve myself of the responsibility of being there. He shrugged off my worries: “You’re fine, dude—no one really cares.” And they didn’t, really. I sat on the edge of someone’s bed and caught people pouring gin into Solo cups, talking about new music, dancing. And when the pregame ended, I slipped my camera into my room and walked over to Sacramento Street to party with my friends.

IN COLLEGE, I gravitated toward writing as a form of concealment, retreat. I found it reassuring that when putting words on the page I got to process life on my own terms, turning over experiences until I settled upon what precisely to reveal. I couldn’t determine how people would receive what I say, but I could calibrate my presentation; I could meticulously select and arrange anecdotes to circumscribe how they could in-

terpret me. Best of all, I created and failed privately. No one knew what went into the Google Doc, except my editor. When my thoughts were finally released into the world, open for all to see, I could restrict them to their initial location by not sharing, leery of establishing definitively: “This Is What I Think.”

With documentary filmmaking, what I captured seemed less subject to my control. There are relationships to manage that are altered by the presence of the camera; the

people you film may not know fully what they’re consenting to. Then again, neither do you. No one can anticipate how the film will turn out or whom it will reach.

This uncertainty, while nerve-racking, can be strange and beautiful, too: my documentary led me to develop a funny friendship with Jon Shecter, who drove to Cambridge for my film and showed some old issues of *The Source* to a small crew of undergraduate hip-hop fans I’d gathered to meet him. I posted information about my documentary screening publicly

on my Facebook and sent the link to some of the people I used to be intimidated by. When I immersed myself in these relationships, exposed my vulnerabilities, I subjected myself to a process of change that cannot be controlled. It’s not just how the camera transforms your subject, but how it transforms you. ▢

Berta Greenwald Ledecky Undergraduate Fellow  
Catherine Zhang ’19 is trying to film another documentary.



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## SPORTS

# Try, Try Again

*Rugby's freshman scorer Sofie Fella*

**B**EFORE SHE DISCOVERED rugby, with its tackles and breakdowns and wild chasing sprints, Sofie Fella '22 was a dancer and a soccer player. She liked both, but neither quite fit. Her ballet instructors kept nagging that her arms and legs were too muscular; and on the soccer field, she was always the teammate getting called for fouls ("And I would be like, 'What? Are you kidding me?'"). Then one day, during her first year of high school, her gym teachers suggested she try out for rugby.

She loved it immediately. Everywhere, there was freedom. With the ball in her hands instead of at her feet, she could run unrestricted, as fast as possible, in any direction. And collisions with opponents weren't fouls; they were a foundational part of the game. And there was another kind of liberation, too: in many sports, the ceiling of achievement is capped by an athlete's biology or body shape or innate talent. "But for rugby," she says, "because you're basically either holding the ball and running or running after someone and tackling them, it feels like the harder you work, the better you get. That relationship was so clear to me. More than, for example, in dance, where it felt like no matter how hard I worked, my body just wasn't right."

Fella joined the rugby team during her sophomore year at the American School in Shanghai, China, the city where she grew up. Soon she began spending summers at rugby camps and tournaments in the United States: Stanford, Seattle, Utah, Las Vegas, Little Rock. She was named MVP of her high-school team two years in a row, served as captain in her junior and senior years, and played on the under-18 national team for Germany, her father's home country.

Then last fall, she arrived at Harvard, joining a team on a rising trajectory. At five-foot-five, Fella plays wing and fullback, two positions that require speed, patience, the strength to stay on one's feet, and an alert

awareness of the entire field and what might happen next. The ability to shift an opponent and outmaneuver her one-on-one is important. Wings are usually the team's top scorers, moving the ball downfield and grounding it within the opponents' in-goal area for a "try," worth five points. Fullbacks are the last line of defense against an advancing opponent. "Sophie's one of our speedsters," says head coach Mel Denham. "She's a stepper, very evasive. She's great in the open field. She's a finisher."

Denham recalls an "incredible, try-saving tackle" Fella made in a home game against Quinnipiac last fall. Late in the first half, with the score tied at 7, a Quinnipiac wing had broken away from the pack, slipping through a gap between defenders and blazing across midfield with the ball. For a moment she seemed to have everyone beaten, with nothing but grass and the goal line in front of her, but then from the edge of the field, Fella appeared, closing in like an arrow. She wrapped her arms around the ball-carrier's waist and pulled her to the ground. "There's so much pressure on that fullback position to have to make that tackle," Denham says. "It's a really hard position to be in, and she just nails the tackle every time."

Fella remembers that game too, though the play that sticks in her mind came a few minutes later, with the second half barely under way and Harvard advancing down the field. A series of passes found Fella at the far end of the formation with room to run.

Just when she caught the ball, a hole opened in the opposing team's defensive line, and Fella sailed through it, sprinting to the in-goal line just ahead of a tackle, one of six tries she made this season. "That's probably my favorite try that I've ever scored, because it was such a team effort," she says. "It's impressive when an individual player runs through a bunch of people and scores, but this was even better, because it was like everybody touched the ball before it got to me, and that's how I managed to get that open space. So that's the clip we watch all the time. It's on my desktop."

DENHAM SAYS pride and comradeship run deep on this team. "They play for each other, and they play for those who came before them." Women's rugby began as a Radcliffe club team in 1982, growing quickly from four players to more than 40; in 2013 it was elevated to a varsity sport. Each season now consists of two distinct units: during the fall season, called 15s, the squad plays



Sofie Fella

weekly 80-minute games with 15 players to a side. In the spring, they play 7s: 14-minute games with seven players to a side. Instead of weekly match-ups, the 7s season is organized into a series of monthly tournaments, in which teams play four or five games each during the course of a day.

That first season after the transition to varsity was short—there were only a few other varsity squads for the Harvard women to play against—but the Crimson won the Ivy League title. Since then, the sport has grown, and so has the number of varsity opponents. Denham arrived in 2017, a former flanker for the U.S. national team, who'd been an assistant during Radcliffe rugby club days, and under her, Harvard has been evolving into a serious national contender. Last season, Harvard upset perennial rival Dartmouth to win the Ivy League championship, in a late October game under miserable conditions: freezing rain, mud everywhere, the ball slipping from players' grasp. It was so cold that Fella's hands went numb; she couldn't tell if she was catching the ball. At halftime, she wedged a pair of hand-warmers into her sports bra so she could

**Fella sprints toward a Quinnipiac defender during a contest last October in which she made a try-saving tackle and scored her fourth try in as many games.**

tuck her fingers next to them. "It didn't really work." It didn't matter; they won the game. "That was the worst weather I've ever experienced," Fella says. And then a beat later: "It was really fun."

Fella is only one of several international players on the roster: other teammates come from Australia, Honduras, Germany, Canada, Scotland, and Hong Kong. Fella's parents met as college students in Shanghai. Her father, from a small town outside Frankfurt, was in China as a foreign-exchange student learning Chinese; her mother was a Shanghai native



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who'd been taking German lessons. "Sometimes we joke around that we speak 'Chinglisherman' at home," she says, in the American accent she picked up from classmates at the American School, which she attended from kindergarten onward.

At practice on a chilly, rainy spring af-

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ternoon, two weeks ahead of the 7s national tournament in late May (from which the Crimson would return with a bronze medal), the team was cycling through a series of set plays—passing drills, scrums, line-outs. Again and again, Fella lined up with her teammates, running forward and calling for a pass, sidestepping tackles,

shoveling the ball toward the next player when defenders closed in. On the sidelines, she practiced lunging into a scrum with assistant coach Justin Moss, locking her shoulder into his over and over. She had only recently come back from injury—an ankle sprain that kept her out for all of April—and she seemed to be making up

for lost time, or lost intensity. “Rugby is a sport where you know you’re going to get injured,” she says. “It’s something you have to expect. If not a big injury, then bruises or a pulled muscle somewhere that’s going to hurt. That doesn’t bother me.” The hardest part of rugby, she says, “is when you’re not playing.” —LYDIALYLE GIBSON

## Science Dean, Soccer Judge

IN AN ALL-VOLUNTEER youth soccer league, brave parents must rise to the occasion and create order from cleated and shin-guarded chaos. In the early 2000s, one such parent was Frank Doyle, now dean of the Harvard Paulson School of Engineering and Applied Sciences (SEAS). He had enjoyed playing soccer in high school and was ready for his next challenge: refereeing small children as they broke the sacred commandments of The Beautiful Game. “It wasn’t that you were rigorously enforcing the laws,” Doyle explained in his office. “You were working with young kids and helping them learn the game of soccer, but you were keeping it fair, fun, and safe along the way.” He was a professor at the University of California, Santa Barbara, so the teaching role appealed to him. So did the referee’s duty not just to call fouls, but also “to manage the game in a very thoughtful and creative way.”



What started as a way to keep himself out of the lab and in the company of his kids became a side passion. Within a few years, Doyle earned the highest certification within the American Youth Soccer Organization (AYSO)—National Referee. That required completion of at least 100 games, a tough exam, three in-person assessments, and a physical test, which included an endurance run and two speed runs. At night, Doyle would scroll through AskTheRef.com, where refs posed oddball questions about unusual situations and the world’s best officials would answer. “There are really all kinds of wacky scenarios in a game,” Doyle said. “Like, if a substitute player throws a water bottle and hits a player on the field—what’s the restart?”

After accepting the SEAS deanship in 2015 and moving to Massachusetts, Doyle adjusted to the new soccer landscape. Because of a novel concept—winter—outdoor refereeing was not a year-round option. And AYSO didn’t exist in Massachusetts, so he and his son became certified through the United States Soccer Federation. Soon, Doyle had an idea: why didn’t he become a National Collegiate Athletic Association official?

As he moved to the NCAA level, the pace quickened, the stakes rose, and the margin for error shrank. Tiny mistakes, made by either a player or Doyle, could shift a game’s outcome. He had to stay close enough to the action to detect a foul, but remain situated in a way that gave him wider perspective on the

field. Staying in the moment was crucial for making instinctual calls, but it was just as important to anticipate when stopping play would hurt the team it was meant to help. At NCAA games, four refs work in tandem. “If you do it well, you’re completely reinforcing each other,” Doyle emphasized. “You can work in a symphony that’s really exciting and fun.”

He doesn’t bring red cards to his lab or faculty meetings, but he said his disparate roles do connect. As a dean, he pointed out, part of his job is managing emotions and personalities. “And that’s a big part of the game...how you handle the players on the field, how you handle the coaches on the touch line, all the aspects of the game. I think that does suit my personality.” He mentioned referencing, at a recent faculty meeting, the soccer concept of “persistent infringement” while discussing how to handle cases of minor misconduct. “Small microaggressions on the surface—in isolation—are not a huge deal, it’s worth a conversation,” Doyle said. “But an accumulated pattern? That’s different.”

While Doyle doesn’t ref year-round anymore, he officiated 30 games last fall and a few dozen more throughout the spring and summer. Before a game, he’ll check the teams’ records and histories of misconduct to get a sense of the potential mood, and he’ll throw in a few cardio and core workouts during the week to stay fit. If he’s officiating a game on a Saturday, he’ll re-review the rules on Friday to get in the right mental mode. After a game, he’ll check his GPS watch to check how many miles he ran, how quickly he moved, and how efficiently he covered the field. If all goes well, Doyle will be far from the center of attention.

“I had a good friend in Santa Barbara who once said, ‘When Frank does a game, nothing interesting happens,’” Doyle recalled. “I don’t have mass confrontations, I don’t have brawls, I don’t have fights on the field. It’s about the highest praise you can give to a ref, right?” —JACOB SWEET

Frank Doyle, in full ref attire, is fluent in Newton’s laws of motion—and the laws of the game.

JIM HARRISON



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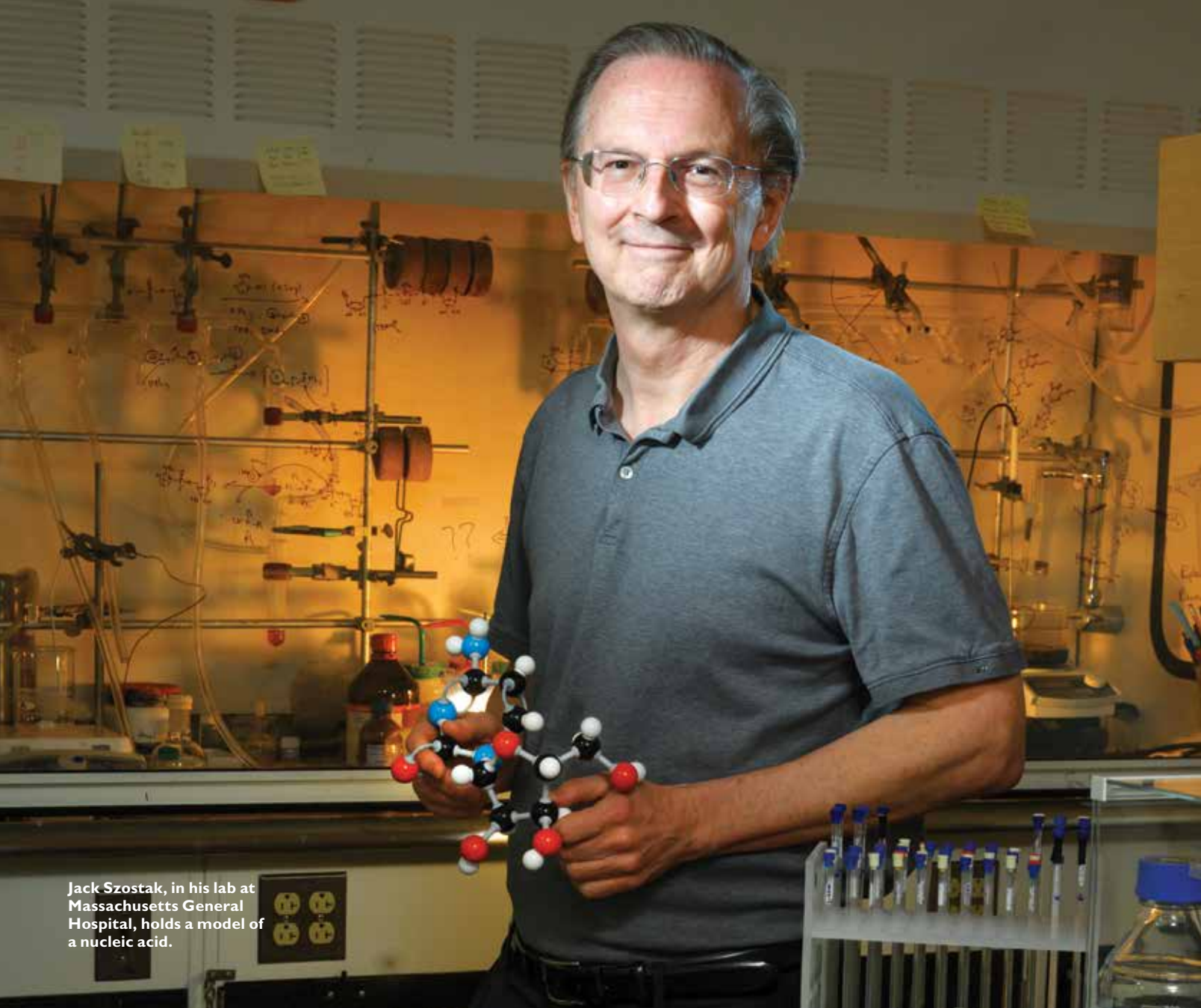


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Jack Szostak, in his lab at Massachusetts General Hospital, holds a model of a nucleic acid.

# HOW LIFE BEGAN

Jack Szostak's pursuit of the biggest questions on Earth

by ERIN O'DONNELL

How DID LIFE begin on Earth? On a young, rocky planet, how might chemicals have come together in just the right way to form the very first cells? How did those primitive cells start behaving like life: growing, dividing, and passing on advantageous traits to the next generation?

The origins of life are especially murky because the geological

record—the layers of rock and embedded fossils that hold clues about the history of Earth and life—disappears at roughly 3.9 billion years ago, erased by movements in the planet's crust. As a result, scientists lack direct evidence for conditions on early Earth, including proof of the molecules that might have swirled in primordial ponds and formed the building blocks of life.

This presents a host of questions, precisely the kind of big questions to which Jack Szostak is drawn. He and others believe they can reconstruct in the lab the long pathway that led from chemicals in space, to Earth's formation, to pre-life chemistry on the planet, to early protocells, and finally to advanced cells with metabolism and protein synthesis. Sprawling explorations like these require expertise in many fields, including chemistry and biochemistry, geology and geophysics, and astronomy.

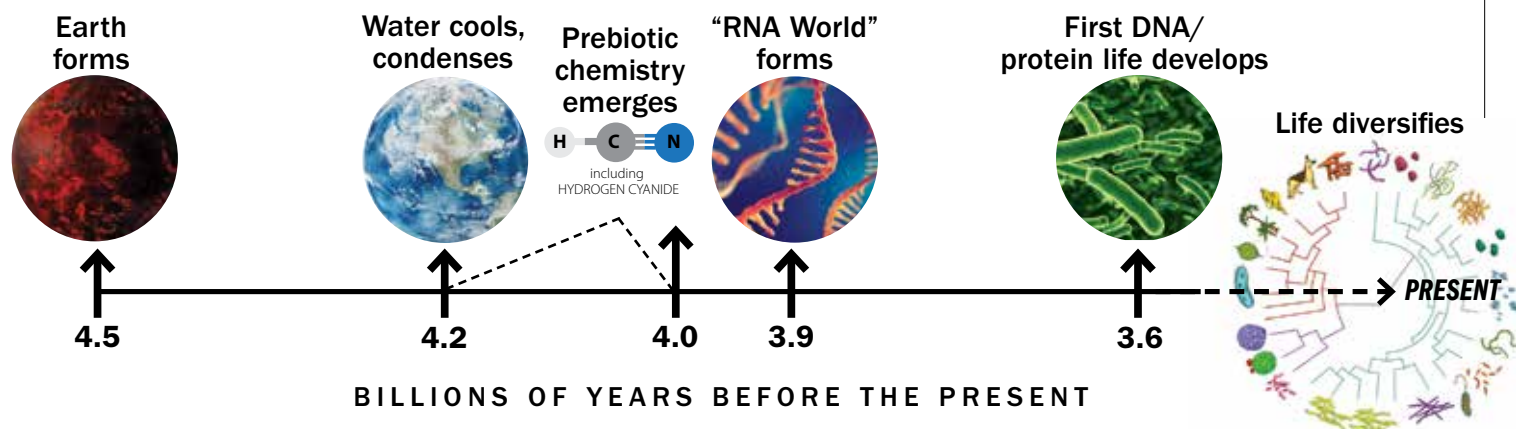
Szostak (pronounced SHAH-stak) may be the ideal person to pursue answers. A Nobel laureate, professor of genetics at Harvard Medical School, professor of chemistry and chemical biology in the Faculty of Arts and Sciences, the Rich Distinguished Investigator at Massachusetts General Hospital (MGH), and a Howard Hughes Medical Institute investigator, he is described by others as a brilliant, driven scientist. But he's also known for mild-mannered humility, including a willingness to dive deeply into subjects that are new to him, and for his collegiality, for helping to foster idea-sharing that is moving science forward.

His own research focuses on one segment of the pathway to life: the protocell, "a really, really simple primordial cell that could as-

both Blackburn, Sc.D. '06, now emerita at UC, San Francisco, and Carol Greider of Johns Hopkins.

By the time Szostak received the early-morning phone call from Sweden in October 2009, he had already spent more than 20 years making fundamental contributions in other areas of science. After the telomere discoveries in the mid 1980s (research linked shortened telomeres to many diseases of aging), many scientists entered the field and Szostak chose to change direction. "It was pretty clear what the next experiments had to be, and it felt like anything we did would get done anyway," he recalled. "I've never felt that there's much point in doing stuff that's going to get done anyway. So that really made me look around and think about what other kinds of scientific questions I could start to address." In 1984 he accepted an offer to move his lab from what was then the Sidney Farber Cancer Institute to MGH, to join the researchers there working on basic science. "It was an amazing offer: all my research would be fully funded for 10 years," Szostak recalls. "It was perfect for me since it allowed me to change direction without worrying about writing grants in a new field."

After considering his options, he settled on RNA enzymes known as ribozymes, a field that he saw as "interesting, tractable, and not



semble from chemicals that were around early on, on the surface of Earth," Szostak explains. He hopes to understand how it would grow and divide and start to replicate, and eventually evolve. "We may not know what actually happened, but maybe we can work out different possible paths," he says. "All we can do is try to assemble things in the lab that seem plausible."

### "DIRECTED EVOLUTION"

THIS AUGUST marked Szostak's fortieth year at Harvard and thirty-fifth at MGH (where his lab is located), a tenure marked by important discoveries in a surprising variety of fields. In the 1980s, his lab conducted experiments with yeast to understand the genetics and biochemistry of DNA recombination—work that led to the double-strand-break repair model, which describes how long strands of DNA break, swap segments, and then rejoin. This prompted subsequent research on the mechanism of recombination during meiosis, the cell division that leads to sperm and eggs.

During the same period, his team also made important discoveries about telomeres—the protective caps, found at the ends of chromosomes, that ensure that DNA replicates properly as cells divide. For this research, Szostak later received the 2009 Nobel Prize for Physiology or Medicine, which he shared with researchers Eliza-

highly competitive." He and his graduate students began developing tools to evolve RNA, the single-stranded molecules in cells that copy genetic information contained in DNA. In test tubes his team nudged RNA to take on new roles, such as recognizing target molecules and catalyzing reactions. Known as "directed evolution," this process involved introducing mutations into the RNA strands, looking for variants that could perform useful functions, and allowing those novel molecules to reproduce. They also did similar work with DNA, peptides, and proteins.

In 1994, Szostak received the National Academy of Sciences Award in Molecular Biology, along with researcher Gerald Joyce, now of the Salk Institute for Biological Studies, for simultaneously but independently developing in vitro evolution of RNA. "It's a technology for making molecules that do your bidding," Joyce explained in an interview, describing it as similar to the way agricultural scientists breed cows to produce more milk, or develop crops that resist drought. "This is the molecular version of that. And it's something that's now very widely practiced," he adds (see "Harnessing Evolution," January-February 2017, page 15), a way of developing new molecules for a range of uses, including medicines.

For Szostak, the work on directed evolution raised new questions. "I got more and more interested in how evolution got started



all by itself on the early Earth,” he recalls. “It’s one thing to impose selective pressures and do Darwinian evolution in the lab, where you have enzymes and students and instruments. But somehow Darwinian evolution got started all by itself.” Given that the ability to evolve is a key characteristic of life, Szostak was asking one of the fundamental questions of science: How *did* life get started?

### ORIGINS: “THREE BIG, FUNDAMENTAL QUESTIONS”

THE CANADIAN-AMERICAN SZOSTAK was born in London, where his father was studying for a degree in aeronautical engineering. The family eventually returned to Canada, where they lived in Ottawa and then Montreal, and his father worked for the Canadian Air Force. (Szostak’s accent retains hints of his Canadian heritage.) His mother worked for many years in administrative roles for an

industrial chemical company, and Szostak held his first summer job there as a teenager, testing color fastness in the company’s dye laboratory. “The job was repetitive and boring, but it did give me my first view into how important it is to test and retest products for real world use,” he remembers. By that time he was “seriously interested” in science, math, and engineering. He earned his doctorate in biochemistry at 25 from Cornell, and calls his adviser, Ray Wu, an important mentor: “He created a great lab environment, but also showed me how to get help on a project when facing problems.”

Although Szostak has conducted some practical, applied research in his career—one of the companies he launched, Ra Pharma, has discovered a drug for the disease myasthenia gravis that is set to begin phase III clinical trials—he is most passionate about basic science.

“To my mind there are three big fundamental scientific questions

## “ALMOST A CARD-CARRYING CHEMIST” ponds, might have worked together to synthesize the building blocks of

SCIENTISTS WHO WORK with Jack Szostak praise him for an uncommon willingness to cross disciplinary boundaries. Phillips professor of astronomy Dimitar Sasselov, director of the Harvard Origins of Life Initiative (see “Life’s Beginnings,” September-October 2013, page 29), was introduced to Szostak by mutual friends more than a decade ago. Sasselov had recently started studying exoplanets, which orbit sun-like stars in other solar systems. “An obvious question was ‘What about life?’” Sasselov remembers. “How do we search for it? How do we know it’s there?” He began to think about the origins of life on early Earth as a means of pinpointing other planets that could support life. After he and Szostak realized their shared interests, they worked with colleagues including Andrew Knoll, Fisher professor of natural history and professor of earth and planetary sciences, to write a proposal for the Origins of Life Initiative, winning seed money from the University to launch it in 2006.

“Szostak really is the perfect person to work with, because he meets you half way,” Sasselov explains. “He’s a renaissance type, very curious in everything, and tries to understand as much as he can. He would never say, ‘You don’t have to explain to me how it works, just tell me what to do.’ That’s not his style at all.” John Sutherland of the Medical Research Council Laboratory of Molecular Biology in Cambridge, England (where James Watson and Francis Crick first discovered DNA’s double-helix structure), is an organic chemist who also studies the origins of life. He agrees about Szostak’s willingness to branch out beyond his original expertise in biochemistry. “I used to think I had the edge on him in organic chemistry, but then he learned it to the extent that he’s almost a card-carrying chemist as well as a biochemist,” Sutherland notes. “He’s able to make these new contributions because he’s embraced these new subject disciplines.”

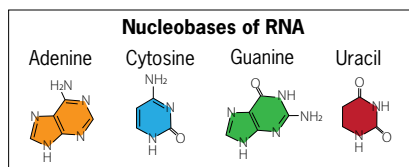
The Harvard Origins of Life Initiative was designed to connect researchers from different disciplines across campus, and Sasselov the astrophysicist and Szostak the biochemist reveal what this approach can yield. They visit one another’s labs weekly and influence each other’s work. Sasselov’s research has evolved, he says, from astronomy to “something more like chemistry,” using his knowledge of astronomy and planetary science to determine how ultraviolet (UV) radiation, temperature, and molecules that came through the atmosphere from space into, say, lakes or

life. One of Sasselov’s astronomy graduate students, Zoe R. Todd, who conducts her research in Szostak’s lab, published a paper last year that showed that the combination of cyanide and copper, when irradiated by UV rays on early Earth, could have produced the sugars needed to assemble RNA chains. “Every year we actually get even more integrated,” Sasselov says.

Szostak has fostered collaborations like this outside Harvard as well. In 2011 philanthropist and billionaire investment-fund manager Jim Simons convened a meeting about underfunded areas of science, and invited Szostak to give a brief talk on his research. This led to a one-day workshop on the origins of life, and soon after, Szostak and Sasselov became co-directors of the Simons Collaboration on the Origins of Life (SCOL), which infused the field with new funding. Members of the collaboration, from fields including chemistry, astrophysics, geology, and field chemistry, gather three times a year in New York to share ideas and findings.

John Sutherland, who is co-director of SCOL, says these meetings have been fruitful because of the atmosphere Szostak had a hand in creating, which emphasizes giving members a high-level education about each other’s disciplines. It has been a “very, very friendly, open environment where people felt they could ask stupid questions,” he says. For his part, Szostak explains that his goal is to give participants a common language, and the opportunity for intelligent conversation. “We’re all specialists in our own fields, but we have to learn how to talk to each other, and to get up to speed on some level in all these other fields.”

Science is competitive, but researchers who might compete with Szostak see him as a friend who is happy to support other smart, rigorous work. “He’s a magnet for some incredibly bright young people,” Sutherland says. Alumni of the lab include Jennifer Doudna, known for her fundamental work in developing CRISPR gene-editing technology, and David Bartel of MIT, who studies microRNAs, important for gene regulation. Matthew Powner, associate professor of organic chemistry at University College London, worked as a research fellow in Szostak’s lab in part because he admired Szostak’s commitment to following his curiosity. “He’s constantly moving on to new challenges that will teach him more,” Powner says. “His group was a great place to learn and think about problems.”



## A HISTORY OF EARTH AND LIFE'S BEGINNINGS

Unlike double-stranded DNA, in which the bases cytosine and thymine pair with guanine and adenine on the opposite strand, the bases of a single helical strand of RNA in water can form associations with free-floating nucleobases (shown in the image at left). If these free-floating bases then fuse with each other, a new, mirror copy of the RNA strand is created, which breaks apart from the original when the water is heated. When that new strand replicates in turn, it creates a mirror copy of itself that matches the original strand of RNA. Sometimes errors occur in this copying process, and beneficial mistakes perpetuate themselves. Each chain, acting as a template for its own replication, thus evolves and interacts with its environment.

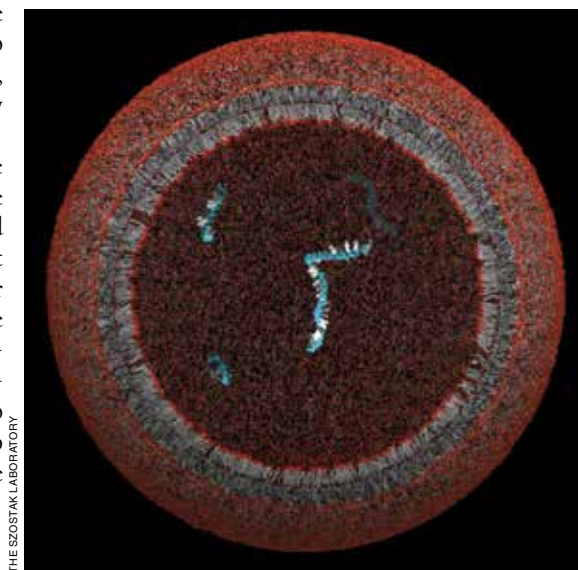
that are super interesting: the origin of life, the origin of the universe, and the origin of the mind or consciousness,” he offers, sitting in his quiet, nearly empty office in the Mallinckrodt Laboratory on Oxford Street in Cambridge. (The office is for occasional meetings; Szostak works mainly in his lab at MGH.) After the origin of life, the origin of the mind interests him most. In the 1980s, when he was planning what to do after his telomere research, he contemplated shifting to the study of neuroscience and even sat in on Harvard seminars on the topic. “It was fascinating, but also depressing, because the technology was so primitive,” he recalls. He has watched with interest as the field’s tools have advanced since then. “This is an exciting time for young people to go into neuroscience because with all the new technology, there are problems that can be addressed now that you couldn’t even think about 30 years ago,” he says. “Yet the overall problem is still so huge and somewhat daunting. The way I look at it, I’m working on the easiest of these big problems.” Because questions about the origins of life are well suited to current research technologies, he adds, he thinks it’s “a solvable problem.”

### MODEL PROTOCELLS AND “MESSY” RNA

SZOSTAK’S TEAM has been making model protocells since the early 2000s, seeking to figure out how they might have assembled and evolved originally. These primitive structures were “extremely simple” in comparison to the simplest single-celled bacterium on Earth today, he explains. Protocells likely included a minimal fatty membrane and initially just one gene that conferred some advantage to the cell. Modern bacteria, in contrast, “have at least hundreds and typically thousands of genes.”

Despite some theories that early life arose near hydrothermal vents in the deep ocean, Szostak is more convinced by research showing that the earliest cells developed on land in ponds or pools, possibly in volcanically active regions. Ultraviolet light and lightning strikes could have helped convert molecules in the atmosphere into cyanide and other useful materials to generate the building blocks of life. The

**A model protocell, whose lipid membrane might have enclosed and protected a single gene**



THE SZOSTAK LABORATORY

shallow water would give those materials a place to accumulate at high concentrations, and volcanic activity could create hot and cold temperature fluctuations helpful for certain chemical reactions.

Some scientists, including Gerald Joyce, suggest that life might have started outside cells, with free-floating molecules encountering each other and forming bonds that would allow them to act like life. But Szostak argues that the cell membrane was necessary, in part because it would keep beneficial genetic molecules together and prevent the useful metabolites made by genetically coded ribo-

**“This is an exciting time to go into neuroscience because problems can be addressed now that you couldn’t even think about 30 years ago.”**

zymes from floating away in surrounding water or being snagged by other passing protocells.

Experiments in his lab showed how such a membrane might grow and divide. The researchers combined fatty acids such as oleic acid with water and a buffer (to keep the pH of the solution stable) and then shook the solution. When viewed under a microscope, the ingredients had assembled into vesicles: circular, fluid-filled structures with bi-layered membranes. Adding extra fatty acids to the environment—to serve as nutrients—caused the vesicles to grow long, hair-

like filaments so fragile that even a gentle puff of air on the microscope slide caused them to break into pieces. Szostak’s team achieved similar results with different membrane-forming molecules and in different environments, suggesting that this is a plausible way for a protocell membrane to grow and then divide. But how might that structure pass beneficial genetic material to the next generation of daughter cells? “It’s the genetic material that actually looks like a much harder problem,” he says.

To share inherited traits with successive generations, today’s cells rely on DNA—the double-helix molecule composed of the nucleobases adenine, cytosine, guanine, and thymine—to store and transmit (please turn to page 78)



## HOW LIFE BEGAN

(continued from page 43)

genetic information. But replicating DNA in cells requires both the single-stranded molecule RNA and protein enzymes, and genetically encoded proteins are far too complex to have formed spontaneously on early Earth. Because RNA can both store and transmit genetic information (like DNA) and can catalyze chemical reactions (like protein enzymes), many researchers believe that primitive cells used RNA molecules to fulfill both genetic and enzymatic roles.

In the late 1960s, British scientist Leslie Orgel proposed that RNA, or something like it, could have been the first molecule on Earth to replicate and evolve; this became known as the “RNA World” hypothesis. Orgel and others worked for decades to understand how chains of RNA might have come together and replicated, but their

genetic material, through a series of self-sustaining reactions, but Szostak and others remain unconvinced. About seven years ago, he began revisiting the hurdles that Orgel and his contemporaries faced in understanding RNA synthesis. “We know so much more now,” he explains, “and just by breaking things down into individual, smaller problems, we’ve been able to solve some of them.”

Szostak’s lab now focuses almost entirely on how primordial RNA might have copied itself. Modern RNA comes together in very regular, predictable ways, with nucleotide building blocks clicking together like a chain. Each block contains a sugar (ribose), a phosphate, and one of four nucleobases (also called nitrogenous bases)—adenine, cytosine, guanine, and uracil (usually called A, C, G, and U). The ribose-phosphate units are joined to-

gether to make the RNA “backbone.” In modern cells, protein enzymes catalyze the reaction that joins nucleotide units into RNA chains.

In protocells on early Earth, the RNA chain would have served as a template on which a new, complementary chain of nucleotides assembled before detaching to become an additional template on which other free-floating nucleotides could click together. But unlike predictable modern RNA, early RNA did

not have the benefit of proteins to catalyze the building process. (Because proteins can’t form without the complex and highly evolved cellular machinery required for their synthesis, most researchers believe they were unlikely to exist on primordial Earth.) Early RNA, therefore, was probably messier, with much more variation in the sugar backbone and bases, Szostak says. His team is currently experimenting “to get some idea of what variability would be tolerated and what would be weeded out. Our current model is that you start out with something that’s messy and has a lot of different variations in it, and over cycles of replication, you end up with something that’s closer to modern homogeneous RNA.”

**“We know so much more now, and just by breaking things down into individual, smaller problems, we’ve been able to solve some of them.”**

A 2018 paper by Szostak and graduate student Seohyun Kim illustrates the possible variability of early RNA, and its A, C, G, and U building blocks. Scientists have made progress in understanding how C and U could have been generated by prebiotic chemical reactions, but they have struggled with A and G. Szostak and Kim suggest that RNA may have started with different nucleobases, and their experiments have showed that the nucleoside inosine, which can be made from A (adenine), works effectively in place of G (guanosine). “This simplifies the overall problem,” Szostak explains. “Now we just need to know how to make A.”

Other recent experiments in the lab have focused on the metal ions needed to set off the RNA copying process. Researchers typically use magnesium, “but we have to use it at very high concentrations,” which has negative side effects, triggering the degradation of RNA or the destruction of the cell membrane. “Hopefully we’ll find some simple, plausible way of making everything work with less magnesium, or maybe we have to rethink the whole problem and come at it from a different direction,” Szostak explains. “We’re just feeling our way around in the dark, trying to see where there might be a path to a solution.”

Some of the paths don’t work out, and even yield errors. In 2016, Szostak’s lab published a paper in *Nature Chemistry* that showed that a peptide could have helped RNA replicate without enzymes. Soon afterward, research fellow Tivoli Olsen joined the lab and could not reproduce those findings. Her review of the paper revealed that the team had misinterpreted the data, and Szostak retracted the paper. “We’re working on hard problems, and the hardest thing in science, as I think Feynman said, is not fooling yourself,” Szostak says. The potential solution was exciting, “and I think it just blinded us to what was going on.” The “saving grace,” he adds, is that they discovered the errors on their own, though he wishes that had happened “before the paper got published instead of after. I’d say a lot of our ideas end up being wrong, but usually we realize that pretty quickly.”



ISTOCK IMAGES

**Heating and cooling attributable to volcanism, as at Yellowstone’s Grand Prismatic Spring, would have facilitated early evolution of RNA.**

efforts were not entirely successful. “There was a lot of progress early on, and then it just stalled because there were a dozen different problems and at the time there was no obvious answer to any of them,” Szostak explains. “Pretty much everybody got frustrated and thought, ‘Maybe life didn’t start with RNA. Maybe there’s something simpler, easier to make, easier to replicate.’”

Researchers looked for alternatives to RNA, “and that led to 10 to 20 years of really interesting chemistry, coming up with a lot of interesting molecules,” Szostak notes. “But so far, nothing simpler or better than RNA that really works has come up.” Some researchers support a “metabolism-first” hypothesis, suggesting that life could have started without

He's optimistic about the potential of recent discoveries in other labs; for example, John Sutherland of the Medical Research Council (MRC) Laboratory of Molecular Biology in Cambridge, England, recently discovered a new technique for activating nucleotides—chemically modifying these building blocks to power the replication process. Sutherland shared these findings with Szostak's lab before they were published, and Szostak says they are exploring ways to incorporate this technique into their own experiments.

Once his team assembles working protocells that contain pieces of RNA, they expect information in some specific RNA sequences to confer some benefit to the protocell that surrounds it. For example, previous work suggests that some RNA sequences might fold to become a ribozyme that could make slightly more advanced lipids for the cell membrane. "Any RNA sequence that does anything that helps its own cells to survive or replicate faster will start to take over the population," Szostak explains. "That's the beginnings of Darwinian evolution. And then we're back to being biologists again."

AFTER WINNING the Nobel Prize, Szostak could have left the lab to devote himself to travel and speaking invitations, but "He stays focused on the science," Gerald Joyce says. "That's what I admire most about him." Some may see basic research as an intellectual luxury, but its practitioners make the case that all *applied* science starts with *basic* science findings. "When Crick and Watson sat down and started making cardboard models of the structure of DNA, they had no idea that it would spawn an industry worth billions of dollars 70 years later," John Sutherland notes.

Szostak remains committed to chipping away at those big, challenging questions, continuing the work of decades. "I do hope to be able to build an evolving cellular system before I retire," he says. He's optimistic about his chances. "I think we're getting there. There are a few more hard problems, and then I think everything will hopefully be solved in a couple of years." □

*Erin O'Donnell, a freelance writer in Milwaukee, reports frequently on research under way at Harvard for this magazine's Right Now department, and previously profiled David Keith, Gordon McKay professor of applied physics and professor of public policy ("Buffering the Sun," July-August 2013, page 36).*

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# Ellen Newbold La Motte

Brief life of a bold activist: 1873-1961

by CYNTHIA WACHTELL

IN AUTUMN 1916, as World War I advanced into a third deadly year, Ellen N. La Motte published a collection of stories, *The Backwash of War: The Human Wreckage of the Battlefield as Witnessed by an American Hospital Nurse*. “Well, there are many people to write you of the noble side, the heroic side, the exalted side of war,” she explained. “I must write you of what I have seen, the other side, the backwash.” Censored and long forgotten, her extraordinary book likely influenced Ernest Hemingway. But La Motte did not just bear bold witness to war. Courageously, she challenged societal norms as a trained nurse, public-health administrator, suffragist, socialist, self-proclaimed anarchist, lesbian, anti-opium activist, and more.

The Kentucky-born La Motte went to live with her wealthy relatives, the family of industrialist Alfred I. duPont, in Wilmington, Delaware, as a teenager. There she belonged to the “fashionable set” but aspired to something else. At 24, she applied, over her family’s strong objections, to Johns Hopkins School of Nursing. The Hopkins interviewer judged her “a most attractive woman—very handsome & ladylike,” and Wilmington’s *Morning News* soon announced, “One of our belles...has said good-bye to tulle and dancing slippers...and adopted the apron and cap of the hospital nurse.”

Following the three-year course and a few years gaining experience at home and in Europe, La Motte returned to Baltimore in 1905 to work as a tuberculosis field nurse. She also began writing prolifically about public health and tuberculosis, often challenging established wisdom. A groundbreaking appointment made her director of the tuberculosis division of the city’s health department in 1910, and she soon lowered the disease’s mortality rate.

Meanwhile, she proved herself an ardent social reformer and suffragist. She served as chief marshal of a major suffrage parade held during the Democratic convention of 1912, and a year later she left her job to join the militant British suffragettes led by Emmeline Pankhurst. *The Baltimore Sun* reported, “Miss La Motte [says] that while once she was a Socialist she has now stepped over the line and has become an anarchist.” Two months later, she wrote that she had already “been through four fights and one riot (and not always in the capacity of an innocent bystander).”

That autumn, she moved to Paris, where she drafted her first book, *The Tuberculosis Nurse*, and formed a close friendship with a fellow American, the modernist writer Gertrude Stein. After war broke out in August 1914, La Motte was among the first American nurses to volunteer. Gertrude Stein recorded that her friend was “gun shy but she did want to nurse at the front.” Eventually La Motte landed at a French field hospital jarringly close to the Western Front.

She completed *The Backwash of War* in early summer 1916. Its first

story sets the tone. “When he could stand it no longer,” it begins, “he fired a revolver up through the roof of his mouth, but he made a mess of it.” The nameless soldier is transported, “cursing and screaming,” to a field hospital where his life is saved so he can be court-martialed and executed by firing squad. The book, published that September, was immediately banned in England and France but earned high praise and multiple printings in the still-neutral United States. The radical magazine *The Masses* called it “immortal.” “It tells unsparingly all that there is to tell—all that has never been told before.” And despite America’s entry into the war in April 1917, it remained on sale until August 1918, when it was suddenly censored and then quickly slipped into literary oblivion.

La Motte, meanwhile, had moved on. In summer 1916, she had left Europe to tour Asia with Emily Crane Chadbourne, a divorced American heiress and art collector who had been living in Paris. They had become a couple during the first winter of the war and remained together until La Motte’s death, their relationship occupying a liminal social space: recognized by some, considered a close friendship by others. (The acerbic English novelist Evelyn Waugh, who met them in Ethiopia in 1930, called them “two formidable ladies” whom “long companionship had made...almost indistinguishable.”)

The Asian trip revealed a new cause. La Motte realized that England and other colonial powers were forcing the cultivation, manufacture, and sale of opium in their colonies, while severely restricting its use at home. Between 1919 and 1934, she would write six books and dozens of articles about the evils of colonialism and the opium trade, spearhead an international anti-opium campaign, and play a key role in League of Nations conferences on the trade, even as she acknowledged, “The drug traffic dies hard. Vast financial interests, both of nations and of individuals, are at stake.”

Then in 1936 she told Gertrude Stein, “I have not been writing... I don’t seem to want to. Who wants to hear about opium in these troubled times? The Stock Exchange takes up my time...and brings me quite a nice return. I am having lots of fun with it.” A year later, after Chadbourne’s longtime financial adviser was caught embezzling, La Motte also began managing her financial affairs, earning more than \$1 million in the market in the 1940s and 1950s. And in 1959, at 85, La Motte played a key role, facing much resistance, in revitalizing the venerable Crane Company, founded by Chadbourne’s father in 1855.

Few women of her era could boast such an astounding career. ▢

Cynthia Wachtell, Ph.D. ’98, a research associate professor of American studies at Yeshiva University, has edited a volume of La Motte’s war writing (for which she also wrote the first biography of La Motte), *The Backwash of War: An Extraordinary American Nurse in World War I* (Johns Hopkins).



*Ellen N. La Motte as a young woman*



IF SCHOLARS' intellectual interests emerge from their underlying worries, then economist Dani Rodrik's lifelong preoccupation with the fate of developing countries grew out of his early life in Istanbul. Turkish government trade protections enabled his father, a ballpoint-pen manufacturer who never finished middle school, to build a prosperous business.

Yet the received theory in economics at the time, and when Rodrik began his training in the discipline, assumed that developing countries needed to do the opposite: open themselves up to trade and stop providing protection to ineffective domestic businesses.

"When I was in my intellectually formative period in the '70s and '80s," Rodrik says, free-market fundamentalism prevailed in his field. Scholars and practitioners believed that "government intervention was bad and trade protection had spawned all these inefficient firms. And yet I knew from my own experience that without a certain amount of trade protection in Turkey, a lot of the middle class, or the upper-middle class to which I belonged,

Washington Consensus policies produced dismal results in much of the developing world; economic output in many countries collapsed.

Throughout his career, Rodrik has cut against the grain of economics orthodoxy, combining his careful mastery of the field's tools with an instinct for its limitations and a sympathy for a wide range of economic arrangements all over the world. When free-market doctrine prevailed, especially with respect to trade, he "attacked the central tenets of international economics," says MIT economist Daron Acemoglu, co-author of *Why Nations Fail* (2012), the influential book that argued for the importance of inclusive, democratic institutions for economic growth. "And that sort of made him, at the time, quite a bit of an outcast."

Now, the consensus has moved much closer to Rodrik's perspective—and his research has become important not just for poor countries, but for rich societies, too. In the aftermath of the Great Recession, the election of authoritarian protectionists in the United States, eastern Europe, and elsewhere, and the public's repudiation of the

old consensus about economic growth and fairness, his voice has increasingly resonated in public conversation about both trade and domestic policy. Rodrik has long argued that what he calls "hyperglobalization"—eliminating essentially *all* barriers to the movement of goods and money around the world—has succeeded in undermining the ability of countries to govern themselves, and allowed multinational corporations to set the rules for the economy. Post-2016 became his moment.

His work has been motivated as well by a deeper preoccupation with the role of economists in the world. For the better part of a century, economics has shaped the course of U.S. policy, and the ideas through which it is discussed and understood. Perhaps for that same reason, the field has also invited scorn from people far outside it—for being hyper-formal and unem-

pirical, for trying to explain too much, or for providing a cover for the status quo: telling a story about the world that makes existing economic relationships appear inevitable. All of these critiques were on Rodrik's mind when he conceived the idea for *Economics Rules: The Rights and Wrongs of the Dismal Science* (2015). As a professor at the Institute for Advanced Study (IAS) in Princeton, New Jersey, he was unburdened by teaching or administrative requirements, and free to pursue research interests and to engage productively with other scholars across disciplines. "What struck me at the IAS," he remembers, "is how low the reputation of economics was among certain circles of humanists and other social scientists."

He wrote *Economics Rules* to rescue his field from what he viewed as widespread misconceptions—explaining to lay readers what economic models, with their radically simplified assumptions about how people behave, are and are not good for, and why they're necessary at all. But the book was also Rodrik's effort to address other economists about where their profession has failed to apply its knowledge appropriately to the world's problems.

# The Trilemma

*Dani Rodrik's views on trade, development, and democracy enter the mainstream.*

by Marina N. Bolotnikova

wouldn't have existed....That was, in many ways, the beginning of my unorthodox views on economic development."

Rodrik, now Ford Foundation professor of international political economy at the Harvard Kennedy School (HKS), has spent much of his career trying to understand why conventional economic advice has failed poor countries so badly. In the 1980s and 1990s, the field coalesced around the "Washington Consensus," a set of ideas shaped by neoclassical economics that eventually transformed policy around the world. It held that poor countries in Latin America and sub-Saharan Africa should embrace a free-market program: free trade, privatization of state enterprises, deregulation, and openness to foreign investment. Rodrik had reason to be skeptical: he worked on trade and the economics of developing countries, and his early research showed how East Asian "miracle" societies (South Korea and Taiwan) transformed their economies extraordinarily quickly not in spite of government protection of domestic industries, but *because* of it. He worried then about prescribing uniform policies that ignored local context. The intervening years have vindicated him.

## Against “Market Fundamentalism”

IN FEBRUARY, with Columbia’s Suresh Nadu and Berkeley’s Gabriel Zucman, Rodrik launched Economists for Inclusive Prosperity, a network of economists working on policy ideas to change the structures that make U.S. economic and political life radically unequal. “Conservative foundations and think tanks have monopolized the banner of economics in policy circles, pushing the view that there is a steep efficiency-equality trade-off and assigning priority to economic growth,” they wrote in their manifesto in *Boston Review*. The group’s vision “is not simply to offer a list of prescriptions for different domains of policy, but to provide an overall vision for economic policy that stands as a genuine alternative to the market fundamentalism that is often—and wrongly—identified with economics.”

should not be treated any differently than those that lose out for some other reason. Rodrik disagrees. When asked why policy should care whether a factory has to close because cheaper labor is available in a poor country, or because its product (a typewriter or DVD player or landline telephone) has become obsolete, he replies that there is good reason to consider trade special. It has the ability to undermine social bargains about wages and work hours and environmental protections that have been made across decades, he points out—and the public has deeply felt intuitions about the legitimacy of such shifts.

Rodrik’s writing often reminds readers that trade policy and domestic social welfare are two sides of a larger issue. Because trade almost inevitably makes some people better off and some much worse off, states need to maintain robust safety nets, providing for



**Dani Rodrik**

In a policy brief written for the project, titled “Toward a More Inclusive Globalization,” Rodrik proposes a framework for limiting trade with foreign industries that engage in unfair practices, like forced labor or depriving workers of collective-bargaining rights. “If you want to maintain market exchanges,” he says during an interview at his HKS office, in his characteristically steady, very quiet voice, “you can’t de-link it from people’s perceptions of what a fair exchange is. It has to be in the foreground.” Many economists, he argues, think American industries that are harmed by global trade

the public’s health care, unemployment, and other needs to protect against hardships resulting from exposure to the global market. “If you want markets to expand, you need governments to do the same,” he wrote in *The Globalization Paradox* (2011).

But much as he welcomes current debate on the left about more progressive taxation, universal social-welfare programs, and limits on the influence of the wealthy in politics, Rodrik worries that focusing on tax-and-transfer misses the deeper structures that have made the American economy so stratified. “The fundamental issue



is how to change the rules of the market economy so that everybody is included in the system of production and innovation, and everybody has access to meaningful, productive, high-wage jobs,” he says. “Simply redistributing the proceeds of the market economy after the fact is both ineffective and ultimately counterproductive, because it won’t yield change of the desired magnitude.”

Solutions to these challenges are still unknown to economists. They require a range of reforms that reorient the way resources, opportunities, and technology are distributed through the economy—for example, by promoting unionization and incorporating corporate investment in local communities “not as philanthropy,” he insists, “but as a mainline business activity.” (One example of the latter is Massachusetts Democratic senator Elizabeth Warren’s proposal for worker participation on corporate boards.)

Technological automation is often treated as though it’s inevitable, with workers being told as a matter of routine that they’ll be replaced by machines. But Rodrik says business does not have

cal economy since the global financial crisis. “Dani’s temperament is more accretive,” Unger continues. “To go step by step, part by part, to branch out from the existing world into the adjacent possible. He doesn’t believe in leaps beyond the historical circumstance, and he sees their susceptibility to illusion, to perversion, to disorientation.”

As a result, Rodrik thinks about problems in terms of “second-best” solutions. He doesn’t reason merely from first principles, and he has criticized the concept of “best practices” in the world of international development because that approach ignores the unintended consequences that can ripple through a real economy. For instance, developing countries often have ineffective courts and contract enforcement, he argued in his paper “Second-Best Institutions”—but that doesn’t mean judicial reform is always urgently necessary or even beneficial. Societies often develop ways of working around broken institutions (through informal, relationship-based contracts, for example), and poorly planned interventions can unravel these delicate arrangements. Rodrik’s caution arises from accepting that the world will always be second best—or fiftieth.

Unger, despite his rejection of some of the premises of modern economics, has shared a productive partnership with Rodrik that has influenced both men’s thought. In the classroom, students frequently break into laughter at their dynamic. Unger is fiery, reciting in a booming voice all of the problems he has with the social sciences, while Rodrik leans back and takes careful notes before responding gingerly. In their first year of teaching together, Rodrik says, “I had no clue what he was saying. The second year I started to get it a little bit, and by the third I started to benefit from his ideas, and I’ve been influenced quite a bit.”

“Dani always brings me back to the immediate reality,” Unger says, “to the constraints, to the trade-offs, to the lessons of experience, to the dangers of some of my more radical proposals. It’s not as if he were simply sounding a cautionary note—he has a vision. And it’s a vision which is in broad sympathy with my vision, but as conceived by a very different mind. Often people who have [his] concerns with context and practice and who are respectful of the standard intellectual apparatus are conservative. But he’s not conservative. He is a progressive, he is committed to the development of transformative alternatives...and that’s something very special not found so often in

economics. I think this marriage of qualities helps account for his increasing influence throughout the world.”

Rodrik’s ideas emerge from his humility about our ability to know; he stresses how little is still understood about the world’s institutions, and how much can be learned from applying the tools of economics to them. He is “one of those people who, when he encounters facts that are at odds with the expectations of his conventions, he doesn’t hesitate” to face them, says Charles Sabel, a professor at Columbia Law School who has worked with Rodrik on industrial-policy research. This is an uncommon trait for theoretically sophisticated people, he adds, “because they’re



SPENCER PLATT/GETTY IMAGES

**A closed factory in a working-class neighborhood in northwest Connecticut—a region that has been hit hard by the decline of American manufacturing**

to work that way: policy can prioritize innovation that augments rather than replaces labor, and increases demand for human workers. “There are all kinds of subtle and not-so-subtle ways in which our policies and practices encourage a particular kind of automation—automation and new technologies that displace labor. But that historically hasn’t been the case,” he says. “During the first phase of the Industrial Revolution, the factory system benefited unskilled labor because it enabled [them] to produce what, previously, only highly skilled craftsmen could produce....Similarly, I think when we think about the benefits of artificial intelligence or new digital technologies to supplement the capacities of low-skilled workers...we can get very different kinds of outcomes.”

### “From the Existing World into the Adjacent Possible”

RODRIK’S ABIDING SYMPATHY for the interests and desires of ordinary people, and his attentiveness to misuses of economics, can create the appearance that he is rebellious. In reality, he tends to avoid the zealous or polemical. “He doesn’t flaunt a subversive attitude,” says Pound professor of law Roberto Unger, a radical political philosopher with whom Rodrik regularly teaches a course covering politi-

very well trained at reconstruing facts so that they fit theories.”

Economists have often erred, Rodrik argued in *Economics Rules*, by mistaking their models for *the* model. And even though the field has a core repertoire of building blocks considered indispensable to economic growth (property rights, enforceable contracts, private incentives: the “crown jewels” of economics, he calls them), these fundamentals can accommodate a surprising diversity of practices and contexts in the real world. China’s “Township and Village Enterprises” structure, he wrote in an essay titled “Rescuing Economics from Neoliberalism,” drove the country’s economic growth in the 1980s and ’90s: the collectives were owned by local governments, yet they provided some kind of property rights, and the returns that those rights produced, to private entrepreneurs. “China’s phenomenal economic success,” he argued, “is largely due to its orthodox-defying institutional tinkering.”

During the course of Rodrik’s career, economics has undergone its own revolution, becoming much more empirical. When he was a Ph.D. student at Princeton in the 1980s, he says, it would have been impossible to find a job by writing a primarily empirical (as opposed to theoretical) dissertation. Today, in the subfield of trade economics, “It’s become almost completely the opposite: you cannot get a job if you *don’t* do serious empirical work.” And this matters, he explains, because when “doing empirical work, you often get results that don’t square up with the theoretical expectations.” This shift toward empiricism is also connected to the rise of behavioral economics, the subfield (separate from Rodrik’s work) that seeks to better center human psychology within the discipline.

That doesn’t mean the theory is useless. It provides the frame through which evidence is interpreted; all evidence, Rodrik says, relies on theory. “I view economics as a very useful, very disciplined way of thinking about institutional alternatives and policy alternatives. I don’t know how to think about policy alternatives outside of this framework. And yet many critics of market fundamentalism or hyperglobalization think that we can get rid of the main methods of economics, and that’s where I part ways with them.”

### The Path to Economics

RODRIK IS DESCENDED from Sephardic Jews who were expelled from Spain under the Inquisition. His last name is a Turkification of *Rodríguez*, changed after a 1934 “surname law” required citizens to register with a Turkish family name. He attended Robert College, a preeminent American private school in Istanbul that sends many of its graduates abroad.

Getting into Harvard, he says, changed the course of his life. He would otherwise have studied engineering in England, where students have far less freedom to explore different disciplines. At Harvard, his plans to study engineering changed almost immediately. He spent hours in the Widener stacks: the library “had this amazing collection of books from the 1930s, ’40s, and ’50s about the formative years of the Turkish republic that there’s no way you would find in Turkey.” His image of history and the social sciences had been shaped by his schooling in Istanbul, where, he recalls, “We’d memorize: ‘Here are the five reasons why the Ottoman empire collapsed, here are the three reasons why the Turkish republic was so successful.’” Reading those books from Widener, he says, “was absolutely mind-opening for me.” He studied government

and economics, and graduated in 1979 with the only *summa cum laude* awarded by the government department that year.

His thesis, which became one of his first published papers, explained why the political mobilization of two peasant populations in the 1950s, in Turkey and in Egypt, resulted in two very different outcomes: entrenched conservatism in Turkey, and a radical revolution in Egypt. His answer hinged on the different ways that agriculture had been commercialized. In Egypt, the commodification of land resulted in a proliferation of absentee landlords and widespread landlessness among peasants—conditions that impelled them to align against the landowners. In Turkey, this process was not nearly as intense, and peasants maintained ties to, and derived a measure of security from, their landlords. That argument reflects important tendencies that continue to distinguish Rodrik’s thought. In any problem in political economy, he foregrounds local and institutional context. He is suspicious of arguments that explain a nation’s political or economic fortune in terms of “culture,” recognizing the susceptibility of this idea to fallacy, clichés, or just-so stories.

After Harvard, Rodrik earned a master’s from Princeton’s Woodrow Wilson School of Public and International Affairs, and worked for a year at the UN Conference on Trade and Development in Geneva because, he says, it was one of the few international organiza-

“Dani’s temperament is accretive—to go step by step, part by part, to branch out from the existing world into the adjacent possible.”

tions where the voices of developing countries prevailed. He was torn between becoming a political scientist or an economist, until the answer came to him when one day as he held the top journals of the two fields side by side: “It became obvious to me that with a Ph.D. in economics I would be able to read both journals, but that the reverse wasn’t necessarily true.” He realized he wanted to be trained in the mathematical and statistical methods that he still views as essential to understanding society.

He returned to Princeton for his doctorate—and was often critical of the economic theory he learned. His academic heroes were Latin America economist Carlos Díaz-Alejandro and development economist Albert Hirschman, LL.D. ’02: people who “were familiar with and could criticize the mainstream not from the perspective of someone who doesn’t appreciate the value of mainstream tools,” he says, “but from the perspective of those fully cognizant of those tools who take the discussion and debate to the next level.” He sensed that developing countries needed to do more than simply open their economies to competition and trade—and he believed the discipline would allow him to make that case. Rodrik’s graduate-school peers remember him as being uncommonly (perhaps annoyingly) calm and clear-eyed. Lots of students had ups and downs, and became anxious about their work, recalls his friend Kala Krishna, now an economist at Penn State. “But Dani was *remarkably* stable.” He finished his doctorate in three years.



## The Globalization Paradox: Why Markets Need Government

AFTER HE JOINED the HKS faculty in 1985, Rodrik's research focused on how to devise effective trade policies for the developing world, focusing on tariffs, export subsidies, and the requirements such countries imposed on foreign multinational companies. By the early 1990s, he was traveling globally to advise these nations on how they ought to design trade and growth policies. The experiences of South Korea and Taiwan, his research showed, reflected the importance of well-coordinated markets and central governments. For example, during the 1960s, the Korean government subsidized industries by giving them access to extremely cheap credit, and socialized businesses' risk by guaranteeing them bailouts. This agenda fueled the rise of Korean conglomerates like Hyundai. More dramatically, the Korean and Taiwanese governments actively created and developed new core industries like plastic, textiles, and electronics, linked with needs in the rest of the economy. These findings provided a foundation for his skeptical view of the Washington Consensus.

Rodrik served as a professor at Columbia between 1992 and 1996 (before returning to Harvard for his current position). While there, he came across surprising research by Yale political scientist David

this problem. Finally, although trade makes the public more vulnerable and reliant on social welfare, it also undermines governments' ability to provide that welfare, by setting the wealthy footloose to shield their money from taxation around the world.

Rodrik took these ideas further in *The Globalization Paradox*, published three years after the global financial crisis. That book aired more far-reaching doubts about the viability of globalization as currently practiced, beginning again with the premise that markets require government. He sketched a history of globalization as it developed through nineteenth-century colonialism, showing how trading corporations like the British East India Company themselves served as governments to provide the security, regulation, and conditions needed to conduct their activities.

In the middle of the twentieth century, his book noted, economists believed that government needed to play a central role in supporting industries in developing countries. But "[b]y the 1980s, the dominant view among North American development experts and their followers had changed dramatically," he wrote. Free-market fundamentalism had replaced any considerations about the importance of governance, and had driven rich and poor countries alike (though for poor countries the process was especially coercive) to lift restrictions on the flow of goods and money. "In my own travels

in developing countries during the 1990s, I was struck by the ideological fervor with which policy makers, especially those in Latin America, had embraced this agenda," Rodrik wrote. "The new consensus turned foreign trade and investment into the ultimate yardsticks for judging the adequacy of domestic economic and social policies—a key deformation produced by the quest for hyperglobalization." The economies that did best during this period, he argued, are those that never adopted the Washington Consensus, like China, Taiwan, and India.

Rodrik argued that the rewards of globalization can be realized only if it is not taken to an

extreme. What he calls "maximum globalization" or "hyperglobalization" can work only if all countries adopt the same set of rules that are overseen by an accountable global government. But this degree of integration is impossible and undesirable, he maintains: nations have different preferences about the types of institutions and regulations they want, as his life's work has shown. And they should be entitled to those preferences, he insists—in order to make democratically accountable decisions within their borders.

Hence his "trilemma":

- A nation can be democratic and sovereign, but then it cannot be hyperglobalized.
- It can be hyperglobalized and democratic, but then it would have to give up its national sovereignty to a global government.
- Or it can be sovereign and hyperglobalized, but it would have to abandon democratic accountability.

His preference is to abandon hyperglobalization. "I do think there is something special about the nation-state," he says. "It creates reciprocal obligations that don't exist across national borders."

In seminar rooms and arcane journals, Rodrik writes, economists freely discuss the complicated reality of trade. But in public discourse, they have been reluctant. Why? One reason, he suggests, is that many in the profession believe that if they don't stand up for free trade, no-

"Many critics of market fundamentalism or hyperglobalization think that we can get rid of the main methods of economics, and that's where I part ways with them."

Cameron, who argued that the more exposed a nation was to international trade, the larger its government. Rodrik then conducted his own research on that topic and kept finding the same result, no matter how he looked at the data. Sweden, Denmark, and the Netherlands—small economies that engage in a lot of trade by necessity—all have very large safety nets. This might sound counterintuitive if one views government as the enemy of markets, but it stirred an instinct about globalization that Rodrik had long held. Economies need governments not only for markets to work well, but also to provide security to the vast majority of people whose lives have been made precarious by the world market. And he was concerned that economists too easily sneered at the public's concerns about globalization.

His resulting book, *Has Globalization Gone Too Far?* (1997), is a short monograph that remains Rodrik's most cited work to date. It develops three interconnected ideas about the tension between globalization and the stability and sovereignty of nations. Trade undermines the bargaining power of workers, who can more easily be substituted for one another across national borders. It also creates conflicts between, and within, nations over their most fundamental values—like labor laws and environmental regulations—when negotiating trade agreements. Prevailing international treaties on trade, Rodrik writes, ignore

body will. This is because of economists' devotion to the idea of comparative advantage, the concept underlying free trade that was posed by David Ricardo in 1817. Mathematically simple but unintuitive and difficult to grasp, it explains why trade does not need to be zero-sum: by freeing a country to focus on producing the goods that it makes better than others do, and trading the results, *both* economies can be better off. Before the neoclassical revolution in economics, European countries held to the principles of mercantilism, believing that they should export as much as possible—and that imports inherently made them worse off. Comparative advantage was one of the most important breakthroughs of modern economics, a fundamental premise of the field that its practitioners don't want to muddle in the minds of the public. But for the concept to work in practice, *many* conditions need to be met, and many moral and social problems need to be answered. Ignoring these, Rodrik argues, is unviable.

### Interests and Ideas

RODRIK IS A CITIZEN of the United States and Turkey, and frequently contributes to political discourse about both countries. In 2010, he and his wife, Pinar Doğan, an HKS public-policy lecturer, were suddenly thrust into a Turkish political drama that he describes as one of the most surreal experiences of his life. Rodrik's father-in-law, Çetin Doğan, a retired Turkish general, was at the center of a trial that preoccupied that nation, as he and his alleged collaborators were accused of plotting a military coup, known as the Sledgehammer plan, that would involve bombing a mosque, shooting down a jet, and arresting journalists and politicians.

Throughout that year, the couple spent their nights investigating the coup-related documents that had allegedly been uncovered. We “discovered this huge conspiracy of fabricated evidence,” Rodrik says. The documents, supposedly from 2002 and 2003, contained anachronistic names and facts. “Our favorite example,” he later wrote in his own version of the story, “was the pharmaceutical company *Yeni Ilac* that had been taken over by the Italian firm Recordati in 2008 and renamed *Yeni Recordati* subsequently. The coup documents, supposedly last saved and burned onto a CD in 2003, listed the company with its new name.” They maintained a blog about the case in Turkish and English, and informed the media about their findings. To Rodrik and Doğan, it was obvious that the coup was a fabrication, but the country's intellectual elite, which was skeptical of the military, shunned and condemned them: “We often felt like Don Quixote tilting against windmills.”

A decisive piece of evidence in the case came when digital forensics analysts showed that the coup documents had been created using the 2007 version of Microsoft Word. But this made no difference to the court: in 2012, the defendants were convicted and sentenced to prison. It was not until 2014, after the convictions were overturned and a retrial ordered, that all the defendants were acquitted. Sledgehammer is now widely regarded as a sham,

intended to enable then prime minister, and soon to be president, Recep Tayyip Erdoğan to suppress dissent.

Doğan and Rodrik were ultimately vindicated. But Rodrik was shaken by how institutions could be used, in an ostensibly democratic country with a free press, for anti-democratic ends. How could the liberal elite have been so credulous? It prompted him to think more deeply about ideas and narratives, topics not usually considered in economics. Economists think about people's actions in terms of “interests,” but not about the assumptions about the world underlying those interests, or how people come to know what their interests are. Rodrik and those members of the Turkish intelligentsia who opposed him appeared to share an interest in preserving Turkish institutions. But their stories about the trial were dramatically different; though they were hardly friendly to Erdoğan's conservative religious regime, liberals already had reason to be resentful of the military's grip over society, and they read Sledgehammer through that lens.



**One reflection of the vast scale of globalization and trade central to Rodrik's analysis: container ships off the coast of China**

“What the economist typically treats as immutable self-interest is too often an artifact of ideas—about who we are, how the world works, and what actions are available,” Rodrik wrote in a paper on the topic in 2013. In it, he calls for a better integration of interests and ideas in economics. When can a story change the way people understand what is in their interest? Is there such a thing as an “interest,” or is everything an idea, a story people tell themselves about their lives? These questions are at the outer edge of economics, but they seem to have taken on renewed importance especially in the last few years, as some of the field's central doctrines have been unsettled—often in ways Rodrik had anticipated long before.

Rodrik has an “imagination that is chastened—disciplined—by training in a rigorous discipline, but he hasn't allowed his training and that rigorous discipline to dampen his sympathies or to quiet his imaginative fire,” Roberto Unger enthuses. “What more could one ask for?”

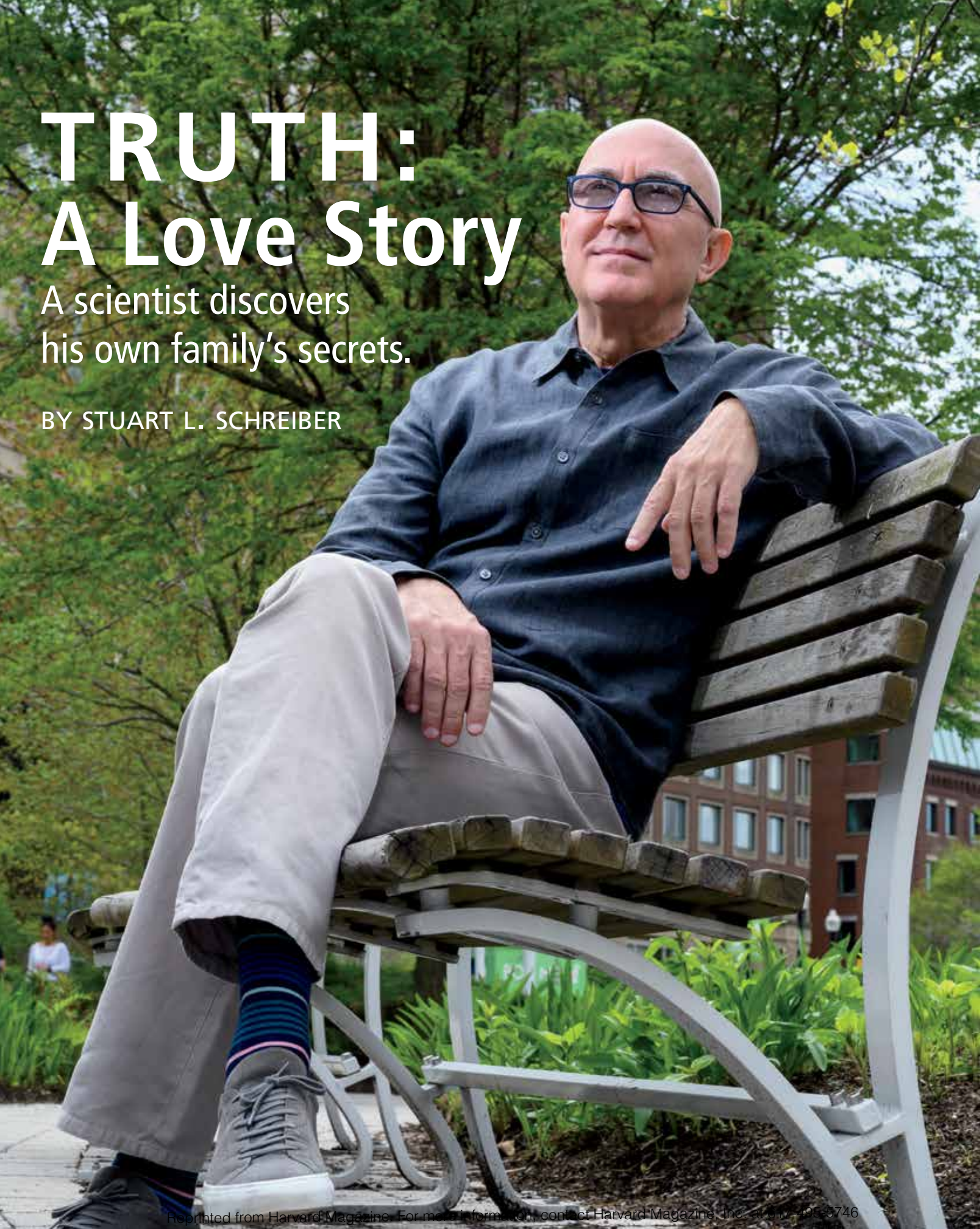
Associate editor Marina N. Bolotnikova '14 previously profiled professor of history Philip J. Deloria in “Native Modern,” in the January-February issue.



# TRUTH: A Love Story

A scientist discovers  
his own family's secrets.

BY STUART L. SCHREIBER





*There are three sides to every story—yours, mine, and the truth—and no one is lying.*

—ANONYMOUS

**O**N JULY 17, 2017, my world turned upside down when I discovered that the man who raised me was not my biological father. What followed was a challenging path of learning and insight into family truths that ultimately brought great joy and made me a better person.

I am a biomedical truth seeker—looking to gain insights into human biology and our genomes in order to mitigate suffering and death from disease. By analyzing DNA variation in persons with and without disease, my research is providing blueprints for therapeutics that are safe and effective.

Good fortune has offered opportunities to realize my dreams. I've run a large lab with many of the best young trainees and scientists in the world during the past four decades at Harvard, and I co-founded the Broad Institute—now a 4,000-person biomedical center seeking “to propel the understanding and treatment of disease.” Following human biology-informed blueprints, my trainees and I are catalyzing the development of new types of medicine in diseases ranging from cancer to malaria. In the past 30 years, I've started a half-dozen biotechnology companies that have delivered novel medicines—including ones at Vertex Pharmaceuticals that are closing in on defeating cystic fibrosis. I've also been happily married to my true love, Mimi Packman, for 38 years.

These circumstances are highly unlikely. The physical and emotional trauma I experienced as a child and teenager, inflicted by my father, taught me the art of compartmentalization. This skill provided an eraser that enabled immediate removal of unwanted events. Only now do I realize that my mother, my angel and protector, 11 years younger than my father, also excelled at this, and I suspect I learned a great deal from her,

albeit subliminally. In the worst of times, such as the beating from my father that left me (literally) broken and hospitalized, my sweet Cajun mother was there for me, flying up the stairs to protect me even when she, too, then suffered the consequences.

I was unaware of many factors about her life and mine—she artfully managed to deflect every effort to inquire, most effectively by responding, “Have I told you how much I love you?”—and it is difficult to know whether such knowledge would have been useful if she could have shared it with me. All I know is that my mother loved me unconditionally, showed that love continuously, did everything she could to give me the life I have enjoyed in adulthood, and is the reason I am where I am today.

**Stuart Schreiber sits “where I go to talk to my mother,” by the memorial paver that he had installed for her at Boston’s Rose Kennedy Greenway.**

Family secrets began to unravel on that summer day in 2017. My older brother, Tommy, with whom I have a close relationship, asked for help analyzing his 23andMe results: we were both seeking insight into

our risk alleles for Alzheimer’s, which had taken our mother’s life.

After refreshing our browsers, I knew instantly that my biological father was not the man who raised me. Tommy and I share the 25 percent DNA identity of *half* siblings, not the expected 50 percent, and our father-contributed Y chromosomes differ. After I struggled to get the words out, my brother responded, immediately and dispassionately, “Well of course, that makes perfect sense.” That only compounded my surprise and bewilderment. But it also instinctively resonated with me. I knew he was right, even though we hadn’t established which of us had the surprise father. I had lived with the sensation of being a family alien for 62 years, yet only at that moment did I realize it was true.

The man who raised me, my father Thomas Schreiber (known to my childhood friends as “The Colonel”) was a brilliant, ethical, yet challenging and complex man. He was also tall and physically imposing, and his army training, rank, piercing blue eyes, and intellect gave him a special aura. I imagined he was an equal-opportu-



# “Who am I? From where do I come? And who is this unknown man living in my body, coursing through my veins?... Would I ever find the truth?”

nity physical offender toward his family, including Tommy and my dear sister, Renée, only to learn later that his wrath was focused on me. How could I have been unaware of this? When you are told by your father that whatever you experience is entirely the consequence of your actions alone, you are not predisposed to share. Not with your family or even your very best friends, including my best friends who had shared with me their unimaginable cruelties, including family betrayals, rejections, deaths, and familicide. You use your magic eraser. You create your own truths.

The second phase—feeling unmoored—was by far the hardest. Who am I? From where do I come? And who is this unknown man living in my body, coursing through my veins? I would subconsciously shake my hands trying to get him out of me. And worst, with my mother and the father who raised me both deceased, would I ever find the truth, get to the answers I was seeking? When you think you understand your origins, there is no obsessive need to explore and connect; you are satisfied knowing there is an origin and your ancestors and family members can be searched and contacted whenever needed. But when that assumption is taken away, you *truly* are an alien.

And I wondered: was my mother supported and loved at my conception? This was my central focus—even more than determining the identity of my father. But the latter was the best way to answer the former.

My two older siblings and subsequent DNA analyses proved that my parents were able to conceive a child. This, and other observations of my mother and father as I grew up, made it certain to me that my conception was conjugal rather than “donor-derived,” a term associated with *in vitro* fertilization methods. Those searching for their sperm-donor fathers go through much of the same emotional turmoil I did, yet there are differences. My biological father was not an

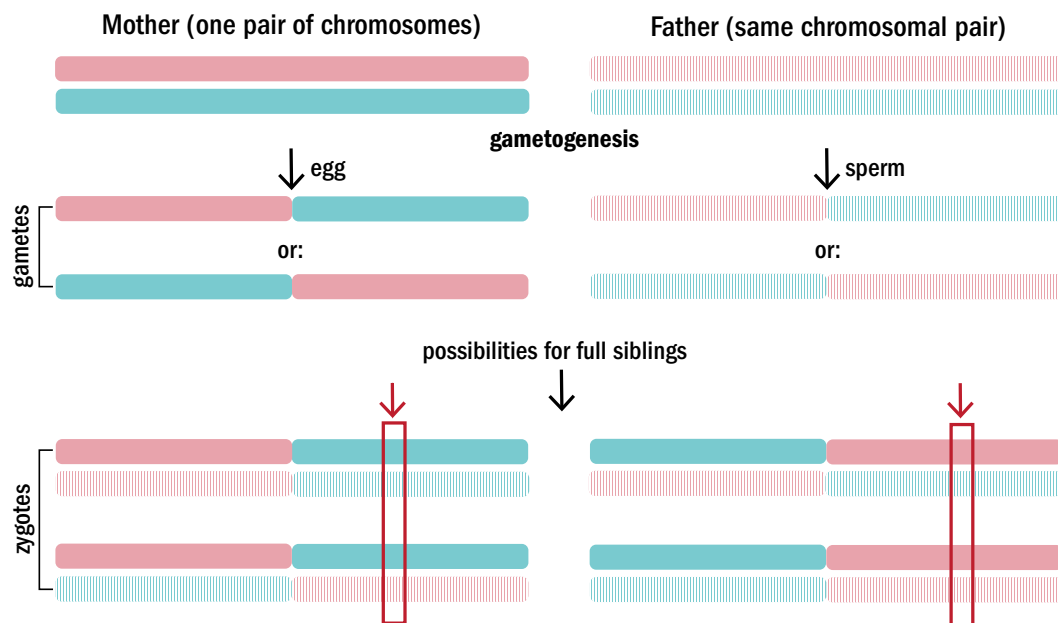
anonymous sperm donor, but who was he? And so I transitioned to my scientist mode, where I have developed some problem-solving skills related to my work. And as I tried to solve the mystery, I realized there were *two* men living in me: two mysteries to solve, and two new families to discover.

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## Discovering My First New Family

I’VE BECOME ADEPT at integrating DNA analyses with genealogical tools. My approach is related to the one originally used to deanonymize persons from otherwise anonymous databases, and more



This simplified illustration shows how just one pair (of 23) of maternal (pink) and paternal (blue) chromosomes from a mother (solid) and father (stripes)—inherited from their own parents—can be passed down in a single generation. Below the parental chromosomes are the four possible germ cells (gametes) resulting from a single genetic recombination, and the four possible zygotes that can be generated during fertilization from those gametes. (In reality, gametes result from multiple recombination events). The zygotes represent the four possible genetic outcomes for children of the mother and father.

DNA genotyping entails looking at hundreds of thousands of sites in the genome, which provides statistical robustness; the red boxes denote the genotype of just one such site. Now, imagine comparing the genotype of one *full* sibling—for example, a child resulting from the upper left zygotic pair of chromosomes—at this specific site, to a second *full* sibling, who would have equal probability of having any one of the same four possible zygotic chromosome pairs. If we look just at the two rectangles, the probability of two *full* siblings being identical at that locus on both chromosomes is one in four, or 25 percent. The probability of two *full* siblings being identical at that locus on a single chromosome is four in eight, or 50 percent. The probabilities for *half* siblings, who share only one parent, on the other hand, are 0 percent and 25 percent, respectively.

## An Alien to Oneself

THE SEQUELAE that followed that summer-day discovery comprised three phases: the surreal phase; the unmoored phase; the joyful in-the-hunt-and-discovery phase.

In the first phase, I was numb: no shock, anger, disappointment—just bewilderment. It was so hard to grasp. Unimaginable. It was hard to think clearly. And yet, a tiny bit of relief. Maybe truth would yield clarity and understanding of my father’s actions. This secondary sensation was the beginning of a wholly unexpected change in my internal being.

recently to identify the Golden State Killer; indeed, a current personal focus is on identifying missing persons with the humanitarian organization DNA Doe Project.

A key feature of this analysis considers both the “recombination” of chromosomes during the making of germ cells (sperm and eggs) and fertilization, which yields a zygote having both maternal and paternal genomes. Each of your chromosomes resulted from an act of conjoining your grandparents, even if they were no longer alive when your parents made the germ cells that gave rise to you. Each individual egg and sperm is unique, having its own genome resulting from the endless number of combinations of conjoining acts. Each of our moms made tens of thousands of eggs and our dads made millions of sperm. Each child results from one unique and specific egg and sperm—so our existences are truly remarkable. We each won the improbable zygote lottery!

Chromosomes in germ cells are mosaic combinations of the parental chromosomes. This remarkable fact of inheritance provides a foundation for relating the amount of DNA identity between any two persons and the number of generations likely separating their last common ancestors—parents for siblings; grandparents for cousins; great-grandparents for second cousins; etc. This, together with the miracle of the Internet, where, for example, obituaries provide a wealth of genealogical information, permits the stitching together of plausible ancestral trees. With additional DNA relatives, the resolution increases until eventually the final tree is a certainty.

Within two months of searching public and private DNA ancestry databases, identifying DNA relatives and the amount of DNA identity, and computing, constructing, and connecting family trees up and down multiple generations, I eventually discovered the identity of my biological father, whom I had code-named “the crybaby” since my latent but previously suppressed ability to cry had been fully unleashed during this period. Crying was not part of my childhood: it was in my child’s mind a sign of weakness and therefore something I would never show my father throughout adolescence. Instead, after receiving a blow, I would respond, “Is that all you’ve got?”

DNA seemingly left no uncertainty about the solution to my puzzle. But where was this man at the time of my conception in early 1955? Was an encounter with my mother even geographically possible?

Newspapers.com revealed this mystery person had lived within walking distance of my mother’s home. (This led to a loud and joyful

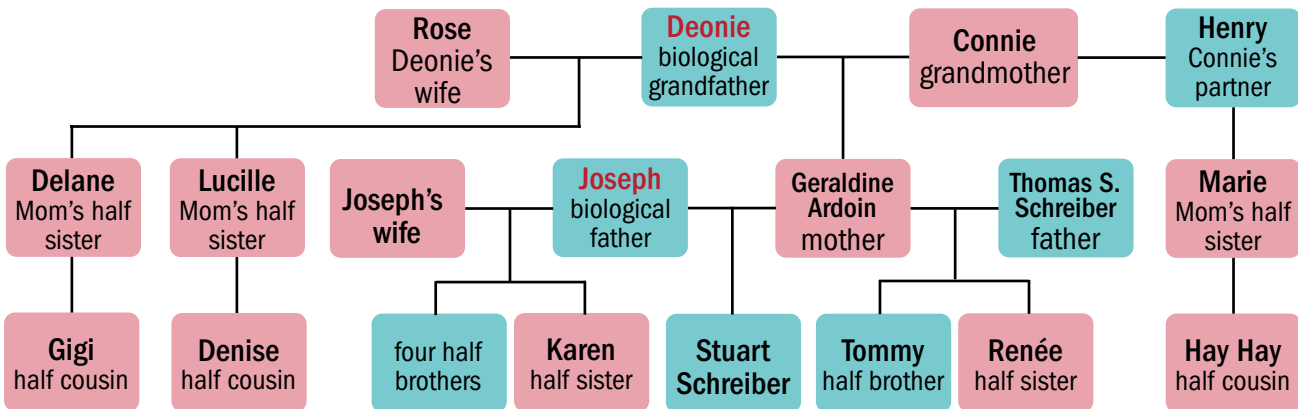
shriek at five o’clock one morning that startled my poor wife out of her deep sleep!) In 1955, Joseph (“Joe”) was a handsome and charming young bachelor, recently returned from military service at the end of the Korean War. He was by all accounts a kind, generous, and caring man (and he cried easily!)—exactly as I had imagined. In my mind, Joe provided my abused mother with kindness and humanity when she was in great need—and I am the consequence. In comparing a series of paired, age-matched photographs of Joe and me, I realized just how much of a physical clone I am—we share the same eyebrows, eyes, noses, ears, chins, and even Adam’s apples. And we were both bald by age 35!

Identifying my biological father was a key first step in overcoming my sense of being untethered. He had died, but I discovered five new amazing half-siblings and many new cousins. Not knowing my origins had led me to a profound need for connectedness, and given me a voracious appetite for gaining family connections. In the past 18 months I have thus far identified 150 DNA-validated living family members and built a family tree of more than 2,500 ancestors. They go as far back as my maternal great-great-great-great-great-great-great-grandmother, Emashapa Panyouasas, the daughter of the chief of the Choctaw Nation in the Mississippi Gulf Coast in the early eighteenth century.

Emashapa explains a large chunk of Native American DNA on my chromosome 17. But along that path, something puzzling arose that gained clarity only over time. Emashapa, for example, could not possibly have had Hungarian (paternal grandfather) or Irish (paternal grandmother) origins, and any link to Cajuns would seem tenuous at best. Indeed, a sizable subset of my DNA relatives simply made no sense—until I considered that the man described as my *mother’s* father (my maternal grandfather, Henry, conveniently alleged by my maternal grandmother, Connie, to have died immediately prior to my mother’s birth) was in fact *not* her biological father.

### ...and My Second New Family

OPENING MY MIND to the possibility of another false paternity, and applying the skills I had honed from my earlier search, revealed a DNA-guided path to my mother’s actual father, Deonie, and a second new family. Because Deonie was a member of one of the original Mississippi settler families, and there have been decades of inter-family marriages among those settlers, my sleuthing this time was far simpler, even though, like Joe, Deonie had never sub-



Family tree showing family members mentioned in the text.



## “My mother’s best friend has said she wondered, from her first meeting with my mother, why my father hated his younger son, but not his other two children, for no apparent reason.”

mitted his saliva for DNA analysis. Formidable DNA and genealogical tools enabled me to bridge this gap.

My first-hand interviews of these new family members, and discoveries of family artifacts, have illuminated my mother’s origins and provided powerful insights about her early life. She was born of prostitution (her mother, Connie) and moonshining (her father, Deonie). That she endured life first in a brothel and then in the Catholic convent to which she was delivered sheds much light on her reticence about describing her childhood in any detail beyond conveying great displeasure with the nuns who raised her and great pleasure in taking refuge in the local library, where a librarian showed kindness and patience, offering my mother a life raft from abuse, much as Joe would provide one later.

I’ve learned how my grandfather, the moonshiner, purportedly on the run after killing a man in Mississippi, and my grandmother, the prostitute, came together, in a series of highly improbable circumstances. But without this unlikely event, my mother wouldn’t have existed, nor would Renée, Tommy, and I. (I like to think that I won an even more improbable zygote lottery twice!) These circumstances have triggered a fascination with the early- to mid-twentieth-century Mississippi and Louisiana cultures, which were surprisingly separate and distinct in this period preceding facile travel. It has opened my mind to those cultures and their current variants, and offered helpful life lessons as described later.

My mother created a truth of her childhood by erasing the abuse and mayhem and focusing on the library, and later Joe. She created her truth of our family, keeping paternity to a simpler version. She may have passed through her own surreal and unmoored phases, but compartmentalizing was her *mejingjörð*—her magical belt that gave her the power to reach her joyful phase and achieve her dream of providing love to her children.

I’ve often wondered how my truths would be received by her, but of course this is unknowable, as they were only revealed three years after her passing.

### Who Knew What?

IT WILL LIKELY BE IMPOSSIBLE to learn the answers to the big questions remaining in my mind, but inferences lead me to some best guesses. More importantly, these questions are not like those that led to my unmoored phase. I have a deep desire to know these truths, but am comfortable realizing that may not be achievable.

*Did my father know I was not his biological son?* I am nearly certain he did, although some family members are less so. Several months after my birth in New Jersey, my father left for Kansas for nearly a year, leaving my then-fragile mother alone with her new baby and two other young children, one in struggling health. My mother once confided, “This was the worst year of my life.” My father returned from Kansas to take the family to France, where he was newly stationed. I believe my parents tried to put their past behind them for the good of the family, putting the secret in their figurative lockbox. But his physical actions toward me, often conducted behind a closed door in his den, offer additional clues. My brother

has shared his observation that “that only happened to you.” My mother’s best friend has said she wondered, from her first meeting with my mother, why my father hated his younger son, but not his other two children, for no apparent reason. My father was less adept at compartmentalizing. He tried to believe one truth but couldn’t help returning to the one hidden in his lockbox.

*Did my mother know?* Almost certainly. Every element of my history with my loving protector mom now fits perfectly into the new fact-based narrative.

*Did Joe know?* Possibly not. Based on all I’ve since learned from my new relatives, his strong family relationships would have demanded sharing—making a secret hard to maintain, and “Grandma K,” the matriarch of the family, would not have tolerated separation from her grandson, born under any circumstances.

*What did my mother know about her father?* It is unlikely she knew Deonie’s identity, given her mother’s circumstances, but I am nearly certain she was aware of the likelihood that her father was someone other than the man her mother said had died just before her birth. Her use of her magic eraser may have led to her first encounter with a lockbox.

*Did Deonie know?* Yes, as did his wife, Rose, and his daughters, Delane and Lucille, although the daughters knew only of my mother’s existence. They were unaware that they were all living in close proximity in neighboring towns in Louisiana, where Deonie had for some time been appointed sheriff—and his superior was well known for providing protection and cover for gambling and prostitution. Indeed, my grandmother learned her trade as a prostitute when she was “put to work” by her father at just 14 years of age. Most tellingly, Rose told Delane about my mother after Delane’s classmates teased her about having a secret bastard sister, and Lucille had two uncomfortable encounters with my grandmother Connie, including one as a little girl, when she was with her daddy, Deonie.

But one answer to “What is truth?” is “It depends on whose truth.”

### Reconciliation

MY RELATIONSHIP with my father evolved in a satisfying way, especially after it became evident that I might make something of my life. We discussed science and even published together (“Reactions That Proceed with a Combination of Enantiotopic Group and Diastereotopic Face Selectivity Can Deliver Products with Very High Enantiomeric Excess: Experimental Support of a Mathematical Model,” 1987). He disapproved of the lack of rigor in the chemical sciences, in which I was trained, relative to his areas of physics and mathematics, yet paradoxically I received my first direct compliment from him in the early 1990s when I described my reasons for transitioning to the even less rigorous biological and medical sciences. Although his parenting skills were lacking, he excelled as a grandparent, showing affection to Renée’s and Tommy’s children that would warm anyone’s heart.

My warmth toward him in his later years may best be described by my fear of his dying without either of us having shared the word

“love.” I tried, on several occasions, but he deflected even an attempt at an embrace with a forceful handshake and strong extended arm. So on June 20, 1993, I left on his work table (which I had only recently received the privilege of using during my weekend visits) a letter that expressed the words he was unwilling to hear: *“Dear Dad, On this Father’s Day, I want to share the things I have learned from you—honesty, integrity, and finding what we enjoy so we can do it well.... I love you. Your son.”*

I waited for several months, hoping to hear from him, but to no avail. I queried my mother, only to learn that she knew nothing of the letter and had never heard my father refer to it. Then, maybe six months later on a return visit, while alone, I spotted an envelope on his otherwise pristine desk. A wave of guilt over my curiosity subsided when I read the face of the envelope—*June 20, 1943*, from my father and addressed to his father, Thomas Joseph Schreiber. The letter inside was easily accessed and its contents confirmed that it was indeed meant for me to see. *“Dear Dad, Today being Father’s Day, it is appropriate that I write you how I feel about my dad. First, I am quite proud of you. Considering your early environment, your lack of opportunity, and the difficulties which confronted you in your youth, you have done a fine job in providing a good and comfortable home for your family... Thoughtfully, Tom.”*

With this, we achieved a degree of closure about our complicated, but in the end respectful and caring, relationship. Years after his death, I found both letters together, tucked in a book in his private library. He never shared a word about them with either my mother or me.

Both of my fathers passed in the year 1996.

## Becoming a Better Person

I HAVE ALREADY NOTED one of the most unanticipated consequences of learning my origins and family truths: my tears flow easily now. I am no longer inclined to hide my emotions, and they are easily triggered—whether by seeing the love of a parent and child walking in a Boston park or by learning of another case of abusive behavior.

I view newly discovered family members as cherished persons with their own deep and remarkable stories, and have become eager to learn about their lives. Many of them (including dear cousin Hay Hay) have embraced me with great warmth and love. These discoveries have yielded endless joy. My wife and I have traveled the globe to meet new relatives and see my ancestors’ homelands—Budapest (paternal grandfather) most recently, with Northern Ireland’s County Tyrone (paternal grandmother) next in the queue. We have received gifts such as Grandma K’s flatware from Northern Ireland (with love from cousin Sharon), and learned many happy details of the father I never knew, including from my inspiring, survivor cousin Pat. I will never know him, but I listen regularly to an audiotape of his voice, lovingly given to me by my new sister Karen—with free-flowing tears every time.

My pilgrimages have included a family reunion in The Kiln, Mississippi, where Deonie was born (and the birthplace of my second

cousin, NFL Hall of Famer Brett Favre—who would have imagined!), and a visit to Rotten Bayou, Mississippi, where Deonie’s family members were laid to rest. They also include a visit to Louisiana, my mother’s birthplace, where I met my mother’s previously unknown (to both of us) half-sister Lucille, whose Cajun smile, charm, voice, looks, and ability to radiate love are all those of my mother. Meeting Aunt “Cile” was like seeing my mother again, four years after her death. Lots of tears with that visit! I learned details of the life of my mother’s other half-sister, Aunt Delane, who is now deceased. But her daughter Gigi, and Lucille’s daughter Denise, cousins from my second new family, have become a close and integral part of our lives.



My mother and father, “The Colonel” (right), at the Pentagon, where he was awarded a Certificate of Achievement in October 1961

But the changes go beyond my emotions. I am a progressive who in the past would have asserted confidently my open-mindedness and nonjudgmental character. But I was wrong. Meeting my new families in The Kiln (Mississippi), Houma (Louisiana), Eatontown (New Jersey, where I was conceived), and Pécs (Hungary), among many other places, has exposed me in a new way to political and religious realities that, I now realize, were previously easy for me to dismiss. Now they feel different. They feel like my origins, reality, and family. It’s a lot easier to embrace a wider range of beliefs and values. This change is the most difficult for me to articulate—but it feels profoundly different. And I like it. I know I’ve become a better person. ▢

*Morris Loeb professor of chemistry Stuart L. Schreiber is a member of the department of chemistry and chemical biology, as well as a co-founder of the Broad Institute of Harvard and MIT, a member of the National Academy of Sciences and National Academy of Medicine, and a recent recipient of the Wolf Prize in Chemistry. Together with his wife, Mimi Packman, he has started a foundation that hopes to provide paths to prosperity for the defenseless when they are most in need of safe zones, kindness, love, and support. He dedicates this article to his mother.*





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# Montage

Art, books, diverse creations



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## Dance in Translation

Choreographer Wendy Jehlen's "dance diplomacy"

by MARINA N. BOLOTNIKOVA

**W**HEN Wendy Jehlen, M.T.S. '00, improvises dance, *bharatanatyam* comes out. The choreographer and dancer was trained in the South Indian classical genre from age seven or eight; while she didn't become a *bharatanatyam* performer, its dizzying footwork and winding gestures are unmistakable in her work, a part of how her body naturally moves.

Her most recent production, *The Conference of the Birds*, based on the twelfth-century Persian Sufi poem of the same name, might at first bewilder viewers. Combining movement from South Indian dance, Brazilian capoeira, and a long list of other sources, the piece doesn't represent contemporary dance as most people know it, or a mere fusion of styles. Instead it reflects the philosophy of Jehlen's Boston-based dance company, ANI-

**Left:** Dance theater company ANIKAYA's *The Conference of the Birds* explores movement, self-knowledge, and human interdependence. **Above:** Wendy Jehlen

KAYA, which seeks to remove what she calls the "imagined barriers" between people, culture, and art around the world. "Imagined" is the key word for Jehlen. "I hate the idea of crossing borders, because they're nonexistent. I can't really understand the idea that cultures are separate or that they are monoliths," she says. "It's visibly not true."

In some ways, *The Conference of the Birds*, which is all about people's inseparability and interdependence, has been a lifelong endeavor. Jehlen grew up in a half-Jewish family in Somerville, Massachusetts, where it always felt natural and right to see immi-



grants from across the world who looked different from one another and spoke different languages and understood the world differently—for her, culture was a continu-

ous process of mixing and reconstituting. Her aunt was a *bharatanatyam* dancer, and watching her perform, Jehlen recalls, was like a “religious experience.” Jehlen went

to Brown to study something “very Brown,” she says, a self-directed major called “Storytelling and Survival: Ritual and Performance as Guardians of Culture.” After taking time off to dance in India, she enrolled at Harvard Divinity School in 1997 to learn Persian and study Sufi literature (and to access Harvard’s dance studios). She founded ANIKAYA—a blend of the Hebrew *an* (gift), the Persian *i* (of), and the Sanskrit *kaya* (body)—around the same time, as a vehicle for her various dance projects.

Jehlen says she always knew she was born to dance, and her career has combined the styles she learned growing up with genres from Japan, West Africa, and those of the many dancers she has traveled around the world to recruit. She calls the work “dance diplomacy”—but resists the concept of “fusion,” as though it were a process of randomly gluing

together elements from different genres. “It’s important to me to learn something so thoroughly that it becomes part of your body,” she explains: to understand how each dance form uses the body, the deep relationships and symbols and meanings behind every movement and gesture. Humans are wired to be moved by dance, she says, but that doesn’t mean dance is a “universal language.” When Jehlen creates choreography with her partners, she emphasizes, “It’s not about the superficial aspect of the art form. We’re meeting at the core of the art form, not at the, ‘How do you move your hands?’”

The evening-length *Conference of the Birds* begins with its eight dancers (each from a different country) moving across the stage in full-bodied, synchronized flight, their arms evoking something between avian and human—as powerful and light as a bird’s wings. In the background, projections fill a screen with sketches of birds, text, and pieces of passports and visas, representing the violence of borders. The poem on which the show is based, by Farid ud-Din Attar, tells a spiritual, searching story about the birds of the world on a perilous quest to find their sovereign, Simorgh. In the end, the birds discover that they themselves, together, are the Simorgh; a Persian folk etymology translates the word to “30 (si) birds (*morph*).”

"It's actually based on a Sanskrit text, which is probably based on something even older," Jehlen says. "This is a story that's been with humanity for thousands of years: these questions of traveling, traveling together, traveling across, and of the necessity of all

O P E N B O O K

# Picasso

## Reinterpreted

dence, and a diverse set of research disciplines to bear on the work, resulting in *Picasso's Demoiselles: The Untold Origins of a Modern Masterpiece* (Duke University Press, \$29.95). The masks he depicted provide one clue to her interest: Blier has published broadly on Africa's art and architecture. After recounting her personal journey toward this analysis, and the methods she employed, her introduction begins briskly:

**Most scholars today** see Pablo Picasso's iconic painting *Les Femmes d'Alger* (O.J. no. 1) as a work about five prostitutes who boldly stare down their male bidders, a theory rooted in part in Picasso's purported discomfort with women. The latter tensions are thought to be reflected in the strange African masks that several of the figures wear. It is hard to imagine that a work of this complexity, one that Picasso labored on for more than five months, had such a porous and, indeed, insecure foundation....I reveal instead that the painting is richly layered, multi-valent, and far more interesting. My reading sees these figures not only as sexual beings but also as mothers, grandmothers, lovers, sisters, and both family and race progenitors—in short as women more broadly defined in their myriad roles. This is based in large part on an array of new evidence that has escaped scholars to date, materials that inspire new questions about the painting. Through these sources I have broadened the painting's purview considerably, expanding it from its narrow brothel setting and transforming the five occupants into global women of multiple eras and identities. This reading is consistent with the larger colonial world Picasso and his friends inhabited, as well as core interests of the period in terms of both evolution and ideas of origin....

**One may ask** what more could possibly be said about *Les Femmes d'Alger*, one of the most thoroughly analyzed works of art, ever. But Suzanne Preston Blier, Clowes professor of fine arts and professor of African and African American studies, has brought fresh eyes, new evi-



### Pablo Picasso's *Les Femmes d'Alger*, 1907

Picasso likely did not want the fact that he was using book images to be known for fear they would harm his growing reputation. Even later, when his reputation as a revolutionary artist was secure, he likely made sure that none of these materials saw the light of day. Today, we know that Gauguin, Matisse, and other artists of the era used illustrated books, journals, and photographs as sources, yet until very recently the use of published works of this type was seen to be problematic. This legacy of disparagement no doubt made Picasso's sources difficult to address, much less admit, and if this meant that basic questions were unanswered, so be it.



GARY ALPERT

**Jehlen as a starling in the “valley of bewilderment,” one of seven the birds must pass through on their search for Simorgh in *The Conference of the Birds***

pen,” she insists. “I think it was probably my aunt,” she offers. “I really don’t know.” She’s reluctant to provide an explanation for her pursuits, perhaps partly because she doesn’t view her work as marked by any particular interest in a specific tradition—*bharatanatyam* or Sufi mysticism or the Japanese dance-theater form *butoh*—but instead by the larger, mysterious, interconnected human experience. ANIKAYA has also produced works inspired by the Hebrew Bible; the concept of gender; and the idea, common to world religions and modern physics, of a time before creation. “To me, physics is as awesome and fascinating as anything else,” she says. “I live for awe, and that’s very strong in the parts of Islam that I’m interested in. I live for cognitive dissonance and things that force you to wrap your head around other things.”

For Jehlen, it’s important that performances convey a specific emotional experience to

viewers. Contemporary dance, she says, often focuses more on self-expression or exploring movement itself, and less on content. “My work is very much about content....We want viewers to understand it in the way we intend.” Next year, she hopes to tour with Sholeh Wolpé, the Iranian-American poet and playwright who translated the most recent English version of *The Conference of the Birds*. Wolpé would read a condensed version of the story before the performance, to give viewers a frame for understanding the dance.

“I think our work as artists is to train people to be empathetic,” Jehlen adds. Though she doesn’t often address it directly, she also thinks about the connection between her work and current culture and politics. “People get so much more attached to their identity when they perceive themselves as under attack. It can be a dangerous situation culturally because it makes you want to freeze your culture and label everything and separate everything.” But as Jehlen knows, the intersections of culture can be every bit as magical, and generative, as their core.

## Cabaret and Cooperation

*Pink Martini bandleader Thomas Lauderdale is at his best bringing people together.*

by JACOB SWEET

**A** CABARET SINGER, known simply as “Meow Meow,” struts onto the stage—her golden dress shimmering, her Disney-Villainess black wig bouncing—and lifts her arms triumphantly. Nothing happens.

“Usually someone throws flowers at this point,” she stammers, in faux-shock. She lifts her arms a second time. Again, no flowers. She walks off stage in a huff, fetches her own bouquet, returns to the stage, and hands it to a woman in the audience. Then she walks off again. Moments later, Thomas Lauderdale ’92, seated at the piano, re-introduces Meow Meow, “international singing sensation.” She takes the stage as if for the first time. But now, there are flowers.

For much of the Sunday evening show at Boston’s Berklee Performance Center, Lau-

derdale—the creator and band leader of Pink Martini, an eclectic “little orchestra” with about a dozen members—plays the silent straight man. There is no need for excess flair on his part. Some performers are described as “dynamite.” Meow Meow is more like a fusion bomb.

This subdued display by Lauderdale is surprising. He grew up in rural Indiana, one of several adopted siblings from across the world, later moving to Portland, Oregon, with his family. At Harvard in the early 1990s, he was the unofficial social leader of Adams House, which he described over the phone as the “artsy, gay, international freak House.” He founded Café Mardi, a Tuesday-night coffeehouse within



**As a performer, Lauderdale is often the center of attention. With Meow Meow, he embraces a supportive role.**

Adams, and hosted the party that allegedly led to the closing of the Adams pool. “It feels like most of my weekends were in cocktail dresses,” he recalled.

After graduating with a degree in history and literature, he moved back to Portland and planned to run for political office, at-





COURTESY OF THOMAS LAUDERDALE

**In a moment, Lauderdale's playing style can shift completely.**

the birth of Pink Martini, a Portland-based group that would go on to perform mostly classical, jazz, and old-fashioned pop music in more than a dozen languages. They soon found themselves performing at fundraisers for every possible progressive political cause: civil rights, affordable housing, library funding, education.

Though Lauderdale's loudest feature may be his flamboyant exuberance, his greatest skill is bringing people together. Before the undergraduate Houses

were randomly populated, Lauderdale orchestrated a one-time party between Adams and Eliot, the "preppy" House. After college, he said, Pink Martini became like "Adams House on the road," and he branched out in his social leadership role. In 1997, "Sympathique," a single he co-wrote with bandmate China Forbes '92, became a hit in France, allowing Pink Martini to tour overseas. This spring and summer, they will perform in Turkey, South Korea, France, Belgium, and Hungary, switching between popular songs from across the world and those written by Lauderdale and friends in myriad lan-

## Off the Shelf

Recent books with Harvard connections

Matters military. Having really negotiated with North Korea (see "The Korean Nuclear Crisis," September-October 2003, page 38), and later served as secretary of defense, Ash Carter (now director of the Kennedy School's Belfer Center for Science and International Affairs) offers insights into running the Pentagon, U.S. strategic challenges, and more, in **Inside the Five-Sided Box: Lessons from a Lifetime of Leadership in the Pentagon** (Dutton, \$29). Useful background heading into 2020—or for whenever the public and its leaders next take military and defense issues seriously. From a soldier's perspective—far from the secretary in the hierarchy, but proximate to the Pentagon—U.S. senator Tom Cotton '99, J.D. '02 (R-Arkansas), a veteran (and prospective presidential candidate after 2020), writes about **Sacred Duty: A Soldier's Tour at Arlington National Cemetery** (Morrow, \$28.99).

**100 Poems**, by Seamus Heaney, Litt.D. '98 (Far-

rar, Straus and Giroux, \$25). A useful collection of the late Nobel laureate's work, from first to last, selected by his family members—the first in several projected volumes by the publisher, including a biography. Until the latter appears, Adam Kirsch's "Seamus Heaney: Digging with the Pen" (November-December 2006, page 52) provides a superb point of entry into the life and poetry.

**Young Castro: The Making of a Revolutionary**, by Jonathan M. Hansen (Simon & Schuster, \$35). A fresh life, based on Cuban archival sources and interviews, of the

origins of the larger-than-life figure whose nationalist uprising in his island country ultimately steered into its present, communist gridlock. The author is a senior lecturer on social studies.

**Alfred Stieglitz: Taking Pictures, Making Painters**, by Phyllis Rose '64, Ph.D. '70 (Yale, \$26). The veteran essayist and biographer (Virginia Woolf, Josephine Baker, et al.) briskly portrays the pioneering photographer who made an even greater impact with his gallery, 291,

**The master photographer: "Spring Showers," by Alfred Stieglitz, c. 1900, gelatin silver print**

through which Americans came to know Picasso and other foundational modern artists.

**Everybody Wants to Go to Heaven but Nobody Wants to Die**, by Amy Gutmann '71, Ph.D. '76, and Jonathan D. Moreno (Liveright, \$27.95). U Penn's president, a political philosopher, and her faculty colleague, a medical ethicist, draw on the old song title to point out that although Americans "view the afterlife [as] an ideal place where no one has to pay the price of achieving eternal perfection," it ain't that way. Given merited concern about, say, the misuse of CRISPR technology to "perfect" embryos, their accessible exploration of American health care and bioethics is important and timely.

**Evolution or Revolution? Rethinking Macroeconomic Policy after the Great Recession**, edited by Oliver Blanchard and Eliot University Professor Lawrence H. Summers (MIT, \$39.95). Having attained "normalcy" after the protracted recovery from the financial crisis and Great Recession—and therefore a period suitable for both reflection and worry about the next, inevitable downturn—a pair of leading macroeconomists present colleagues' best thinking about monetary and fiscal policy, and about the need for heightened focus on inequality and political economy. Academic, but not impossible.

**Coffee Lids**, by Louise Harpman '86 and Scott Specht (Princeton Architectural Press, \$19.95 paper). During the next crisis, the macroeconomists (see prior item) may



DIGITAL IMAGE © THE MUSEUM OF MODERN ART LICENSED BY SCALA / ART RESOURCE, NY

guages. His home itself is a monument to togetherness. *Portland Monthly* described it as “one of the city’s most important cultural hubs,” known for dinners, private concerts, benefit auctions, and “his legendary annual holiday party, replete with a towering tree, caroling, and arguably the most eclectic and influential gathering of Portlanders to be found.”

On stage with Meow Meow, with whom Lauderdale released the joint album *Hotel Amour* in March, he is the backbone, the steady pulse of the show. Throughout the selections, she runs through the audience, picking out men and parading them onto the

stage, locked with them arm-in-arm. Then they become part of the performance. During one dramatic song, she gets four men to high-kick alongside her, like a line of Rockettes. Later, a group lifts her up and spins her around, in a sitting position, on their shoulders. By the end, she is crowdsurfing—getting passed, parallel to the ground, through the auditorium. Lauderdale has his eyes trained on her through all of these moments, adjusting the tempo, volume, or timbre to keep the performance steady, adding to the spectacle without distracting from it.

He said he thrives in this low-key role. “I think I’m a good accompanist because

I breathe with whomever I’m accompanying, and a lot of accompanists don’t do that,” he explained. “I like supporting, especially singers.” During delicate songs, he plays softly with warm phrases. When it’s upbeat, he doesn’t just play the piano—he slaps, flicks and bops it like he’s playing whack-a-mole. His support isn’t exclusively musical. When Meow Meow gets into a split-legged position and feigns being stuck, Lauderdale holds a bottle of wine just out of her reach, inspiring her to get up and finish the performance.

In the end, his goal is to get everyone in the crowd laughing at and enjoying the same

consume a lot of strong coffee. This unusual gem of a book takes seriously the business of designing disposable cups and lids. Copiously illustrated, with mind-boggling detailed diagrams, and the resulting products. You will never ignore your coffee topper again.

**The Weil Conjectures: On Math and the Pursuit of the Unknown**, by Karen Olsson ’95 (Farrar, Straus and Giroux, \$26). A genre-defying exploration of the siblings Simone and André Weil, philosopher and mathematician, respectively, mashed up with a memoir of the author’s own undergraduate math infatuation, carried off in the style and skills she has since honed as a novelist and former editor of *The Texas Observer*.

**Democracy and the Next American Economy**, by Henry A. J. Ramos, M.P.A. ’85 (Arte Público/University of Houston, \$22.95 paper). A progressive, in search of “where prosperity meets justice” (the subtitle), surveys the socioeconomic landscape and an array of social-justice organizations in pursuit of an agenda for federally guaranteed rights to basic social goods; a unifying civic culture; refreshed democratic institutions; environmental sustainability; and more. Given current crabbed and ugly discourse, it is hard to see how existing institutions could act on his list, but that doesn’t invalidate the making of it.

**D-Day Girls**, by Sarah Rose ’96 (Crown, \$28). A deft, appealing account of the under-recognized role of spies who aided the resistance, sabotaged the Nazi armies,

helped turn the tide of World War II. You’re in good hands from the get-go, in Trafalgar Square, as “under the eternal gaze of Admiral Lord Nelson...Mrs. Odette Samson” races to an appointment at the War Office on July 10, 1942, “the 1,043rd day of the world’s worst war.”

**Unequal Europe**, by Jason Beckfield, professor of sociology (Oxford, \$99). Globalization aside, Beckfield’s searching research leads him to conclude that the internal integration of Europe has prompted “a new era of restructuring welfare states in a way that signals the beginning of retrenchment and the ending of Europe’s long-term trend to income egalitarianism.” Thus, just as U.S. critics have taken to bashing the Old World for its supposed sins of socialism and petty regulation in the name of greater equality, both “flaws” are fading away. More generally, an important analysis of the institutional bases of social outcomes, such as the distribution of income among households.

**Chinese Architecture: A History**, by Nancy Shatzman Steinhardt, Ph.D. ’81 (Princeton, \$65). A large-format work of scholarship and accompanying beautiful photographs and illustrations, by the professor of East Asian art and curator of Chinese art at the University of Pennsylvania. Important, indeed invaluable, as China’s explosive urban and industrial growth has transformed its cities and countryside, and destroyed much of its traditional building.



**The master architects: Hall for Worship of the Ancestors, Beijing, early fifteenth century with many later repairs**

**This America: The Case for the Nation**, by Jill Lepore, Kemper professor of American history (Liveright, \$16.95). Having recently produced *These Truths*, an enormous reinterpretation of the nation’s entire history (see the review, “True Lies,” September–October 2018, page 64), Lepore focuses more tightly (138 small pages) on what the community really is, the nature of patriotism, and the American traditions that matter—lest they be perverted by illiberal nationalism.

**Don’t Read Poetry: A Book about How to Read Poems**, by Stephanie Burt, professor of English (Basic Books, \$30). As the subtitle suggests, Burt attempts, accessibly and successfully, to demystify poetry by focusing readers’ attention on individual poems, and the reasons for creating and engaging with them: feelings, character, wisdom, and so on. The author, who serves as poetry editor for *The Nation*, was profiled in “‘Kingmaker’ to Gatekeeper” (November–December 2017, page 78).



thing. At a time he thinks is especially fractured politically, in which people can comfortably avoid opinions or world-views they don't like, he finds the mission especially important. During his concerts, he does what

comes naturally: bringing people together, often literally, in the form of a conga line.

What comes after? He's still figuring it out. Pink Martini isn't a protest band, but it hasn't totally shaken its politically minded

past. "Ideally," he said, "there will be a moment where everybody comes to the table and we start listening to each other and try to figure out a way together through all this."

# A Fragile Relationship

*The parallel, perilous histories of China and Japan*

by EDWARD S. STEINFELD

AT A TIME when the United States is preoccupied with its relations with virtually everyone else in the world, it is worth being reminded that other nations have their own relationships with one another. As Ezra Vogel, Ford professor of the social sciences emeritus, so brilliantly argues in his latest book, *China and Japan: Facing History*, probably no other bilateral relationship comes close to combining the mixture of profound cultural affinity, intense national rivalry, and long-term geopolitical import found in that between China and Japan. Given his unparalleled knowledge of the language, culture, and society of both nations, Vogel is uniquely positioned to tell this story. He is, after all, one of the few scholars ever to have written pioneering books about each society—*Japan as Number One: Lessons for America* (1979) and *Deng Xiaoping and the Transformation of China* (2013)—that also achieved best-seller sta-

tus within each society. With *China and Japan: Facing History*, Vogel now turns to the interaction between these two great societies.

As the book makes clear, Japan and China for more than 1,500 years have shared bonds of deep cultural interconnection and mutual learning. At the height of premodern cosmopolitanism during the Tang Dynasty (618-906 c.e.), Buddhism, Confucianism, and written language (Chinese pictographs) all made their way from China to Japan. The vector was neither war nor conquest, but instead a small number of individuals in the cultural sphere: Japanese monks who had studied in Chang'an, the great Tang capital at the eastern end of the Silk Road; Koreans situated geographically between the two great cultures and accustomed to navigating both; and a select few Chinese monks and craftspeople who had made their way to Japan.

A thousand years later, during the May 4th Movement (1919), the great intellectual

burgeoning considered by many Chinese to be their nation's first modern moment, the flow of ideas would persist, albeit in the reverse direction. So many of the era's leading lights—including the writer Lu Xun and two of the co-founders of the Chinese Communist Party, Chen Duxiu and Li Dazhao—all spent key formative years in Japan. It was there that they witnessed Meiji-era Japan's standing up to the West, thanks to a strong state, a powerful military, and a citizenry galvanized by nationalism. While in Japan they were also able to be inspired by a Japanese society far more liberal, vibrant, and open to ideas—including many from the West—than anything comparable back in China.

If only cultural cross-pollination described the totality of the Sino-Japanese experience. But as Vogel's book painstakingly describes, the two nations are just as inextricably linked through calamitous violence, bloodshed, and subjugation. Bookended by the years 1895 and 1945, each society through its interaction with the other suffered devastating civilizational defeat.

Loss came first to the Chinese, who in their stunning defeat by Japan in the Sino-Japanese War of 1894-95 would suffer not only the indignity of territorial loss—the ceding of Taiwan to the growing Japanese empire—but more existentially, the total collapse of their age-old system of domestic governance and social control. Within 20 years of the 1895 defeat, the last Chinese emperor had abdicated, Confucian society lay in shambles, and the country had split apart into warlord-run fiefdoms.

Into the breach surged an increasingly militarized and imperially ambitious Japan, first colonizing Taiwan and Korea in 1895 and 1905 respectively, then establishing a vassal state in Manchuria in 1931, and finally invading and occupying all of coast-

Ezra Vogel, *China and Japan: Facing History* (Harvard University Press, \$39.95)



CENTRAL PRESS/GETTY IMAGES

**Chinese refugees stream through the wrecked streets of Chungking, heavily bombed by the Japanese from 1938 to 1943 during the Second Sino-Japanese War.**

al China in 1937. The ensuing eight years of war would cost China roughly three million soldiers and 18 million civilians killed, and perhaps 100 million people displaced.

In 1945, having expended so much blood and treasure in its attempted subjugation of China, Japan would meet its own devastating defeat. Nobody, least of all Vogel, suggests a moral equivalence between Chinese and Japanese losses during this period, but again, the human toll is jaw-dropping. It is estimated that more than three million Japanese died during what in effect was the second Sino-Japanese War (1937-45). Almost a million of those casualties were civilians.

Yet as Vogel points out in an invaluable chapter on Japan's colonization of Taiwan and Manchuria, this period of subjugation was about more than just violence and destruction. Indeed, it generated its own peculiar forms of inter-societal connectedness. Manchuria in the first decades of the twentieth century became in the Japanese consciousness what the "Wild West" had become in

the American imagination a century earlier, a place to escape the constraints of home and begin life afresh. By 1937, roughly 270,000 Japanese farmers had settled in Manchuria. Still more Japanese populated the colony's administrative offices, businesses, and extensive railway operation. By 1940, roughly 850,000 Japanese were living in Manchuria, meaning that families throughout Japan even today need not trace far back in history to find direct and highly personal links to China. Vogel notes the fairly typical example of Boston Symphony Orchestra director Seiji Ozawa, D. Mus. '00, who was born in Shenyang in 1935, and spent the first nine years of his life in Manchuria.

The Chinese, too, found ways to adapt and interrelate as they navigated life under Japanese rule. In Taiwan, the best local students were sent to universities in Japan, preparation for subsequent careers in Japanese-run businesses or in the colonial administration itself. Indeed, as Vogel points out, locally born Taiwanese administrators—ethnic Chinese—were sent to Manchuria to help set up the Japanese colonial government there, and subsequently, to support the wider Japanese occupation after 1937. During the war years, numerous



**A Japanese print by Suzuki Kwasson depicting a Chinese defeat during the First Sino-Japanese War (1894-95)—one of the wounds dividing the neighbor nations**

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FROM TOP: HOUGHTON LIBRARY/HARVARD UNIVERSITY; MELISSA BLACKALL

Chinese men in both Taiwan and Manchuria ended up serving in the Japanese armed forces. Lee Teng-hui, president of the Republic of China on Taiwan (and chairman of the ruling Kuomintang Party) from 1988 to 2000, served in his young adulthood as a second lieutenant in the Imperial Japanese Army during World War II. Lee's father had been an administrator in the Japanese colonial police force on Taiwan, and his brother died in the service of the Imperial Japanese Navy during the war.

## Chapter & Verse

Correspondence on not-so-famous lost words

**Richard Kennelly seeks** a poem he saw in the late '70s, perhaps in *The Atlantic Monthly*, in which an older man muses about a youth who has a motorcycle; that causes him to recall his own past and the wild rush of riding horses. Kennelly remembers the phrases "The neighbor's boy" (or "son"), "A bum in boots they call him," and "The smell of horse sweat."

**Mark Saltveit submits** two palindromes—*Aspice nam raro mittit timor arma, nec ipsa / Si se mente reget, non tegeter Nemesis*—that begin an elegiac Latin poem consisting of 58 palindromes attacking Duke

Karl of Sudermannland (a.k.a. Charles IX of Sweden). Saltveit writes that the poem "is (impossibly) ascribed to Johannes a Lasco and likely Polish," and hopes someone can identify the true author, or original source. (His friend William Berg translates those opening lines as: "Consider: for fear doesn't send arms to everyone, nor does / Nemesis herself cover a man, if he rules himself with his mind.")

**"and drinking claret"** (May-June). Sandra Opdycke was the first reader to recognize these slightly misremembered lines

from the first book of Stephen Vincent Benét's epic poem, *John Brown's Body*. They appear in the section that introduces Sally Dupré, and describe her father: "And he died as he lived, with an air, on credit, / In his host's best shirt and a Richmond garret, / Talking to shadows and drinking claret."

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).



While Vogel appropriately resists judging these experiences, he performs great scholarly service in simply reporting them. Considered embarrassing or even scandalous by constituencies on both sides of the Japan-China divide today, these experiences have largely been erased from the historical narratives of both nations. The silence, however, underscores the sensitivity of the feelings involved, the depth of the psychic wounds, and the degree to which so much of this shared history remains unresolved.

The history of rivalry, particularly the trauma of the period from 1895 to 1945, continues to cast a long shadow over Sino-Japanese relations today. The two nations remain locked in a territorial dispute over islands in the Sea of Japan (East China Sea). Many Chinese today resent what they feel is Japan's unwillingness to acknowledge, let alone take full responsibility for, atrocities committed against Chinese citizens during World War II. Many Japanese resent what they feel is

the Chinese government's encouragement of anti-Japanese xenophobia, and they fear China's growing military might. In turn, many Chinese now accuse Japan of remilitarizing. The cycle of enmity persists.

Vogel's work acknowledges all of this, and goes a long way to explaining it. But there is an equally important theme running through much of *China and Japan: Facing History*. Both nations—Japan since the middle of the nineteenth century, and China since the beginning of the twentieth—have been engaged in a self-aware and society-wide process of modernization. For both nations, this in essence has involved responding to an existentially challenging model posed by the West: the triumvirate of a strong state capable of projecting power, a strong nation galvanized by a common identity, and a strong industrial system energized by the Promethean power of state-of-the-art technology.

By virtually any measure—wealth, power, prosperity—Japan and China by the twenty-

first century had navigated their way to success. For all the trauma experienced along the way, they had done so time and again by engaging in what Vogel in earlier works has termed a “group-directed quest for knowledge.” Both nations have demonstrated—and continue to demonstrate—a sublime capacity for society-wide learning, most often from practices observed abroad. What is more, they translate such learning into purposive and highly aspirational efforts at society-wide renewal, redefinition, and re-creation. From our own defensive crouch in the present era of “Making America Great Again,” we could do worse than open ourselves up to gleaning lessons from such an approach. 

Edward S. Steinfeld '88, Ph.D. '96, is Swearer director of the Thomas J. Watson Institute for International and Public Affairs and Dean's professor of China at Brown University. He reviewed Vogel's biography of Deng Xiaoping in the September-October 2011 Harvard Magazine.

## ALUMNI

# Are Mushrooms the New Meat?

*Two agricultural entrepreneurs hope so.*

by NELL PORTER BROWN

**O**N THE WESTERN SIDE of Martha's Vineyard, a dirt road winds past secluded summer homes with ocean views and then dead-ends at an eerie sight: 45,000 oak logs stacked in crosshatch formations under a canopy of trees. In the nearby lot, young men with chainsaws and a Bobcat are cutting felled trees and piling up more logs, while inside a passive-solar-fueled greenhouse, Tucker Pforzheimer '13 inspects the latest fruits of these labors.

“Put your finger right there,” he says. “Do you feel the gill? And you feel the end is curled? That’s a pretty perfect cap. You should take a bite.” He slices off the firm, nutritious shiitake that in five weeks has grown to the size of a doorknob, and hands it over. “It’s kind of special having it off the log.”

And it really is. The flavor—an earthy nuttiness laced with garlic—is surprisingly rich, almost creamy. The mushroom is chewable, with a springy texture resembling meat. That’s part of the plan, too. “What we’re doing,” Pforzheimer says of MV Mycological, which he runs with business partner and friend Truman French '13, “is replicating as closely as we can the wild environment of a shiitake, to bring you a product that tastes like it would if you had gathered it in the forests of East Asia, as opposed to a very generic, watered-down



**Truman French and Tucker Pforzheimer amid stacks of prime shiitake-growing oak logs at their Martha's Vineyard farm**

version of this great mushroom that is basically all that everybody knows in the U.S.”

The young entrepreneurs actually met

in Organismic and Evolutionary Biology (OEB) 54: “Biology of Fungus,” taught by Gray professor of systematic botany Donald H. Pfister. Although unaware that these “very engaging personalities” would soon be operating a mushroom farm, Pfister recalls that they did appear to be “hatching a plan” based on an interest in “fungi that was more than academic.” With more than 2,300 known edible species, fungi are an “underappreciated” source of sustenance, he adds, and it’s “admirable that they are looking to make them more prominent in the American diet.”

Pforzheimer concentrated in OEB, and French studied economics, but both had shared similar experiences in South America during college. French witnessed deforestation for crops and expanded cattle ranching in the Brazil Atlantic Forest, and Pforzheimer saw the wholesale burning of Andean climax forest in Argentina while working for eight seasons as a guide for a fly-fishing outfitter. That destruction, he says, was accelerated by tariff easements that allowed more South American beef to be exported to the United States and China. “For weeks the *cordillera* would be shrouded in thick black

smoke, only to reveal blackened mountains when it cleared,” he reports. “This is not the fault of those seeking to make a living; it’s the fault of those demanding beef.” Curious about starting a business, they wanted to promote “an alternative source of protein” more aligned with their environmental values, says French, a lifelong vegetarian. And soy-based, industrially processed “vegan meat” is not the answer either, Pforzheimer asserts, fearing the emphasis on soy production will lead to more destruction in the Amazon and elsewhere. “We should simply be eating more plants.”

Mushrooms seemed a viable option because they could grow well in the cool, maritime climes and high seasonal humidity of Martha’s Vineyard where French was born and raised and had access to leased land. An initial “get-rich-quick scheme” to develop a truffière, according to Pforzheimer, also prompted French to experiment with injecting shiitake spawn into oak logs left over from work done by his landscaping and construction company.

The spawn (live active fungus, versus spores) took root in the logs—spreading

white, branching threads of mycelium, the vegetative part of the fungus—and by the fall of 2014 had fruited into “the nicest shiitakes we’d ever seen,” says Pforzheimer, who learned about the food industry from his father, chef and restaurateur C. Andrew Pforzheimer ’83. (He and other family members have been notable Harvard supporters, as in the eponymous undergraduate House.) The younger Pforzheimer shopped this debut crop to Vineyard chefs, who were impressed enough to persuade him to leave Manhattan, where he worked at the food-industry software and analytics company Averro, and move to the island in 2015.

Now in its fourth full season, MV Mycological is producing 600 to 1,000 pounds of fiber- and nutrient-rich shiitakes a week from April through December. Grown outdoors, using traditional Japanese techniques and no fungicides or pesticides, the mushrooms require significant manual labor from the company’s four employees, but only a fraction of the land, water, and other resources required for meat production. Moreover, French says, their restorative agricultural system relies entirely on oak logs salvaged as waste prod-

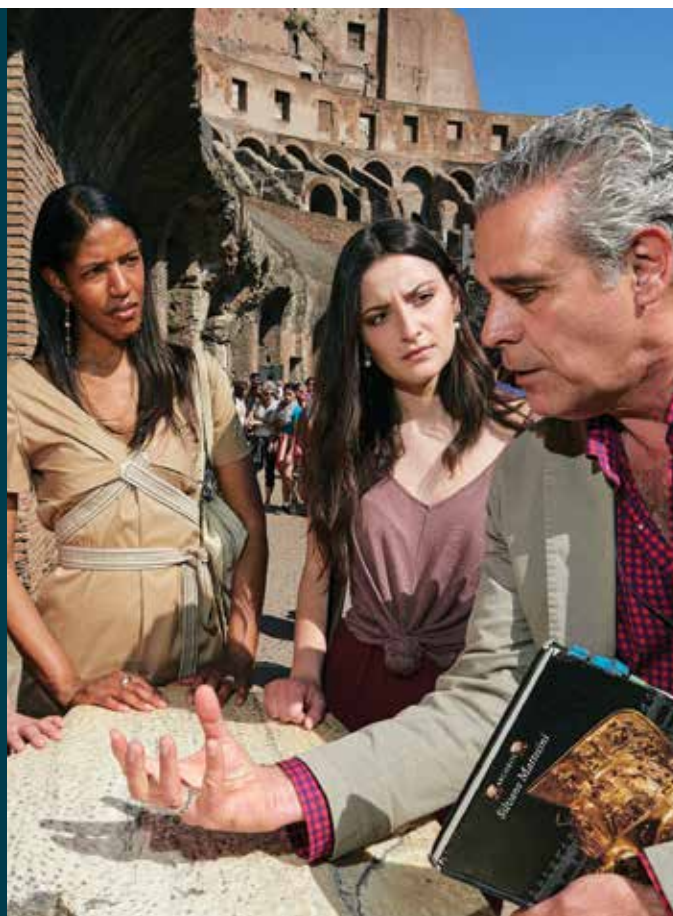
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**Tending to shiitakes during the “fruiting” cycle in a solar-powered greenhouse**

ucts from a local gravel and mining company, or from conservation groups intent on reclaiming the island’s sand plain by removing newer-growth trees.

With 30,000 logs rotated in batches that fruit each week, some shiitakes are sold at a

chefs in Manhattan. On the table now is a potential deal with Dig Inn, a chain of locally farm-sourced restaurants, to help supply its Boston and New York kitchens. “That will allow us to build a larger farm just for them,” Pforzheimer explains. “Part of build-

ing this brand has been to really differentiate ourselves as a premium mushroom option. We know the market is there. The whole industry is ripe for disruption.”

FOR CENTURIES, wild shiitakes were found and collected only on decaying wood in Japanese forests; *take* means mushroom, and *shi* refers to the *Castanopsis cuspidata* tree. But since the early 1970s, when the U.S. Department of Agriculture (USDA) opened the door to shiitake spawn imports, prompting the spread of farming technology, shiitake production has soared in the United States and around the globe. The volume of fresh mushrooms, used as food and in medicines, topped 2,109 tons in 2017, according to a Market Research Future report, and is predicted to more than double by 2023. In the United States, “specialty mushroom growers” (of shiitakes, oysters, and other exotics) generated \$96.2 million in sales for 2016-2017, according to a report by the USDA’s National

## The Harvard Medalists

THREE ALUMNI received the Harvard Medal, for extraordinary service to the University, during the Harvard Alumni Association’s (HAA) annual meeting on Commencement day.

Teresita Alvarez-Bjelland ’76, M.B.A. ’79, followed up her business career by making contributions to the fields of education, cultural exchange, and human rights. The first international woman, and first female Harvard M.B.A., to lead the HAA, she focused on the theme “Harvard Serves.” A past recipient of the Radcliffe Distinguished Service Award, the HAA Award, and the College admissions office’s Hunn Award, she serves on Harvard’s Global Advisory Council and is co-chair of the Cuban Study Program Advisory Group.

*Charismatic and committed volunteer leader with boundless enthusiasm and an extraordinary talent for bringing people together, you have proudly embodied the spirit of one global Harvard, personified a commitment to service, and inspired alumni across schools, generations, and cultures to connect with Harvard and with one another.*

Dan H. Fenn Jr. ’44, A.M. ’72, is the College’s longest-serving class secretary, and a former president of the Association of

Harvard College Class Secretaries and Treasurers. He has been assistant dean of freshmen, assistant editor of *Harvard Business Review*, and editor of the *HBS Alumni Bulletin*, and also worked extensively in state and local government, including as a staff assistant to President John F. Kennedy ’40, LL.D. ’56, and as founding director of the John F. Kennedy Presidential Library and Museum.

*Esteemed statesman, dedicated educator, and consummate public servant whose career has spanned the Kennedy White House and the Harvard Kennedy School, you have steadfastly served the University and your class for three-quarters of a century, earning a legacy as a beloved mentor, colleague, and friend to generations of alumni and faculty.*

Tamara Elliott Rogers ’74 has been associate dean for advancement and planning at the Radcliffe Institute for Advanced Study, associate director of University development, director of University capital projects, director of major gifts for the Faculty of Arts and Sciences, director of international admissions, and vice president for alumni affairs and development. The longtime member of the Committee for the Happy Observance of Commencement has also volunteered on her class-reunion and class-gift committees.

*From Radcliffe College student to Radcliffe Institute pioneer to Harvard Campaign pacesetter, you have devoted your life to the advancement of the University’s foundational values through volunteerism and philanthropy, leading a broad coalition of alumni, donors, and staff with wisdom, creativity, warmth—and just the right balance ofchutzpah and humility.*



**Teresita Alvarez-Bjelland**

JIM HARRISON



**Dan H. Fenn Jr.**

JIM HARRISON



**Tamara Elliott Rogers**

KRIS SNIBBE/HFAC

Agricultural Statistics Service; the 182 shiitake growers (those with at least 200 natural wood logs in production or commercial indoor growing space) brought to market 10.5 million pounds that generated \$41 million.

But shiitakes (*Lentinula edodes*) still lag behind white button, crimini, and portobello mushroom crops (cultivars of *Agaricus bisporus*). All of these mushrooms, along with the widely produced oyster variety, grow by decomposing dead plant matter, Pforzheimer notes, unlike morels, chanterelles, porcinis, and truffles, which “live mutualistically with a living tree or plant.” The majority of commercially produced shiitakes, therefore, are raised inside plastic bags. They feed on substrates like sawdust and manure, in climate-controlled warehouses where various horticultural methods can expedite the fruiting process and modulate volume and appearance.

Companies in the Netherlands, Kosovo, France, Japan, and increasingly in the Middle East and Africa, produce large volumes of shiitakes, and are major exporters, but, as a group, Asia-Pacific growers generate the bulk of the world’s shiitakes. China leads the pack, and its growers are also exporting shiitake spawn, promoting sales to U.S. growers, retailers, and distributors, according to recent industry reports. Some current and former major U.S. producers, already squeezed in Pennsylvania, for example, by acute labor shortages, say the Chinese spawn—far cheaper, despite being imported at major expense in frozen logs—are undercutting their businesses. Just as concerning, they add, is that the fruited shiitakes are then sold as “Made in USA,” even though the spawn is already a complete form, akin to a tomato seedling.

Pforzheimer says he has received several emails from Chinese “log manufacturers” himself, urging him to switch. But, in general, he explains, one of the main problems is the lack of “USDA regulation specific to the mushroom industry in this country, [which means] that the spawn blocks or logs can be made of, literally, anything. Many are marketed as ‘oakwood shiitakes,’ dissembling the reality that, at most, they are grown on media containing oak chips. Because mushrooms absorb and concentrate whatever they grow on, this lax regulation of growth media is a health problem.”

FOR OBVIOUS REASONS related to erratic temperatures and the nature of live cul-

## 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 graduates. The 2019 recipients, announced at a ceremony on May 29, are: **Carroll Bogert** ’83, A.M. ’86, a journalist and human-rights advocate; **Lael Brainard**, Ph.D. ’89, a Federal Reserve Board governor and expert in international trade; **Roger Ferguson** ’73, J.D. ’79, Ph.D. ’81, CEO of TIAA; **Jane Lubchenco**, Ph.D. ’75, a marine ecologist; and **Joseph Nye**, Ph.D. ’64, former dean of the Kennedy School and an authority on foreign policy and power. For more about the honorands, see [harvardmag.com/centennial-19](http://harvardmag.com/centennial-19).



Graduate School of Arts and Sciences honorands (from left) Lael Brainard, Joseph Nye, Jane Lubchenco, Carroll Bogert, and Roger Ferguson

COURTESY OF THE GRADUATE SCHOOL OF ARTS AND SCIENCES

tures, wild-harvested organic shiitakes are far harder to grow—at least consistently—than those nurtured by an HVAC system. But they do thrive on the Vineyard. French learned years ago, through his landscape work and through projects with his father, the stone mason-artist Lew French, about the constant battle against moisture, viruses, and fungi waged by those who want fruit orchards. “We have 95 percent humidity in the summer. What doesn’t like humidity? Apples, cherries, peaches,” he says. “But with shiitakes, we don’t have to fight it, and we’re getting eight months of production—what crop here gets that? This year, with the addition of the solar greenhouse, we’re likely to get 10.”

And because of how they are grown, MV Mycological’s shiitakes contain double the amount of fiber found in factory-produced specimens. “Again, it’s common sense,” Pforzheimer says. “Where are they getting the fiber from?” He gestures across the thousands of vertically upended logs in the

greenhouse tent where the shiitake spawn have been feasting on cellulose, sugar, and moisture and are currently fruiting. Shiitakes and other mushrooms are already a primary source of protein and used in health practices in Pacific Rim countries, and nutritional testing has shown that MV Mycological’s shiitakes also hold significantly more protein—2 grams per about four mushrooms—than typical store-bought varieties. That’s no match for the average 18 grams of protein packed into a three-ounce serving of ground beef—but, Pforzheimer argues, “gram for gram,” shiitakes are a healthier, more sustainable source: “One gram of shiitake protein requires about one-seventieth of the water and one-thirtieth of the land to produce.” Moreover, shiitakes are high in lentinan, a type of sugar molecule found, in some U.S. laboratory studies, to bolster the immune system and possibly aid the cancer-fighting process. Shiitakes are also rich in B vitamins, copper, manganese, zinc, selenium, potassium, and other immune-boosting





**Slicing a nutrient-rich shiitake fresh off a log (above), and a harvest bound for New York and Boston restaurants (below)**

elements. That garlicky flavor? It's a sulfur compound—the same one found in allium, Pforzheimer adds, which oak-grown shiitakes synthesize. And because these shiitakes have always absorbed natural light and, like humans, tan, they are high in vitamin D.

But all of that fiber and nutrient-absorption takes a *lot* of time. At MV Mycological, the cycle from spawn to first fruiting is at least 18 months. For a good year of that period, the freshly inoculated logs, manually “crib-stacked” in those crosshatch formations, just sit in the woods.

The cultivation process starts with spawn that Pforzheimer and French purchase from a company run by two University of Wisconsin-trained mycologists who import slants—“small vials of pure mycelium, which looks kind of like cotton in a tube”—from Japan and then propagate it on a mixture of grain and sawdust in five-pound bags, Pforzheimer explains. “The sawdust-mycelium suspension is kind of like an egg for a developing chicken fetus—we inoculate it into logs, and it contains the starter nutrients necessary for the mycelium to migrate from the inoculation site into the log.”

Each spring and fall a new batch of fresh-cut oak logs is quickly injected with the spawn (to prevent any other micro-organisms from infiltrating the wood). The roughly 30 injection sites per log are then plugged with plastic caps—and the mycelium at each site starts colonizing immediately. Unlike plants, mushrooms are not photosynthesizing, but respiring, Pforzheimer explains. “They breathe oxygen and exhale carbon dioxide. All their carbon comes from what they eat, with all the attached min-

erals and vitamins therein.”

Because the mushroom itself is the reproductive body of the fungus, it carries the spores, and each fruiting is an effort to propagate. “Fungi manage their growth via turgor pressure,” Pforzheimer continues. “Imagine a very thin water balloon. As each individual mycelial thread, or hypha, absorbs water, it forces its tip between the cells of its growth medium and metabolizes the nutrients in those cells to fuel itself. And when the fungus begins to form mushrooms, it aggregates many hyphae, which force their way out of the growth medium into the air and form the mushroom. It's certainly a biological wonder!”

Logs that are ready for fruiting are soaked by groups in a dumpster-size vat of water and transferred to the greenhouse, says French, who runs the farm's complex logistical operations alongside the company's only other employees, Pforzheimer's younger brothers Jack and Ross. The immersion helps induce fruiting, which takes five or six weeks. “On average, each log produces eight to 12 mushrooms per fruiting time at five times a year, for three years,” French says. The farm processes more than 10,000 logs a year from its 45,000-log inventory, with a late-winter break.

French works on the island full-time, but Pforzheimer, as business developer, also travels in New York and New England. “While it's frustrating for this whole plant-forward dietary shift not to happen overnight, it's gratifying to know that I can make a living trying,” he says, “even when I'm waking up at four to catch the first boat off island.”

The business relies on their uncannily complementary skill sets.

**“We're not buying grain and growing pigs on it. We're taking waste products and producing protein.”**

Pforzheimer's salesmanship is grounded in his passion for mycology and knowledge of the daily pressures of the restaurant industry. French has contacts, like the family friends who lease the company its 4.5 acres, and understands how business gets done on an island, where anything not produced on site is prohibitively expensive to import and bartering services among tradespeople is the norm.

Farming was never French's plan. “I thought I'd become an investment banker,” he says, “truth be told.” Business school is still not out of the question, but growing mushrooms makes sense to him now. He hails from Minnesota farming families, and has worked outside with plants, rocks, and earth his whole life. His vegetarian parents raised him that way, primarily because they grew up around slaughterhouses. It was the travels in Brazil, where his father owns farmland, along with his Harvard economics classes, that pushed him to evaluate the impact of many global businesses—min-



ing, fossil fuels, commodity agriculture—on the “long-term health of society.” Ethical considerations aside, he adds, the inefficiencies and environmental degradation wrought by industrial-meat production don’t make sense, and the shiitake alternative does: “We’re not buying grain and growing pigs on it. We’re taking waste products and producing protein.”

He and Pforzheimer have mulled replicating scalable models of their operations elsewhere in New England—among other ideas. After six years of hard work, they both still appreciate the creative autonomy their business provides, but that giddy flush of excitement over starting an uncharted venture has waned. Entrepreneurship is like a dream that “becomes a nightmare pretty quickly—and then it becomes a dream again,” French says, laughing. “There are many iterations.” What is continually gratifying, however, is seeing evidence of all that a handful of brown fungus can achieve: “When people start to have the epiphany that their choices can drive a market—that their consumption patterns can actually cause change.”

## New Harvard Overseers and HAA Elected Directors

THE NAMES of the new members of the Board of Overseers and elected directors of the HAA were announced during the HAA’s annual meeting on the afternoon of Commencement Day.

Five of the new Overseers were elected for the standard six-year terms. Janet Echelman will complete the remaining four years of the term of Mariano-Florentino Cuéllar ’93, who was elected in February to the Harvard



Evelyn Richmond

## The Senior Alumni

EVELYN RICHMOND ’41, of Nashville, Tennessee, and Arsen Charles ’42, of Westwood, Massachusetts, were the oldest Radcliffe and Harvard alumni present on Commencement day. HAA president Margaret M. Wang ’09 publicly honored the pair at the association’s annual meeting.

For Richmond, who turned 98 in June, it was a distinction she also enjoyed last year (see July-August 2018, page 75). “There are so many people here,” she said, gesturing from her seat near the dais in Tercentenary Theatre, as crowds of alumni, graduates, guests, and others were funneling in to hear the Commencement address by German chancellor Angela

Merkel, LL.D. ’19. “But I’m pleased to at least shake hands with the new president of Harvard.” She was again accompanied by her son, Clifford Richmond ’75, who explained, “Every time we come here, when we leave, Mom says, ‘Let’s do it again next year!’ It’s all the pageantry, the people, it’s wonderful—and she’s an honored guest, which she loves.”

Charles, 99, was flanked by his wife, Marie Charles, a Vassar graduate, who said that she and her husband both felt duly celebrated. “We just love coming here,” she added. “Everyone has just been so nice.”



Arsen Charles

Corporation. (His service begins on July 1). Ryan Wise will complete the remaining year of the term of James Hildreth ’79, who resigned from the board in view of other personal obligations.

This year marked the debut of online voting for both elections. Harvard degree-holders cast 36,735 ballots in the Overseers election, a roughly 37 percent increase over 2018’s turnout.

For Overseer:

Alice Hm Chen, M.P.H. ’01, Berkeley. Chief medical officer and deputy director, San Francisco Health Network

Janet Echelman ’87, Brookline, Massachusetts. Visual artist, Studio Echelman

Vivian Hunt ’89, M.B.A. ’95, D.B.E., Lon-

don. Managing partner, U.K. and Ireland, McKinsey & Company, Inc.

Tyler Jacks ’83, Cambridge. Director, Koch Institute for Integrative Cancer Research, Massachusetts Institute of Technology

John B. King Jr. ’96 (’95), Washington, D.C. President and CEO, The Education Trust

Reshma Saujani, M.P.P. ’99, New York City. Founder and CEO, Girls Who Code

Ryan Wise, Ed.L.D. ’13, Des Moines. Director, Iowa Department of Education

For elected director (three-year term)

Bryan C. Barnhill II ’08, Detroit. City manager, City Solutions, Ford Smart Mobility

Ethel Billie Branch ’01, J.D.-M.P.P. ’08, Flagstaff, Arizona. Former attorney general, The Navajo Nation

Salomé Cisnal de Ugarte, LL.M. ’94, Brussels. Managing partner, Hogan Lovells

Adrienne E. Dominguez ’90, Dallas. Partner, intellectual property, Thompson & Knight LLP

Christina Lewis ’02, New York City. Founder and CEO, All Star Code

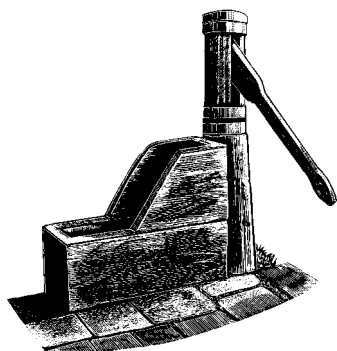
Zandile H. Moyo ’00, Los Angeles. Business development and social impact manager, Califa Farms

## Cambridge Scholars

FOUR SENIORS have won Harvard Cambridge Scholarships to study at Cambridge University during the 2019-2020 academic year. Madeleine Woods, of Colorado and Winthrop House, an English and folklore and mythology concentrator, will be the Lionel de Jersey Harvard Scholar at Emmanuel College; Mahnoor Ali, of California and Adams House, a comparative literature concentrator, will be the William Shirley Scholar at Pembroke College; Elba Alonso Monsalve, of Spain and Currier House, a physics and mathematics concentrator, will be the Charles Henry Fiske III Scholar at Trinity College; and Jared Perlo, of Massachusetts and Dunster House, a history and science concentrator, will be the John Eliot Scholar at Jesus College.



# The “Great Asymmetry”



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

COUNTRY DANCE to Supercomputing. The previous College Pump celebrated the durability of conventional publishing in a digital age (“Paper Persists,” May-June, page 80). Almost immediately, the Fall 2016 and Spring 2017 editions of the estimable, eccentric, *Harvard Library Bulletin* appeared. (Those are the correct cover dates for volumes 27, number 3, and 28, number 1; good scholarship won’t be rushed.) With them came editor Anne-Marie Eze’s note celebrating more than 200 prior issues—and announcing “a period of transition as the Library strives to increase the journal’s reach and scholarly impact in the digital age.” Following the release of volume 28, number 3, the journal converts to an online format.

But first, one must take note of “The Ward Dance Manuscript: A New Source for Seventeenth-Century English Country Dance,” in Fall 2016: a scrupulous 26-page reading, interpretation, and transcription of a single library holding. It is characteristic of the *Bulletin*’s work (may it find a robust Internet audience). Less characteristic, and perhaps uniquely Harvardian, is the contributor note for the author. It reads, in full: “Aaron Macks is a systems architect with *Harvard Business Review* and a sometime teacher of country dance. He is currently working building CoKL: Corpus

Kalendarium, a digital tool for analyzing the devotional calendars in Books of Hours. His previous research includes automated parsing of Akkadian verb-forms and clustered supercomputing.”



CAREER PATHS. Riffing on the proliferation of higher-education degree and certificate programs, *New Yorker* online humorist Matthew Osubor recently offered a guide to the “Highest-Paying College Degrees for 2019.” Here’s hoping that most Harvard graduates are set on a suitable course, and so do not rue missing out on the “B.S. in facts and alternative facts,” the “M.F.A. in freelance,” the “A.A. in juice-bar tending,” or (most important of all) the “M.A. in mature adulting.”



THE TEACHING LIFE. Memorial minutes presented to the Faculty of Arts and Sciences during the year illuminated the teaching lives of Milton and Cervantes scholars.

The late Kenan professor of history and literature and of English Barbara Keifer Lewalski, one of a dozen tenured women at the University when she arrived in 1982, stayed late on campus one evening before heading for home, in Rhode Island, during a nor’easter. After hours of labored driving, her car “spit flames from under the hood. ‘That’s not good,’ she said, steering to the side of the road.... The flames were now leaping higher than the windshield and black smoke was filling the car, so she came to a stop and engaged the

parking brake. But before getting out, she retrieved from the back seat her coat and her briefcase, filled with student papers. She then retired to a safe distance from which to watch the fire department arrive and put out the flames.”

As for the late Porter professor of Romance languages and literatures Francisco Márquez Villaneuva, “Scholarship and teaching were always intertwined, as his most influential books originated in courses (he never repeated a seminar in almost 50 years).”



STEPHEN JAY GOULD—paleontologist, baseball fan, and popular scientist writ very large—was finally memorialized by the FAS this past winter (he succumbed to cancer in 2002). He was remembered in anecdote (“enthralled audiences, often for the full 90 minutes of his hour-long programs”), and more seriously, thus:

“A *New York Times* op-ed written by Steve in the wake of 9/11 memorably captures his unique ability to blend science and humanism:

“We may reaffirm an essential truth too easily forgotten, and regain some crucial comfort too readily foregone. Good and kind people outnumber all others by thousands to one. The tragedy of human history lies in the enormous potential for destruction in rare acts of evil, not in the high frequency of evil people.... Thus, in what I like to call the Great Asymmetry, every spectacular incident of evil will be balanced by ten thousand acts of kindness, too often unnoted and invisible as the “ordinary” efforts of a vast majority.” ~PRIMUS VI



Stephen Jay Gould

# Jades, Reread

*New insights into ancient artifacts*



WHY DO early Chinese jades hold such allure? Their antiquity, for one thing: Neolithic examples date back 7,000 years, commanding attention for the sheer survival of human artifacts. The color of the stone, its worked finish and crisp details, can be ravishing. And the difficulty of the work creates a narrative. During a late-winter lecture at the Harvard Art Museums, Jenny F. So, Ph.D. '82, explained that nephrite, the classic white jade, is too hard to be carved with sculpting tools; it must instead be shaped with still harder abrasives—the work of months, or years, before powered machinery. She projected a photograph of workers manually bow-sawing a cubic-foot block of jade in China in the 1930s: two weeks to effect the first cut.

Grenville L. Winthrop, A.B. 1886, LL.B. '89, was among the bewitched: his 1943 bequest to the Fogg included nearly 700 early jades. As a graduate student in the 1970s, So worked with then-Rockefeller professor of Oriental art Max Loehr, who prepared a masterly catalog of the collection published in 1975. After a career including curating the Smithsonian's ancient Chinese collections and in the academy, at the Chinese Academy of Hong Kong, she has “retired” to consult in the field—including her contemporary reinterpretation of the Winthrop collection, just published as *Early Chinese Jades in the Harvard Art Museums*. The lush, large format brings readers close to 102 of those objects, many of which are diminutive.

Archaeological discov-



eries and the opening of China since the 1970s, So details, have expanded understanding of ancient jade: the local sources of supply, and the Neolithic, Bronze Age, and early imperial sites where it was shaped. Some objects can now be dated earlier: a gracefully grooved cuff-like ornament, for example, 600-300 B.C.E. in Loehr's reckoning, can now be identified as 2,000-1,700 B.C.E. Material and stylistic analysis of a cylindrical bracelet decorated with animal masks (top) suggests that a very ancient provenance may have to compete with a separate interpretation: that this is an eighteenth- or nineteenth-century “archaic” item made for the imperial collections. Technical analysis of a unique, iconic mirror points to modern fabrication using remnants of ancient components.

So's most startling findings reflect sheer, dogged scholarship. She has painstakingly interpreted inscribed numbers concealed on the edges of disks and the ends of other jades, from Winthrop's gift and holdings elsewhere. Some, she believes, are scholars' marks from millennia ago, reflecting *their* collecting of jades that were ancient then, to guide the placement of the pieces across their remains when they were buried. Others suggest accession numbers: scholars' and emperors' own early museumship and curation of their cherished antiques.

And decades after Loehr documented the two holes in the splendid S-shaped pendant shown, with its dragon head and bird tail, So thinks she knows why. The last step in the arduous crafting of this ornament was drilling the hole by which the owner would suspend it from his belt. For all the prior precision grinding and polishing, the maker appears to have goofed. To get the proper balance, he had to drill a *second* hole—perhaps the world's first mulligan.

~JOHN S. ROSENBERG



The background of the advertisement is a composite image. The left side shows a large, multi-story brick building with many windows and a prominent white steeple with a green dome, likely a Harvard building. The right side shows a street scene with cars and buildings, overlaid with a semi-transparent red filter. The text is primarily on the right side, over the red filter.

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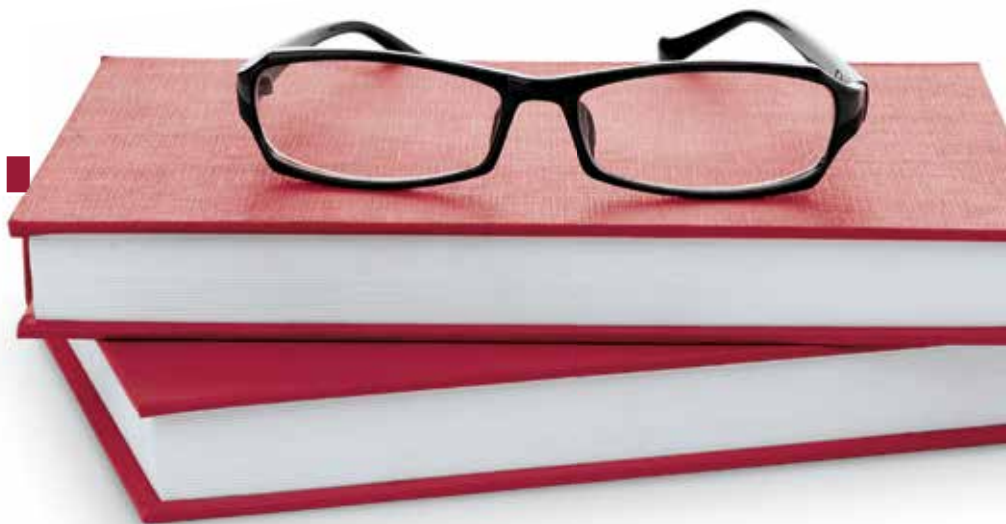
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