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HARVARD

MAGAZINE

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Elsa Dorfman,
Portraitist



HARVARD

MAGAZINE

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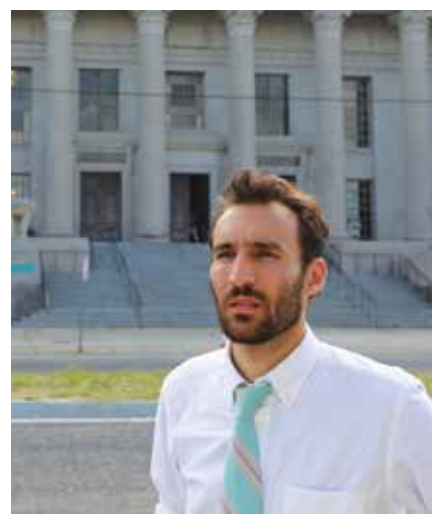
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Cambridge 02138

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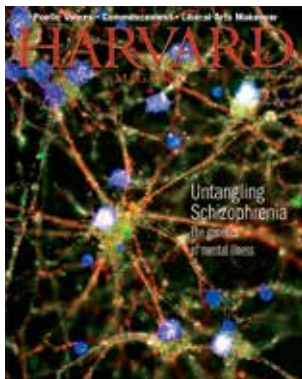
"FAIR HARVARD" AND HISTORY

I WAS greatly surprised to find my name prominent in the lead sentence of "Puritans' Passé?" (The College Pump, July-August, page 68), citing my initiation of a change, years ago, to the wording of the first line of "Fair Harvard." I did that, of course, because I thought the original wording had become exclusive. In those days, entering classes were evolving toward 50 percent women, each of whom would soon become a daughter of Harvard, though Harvard sang only of its sons, its diminishing 50 percent.

I write my thanks for this mention from the City of Brotherly Love, where I have lived happily since 1956. Do you know that we have not had a Quaker mayor here, nor even a Quaker city councilor, to my knowledge, for many a long year, yet Philadelphia does not wince at all when referred to as the Quaker City? It respects the seed from which it grew. What is so different for Puritans at Harvard? Can we truly keep ancestors' memory warm by denying their existence?

"Till the stock of the Puritans die" means "Till the end of time." Reworded for the current Harvard, eking along with its underperforming endowment and diminishing federal funding, it could be made to read "Till the stocks and the bonds shall run dry," but it would mean much the same thing, hopefully. The song is not asking us all to become Puritans! It is stating the hope that Harvard will continue its pursuit of *Veritas* forever. *Veritas*, in the guise of Truth, does get a mention, two lines earlier.

The Task Force on Inclusion and Belonging, overlooking "our ancestors" in



the first verse of "Fair Harvard," finds the final line of the second verse offensive. I write to ask: who is excluded by that last line, and not by "our ancestors"? Who is made not to belong by either set of words? If such a reference should make a non-Christian uncomfortable at Harvard, what does Memorial Church do to him

or her? Is the time coming to convert that to a lecture hall?

Harvard was founded in Colonial times to supply ministers to an expanding Church. In nearly 400 years, it has grown very far beyond that initial purpose, but it was started to do that job. And actually, it continues fulfilling it, through the Divinity School. No splendid oak has ever earned the right to deny its origin as an acorn.

KENDRIC PACKER '48
Philadelphia

CERTAINLY IT IS up to Harvard's own historians to defend Samuel Gilman's stirring 1811 alma mater, "Fair Harvard." But I am curious why there is pressure to erase the word "Puritans." They were fundamental to Harvard's founding and the founding of so many New England towns. Why deny history?

Instead, we should emulate an illustrious Amherst, New Hampshire, minister, Josiah G. Davis (Yale 1837), who said in 1874, in his "Historical Discourse" delivered at the centennial celebration of the construction of Amherst's Congregational Meeting-House: "Each age gathers wisdom from the labors and researches of the preceding age. In every science, and in every art, we are constrained to acknowledge our indebtedness to the genius and industry of departed generations."

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An Engine of Ingenuity

WHEN I THINK ABOUT all that has changed since I became Harvard's 28th president in 2007, I am struck by the remarkable role that engineering and technology have come to play in our daily lives. In 2007, Amazon released its first Kindle; GoogleMaps introduced Street View, and Netflix started streaming content online. Apple unveiled its newest gadget—the iPhone—and ushered in an age of extraordinary communication and unprecedented information. Highly visible and widely adopted, these innovations offer just a glimpse into a world of knowledge that continues to alter our everyday experiences, shape our understanding of each other and the world, and accelerate the pace of change on a global scale.

Nowhere is the rise of engineering and the applied sciences more evident to me than in the Harvard John A. Paulson School of Engineering and Applied Sciences (SEAS). Formally launched as a school just ten years ago this September, SEAS has experienced explosive growth, especially among our undergraduates. Since 2007, the number of concentrators in applied mathematics, computer science, engineering sciences, and biomedical, electrical, and mechanical engineering has tripled—from nearly three hundred to nearly one thousand undergraduates, approximately one third of them women. Enrollments also have soared among non-concentrators who want to improve their computational and technical literacy through courses that encourage hands-on exploration and teamwork—all part of a curriculum that enriches liberal arts education as it acknowledges the profound ways in which engineering and the applied sciences shape the human experience. At the same time, new master's degree programs in computational science and engineering have expanded graduate offerings, and the most recent additions have combined the expertise of SEAS and other schools—from data science with the Department of Statistics to design engineering with the Harvard Graduate School of Design to a joint master of science in engineering sciences and master of business administration with Harvard Business School.

Undergraduate, graduate, and professional students learn in an environment that is intentionally unbound. SEAS does not have traditional departments, and a third of its faculty hold joint appointments in other schools and departments. These organizational structures encourage openness and enable success in ambitious and collaborative areas of inquiry such as bioengineering, nanotechnology, and robotics, as well as through broad research themes that address pressing challenges. The “internet of things” holds the promise of devices, products, and platforms that efficiently gather and transmit data for a host of useful applications, and advances in quantum science may influence everything from autonomous vehicles to health monitors to weather predictions. Research on



energy and the environment undertaken with the Faculty of Arts and Sciences, Harvard Chan School, Harvard Graduate School of Design, Harvard Kennedy School, Harvard Law School, and Harvard Medical School touches on nearly every aspect of climate change. Meanwhile, medical technologies pursued in conjunction with Harvard Medical School and affiliated hospitals may change how we age and how we treat—or even cure—chronic conditions.

The years to come will bring even more opportunities for collaboration and growth as the majority of SEAS moves from spaces spread across Cambridge to a new Science and Engineering Complex (SEC) in Allston. The new facility—directly across the street from the Harvard Business School and a cluster of innovation labs devoted to encouraging entrepreneurship and accelerating start-up businesses among members of the University community—will become the center of a highly concentrated and closely integrated innovation hub. SEAS will do the important work of bringing the SEC to life and of infusing our expanding campus with a culture of creativity and a willingness to work together in new and exciting ways.

At the launch of SEAS in 2007, I expressed a wish that it would become an engine of ingenuity, and it has been a great joy to see that wish fulfilled. Now, ten years later, the Harvard John A. Paulson School of Engineering and Applied Sciences is shaping the future of the University—and the world.

Sincerely,

Drew Faust

For more on SEAS concentrator growth, please visit harvardmag.com

The church itself just celebrated the 275th anniversary of its founding, when Daniel Wilkins (Harvard 1736) was ordained as the first minister and wrote the first church covenant, signed on November 22, 1741: a simple statement of beliefs to sustain the 14 families living in the wilderness settlement. Church and town government were one in Colonial America, where one church denomination was the established church and the minister was paid through local taxation.

Wilkins served as minister for 42 years,

until 1783. Jeremiah Barnard (Harvard 1773) was engaged in 1779 to serve with Wilkins in his declining years and stayed until 1835. So for 94 years Harvard graduates led, served, and influenced the folks of a little New Hampshire town. Please honor these tough pioneer families who endured the New England wilderness under the wise and tenacious leadership of two humble Harvard graduates who devoted their entire careers to serving these rural families. Thanks to our “departed generation’s” collective stamina, faith, and hope, (please turn to page 74)

7 WARE STREET

It’s Academic

A PRESIDENTIAL SEARCH (see page 14) is a courting ritual: the Corporation tries to figure out what it wants (continuity or change), and the candidates try to figure out what Harvard is and wants to become (and whether there is a good fit). Their iterative conversations, if fruitful, generate a common understanding about an agenda: think of it as a prenup. Ignoring the intimate details, here are three Big Ideas for the Harvard of 2018-2030 (being both optimistic and realistic about the duration of the likely marriage).

Students: stay the course. The marquee item is undergraduate financial aid. Let the Corporation and its anointed leader agree that the current deal is plenty sufficient (no cost for families with incomes below \$65,000, and a graduated 1 percent to 10 percent of income as their earnings scale up to \$150,000)—further liberalization of terms is *not* needed. Aid *spending* should increase, for reasons ill (the term bill now rises about 4 percent yearly, or \$2,500) and good (the College ought to *vigorously* pursue enrolling as many more lower-income students as possible). Aid is also sensitive to the economy: during recessions, family incomes suffer, so need increases. From a budgeting and fundraising perspective, it would be a sensible near-term goal to get, say, 75 percent of the Faculty of Arts and Sciences’ undergraduate-aid outlays endowed; today, when such spending is about \$180 million per year, it is about two-thirds defrayed by endowed funds and gifts.

Relax on real estate. Harvard has spent a lot on its physical plant, from House renewal and the Allston science complex, both very much (and very expensively) still un-

der way, to the Kennedy School’s campus makeover to the Business School’s new executive-education residences and conference center. There is further work to do at the Medical School and elsewhere, but it is possible to become *too* enamored of bricks and mortar. The fixing up of Holyoke Center, and its transmogrification into Smith Campus Center, for example, will cost many tens of millions of dollars—not staggering, in the scheme of things, but enough, even at Harvard’s price point, to endow 15 to 20 professorships.

Which brings up the final idea:

Focus on the faculty. After a gigantic capital campaign focused on shoring up the University’s balance sheet and investing in engineering and applied sciences, it seems essential to address Harvard’s *other* academic priorities head-on. What are the things the world most needs to know? (Perhaps: how to feed itself; how to integrate arts and humanities into an era seemingly obsessed only with apps; how to adapt to an altered climate; how to conceive of work when too few jobs are being created; how to address inequality; how to deepen comprehension of the East and the Global South in the blessedly developed, higher-income regions, and vice versa; what’s up with the brain?) And how can Harvard make the greatest contributions to knowledge and education—and where, accordingly, ought the faculty to grow after a static decade? That comes squarely back to the University’s role in creating what the economists and financiers might call intellectual capital—understanding and learning. (Worry not, fundraisers: the resulting themes can be plenty appealing—witness MIT’s campaign, just down the street.)

Of course Harvard must secure its financial future and its infrastructure. But in balancing priorities, it’s time to be academic.

—JOHN S. ROSENBERG, *Editor*

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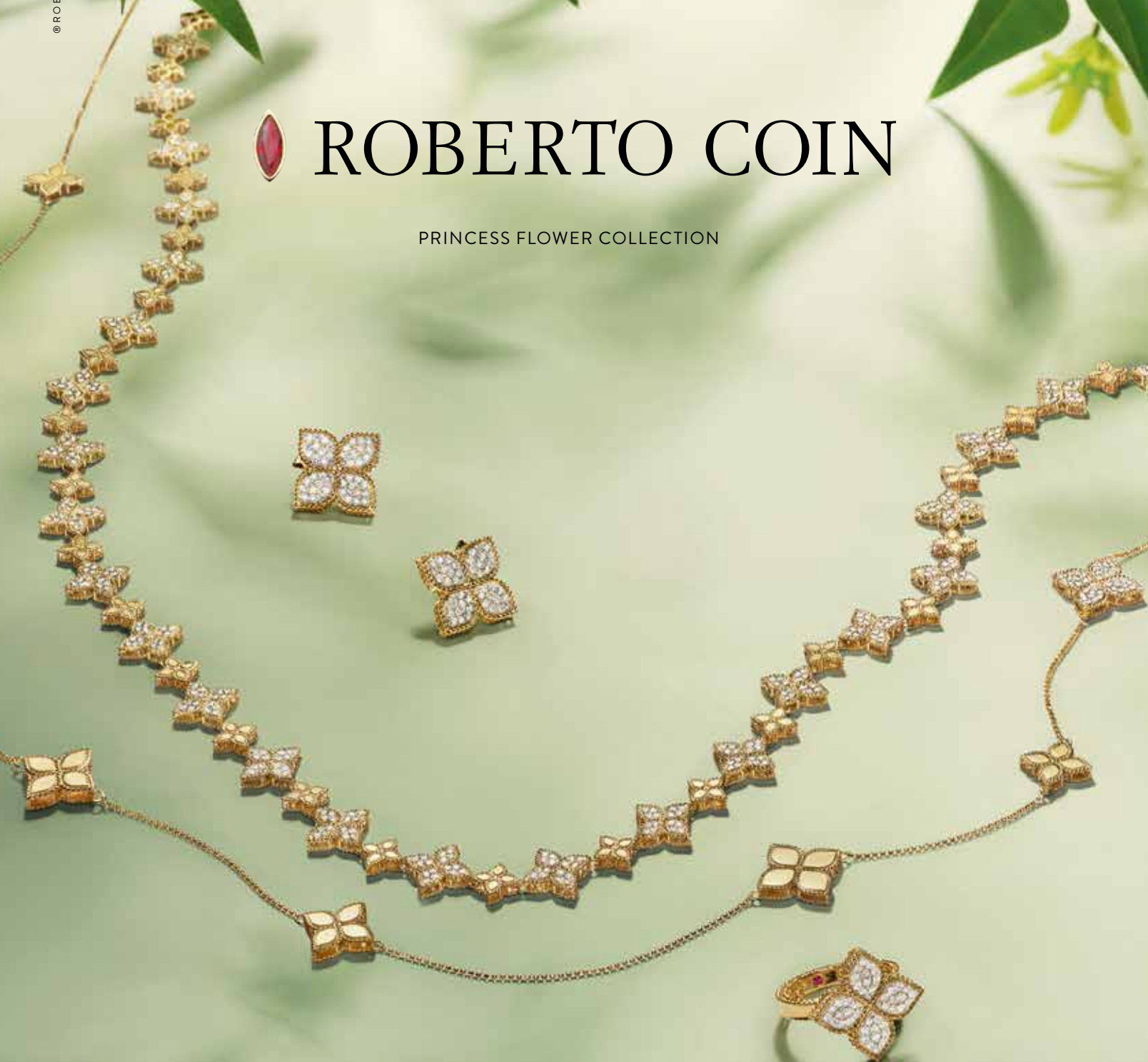
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(continued from page 4)

America and Amherst survived. Hopefully “Fair Harvard” will, too!

ANNE KRANTZ

Historian, Congregational Church of Amherst
Amherst, N.H.

LIBERAL ARTS

JOHN ROSENBERG’S “An Educated Core” (July-August, page 47) makes me wish I were starting college today under the Minerva model. Stephen Kosslyn’s “radical redesign” of the core addresses every weakness of “Gen Ed” as I knew it. Probably there is much tinkering still to be done.

To expect 18-year-olds to find their way among 10,000 course possibilities over four years is unrealistic and naive. I managed to stumble my way to an A.B. (English lit) and am still enjoying it. Today’s students, I believe, are ripe for the Minerva model and its flexibility. Thank you for an encouraging piece about “flipping” the liberal arts.

BERT WATERS ’60
Brookline, Mass.

HOW CAN HARVARD, given its recent history, be serious about this? Will they present an honest course in the glories of what we used to call Western Civilization, and the contributions to freedom and intellectual development/culture it produced? Or will it wallow 90 percent in the evils of the West and capitalism? You know exactly what I am talking about. Go to Middlebury College and find out; go to Berkeley. Harvard is not known for courage in this area.

MICHAEL J. BRADY, LL.B. ’67
Menlo Park, Calif.

Editor’s note: The article erroneously described the Yale-NUS curriculum’s space for concentrations, alongside students’ required 10 term-length common courses. It should have read: “Concentrations require a minimum of eight courses plus the capstone

project; students are free to take more courses in their field, but not required to do so; in many U.S. colleges and universities without a core curriculum, major fields require 10, 12, or more courses.” We apologize for our error.

POLITICAL AGENDAS?

CLEARLY Justin Reeves has a political agenda (research described in “Star Power in Politics,” by Jonathan Shaw, Right Now, July-August, page 11).

No mention is made by him that limiting the number of candidates by the Democratic National Committee (DNC) in the 2016 U.S. elections led to the DNC’s chairwoman resigning amid allegations of corruption.

Also, Hillary Clinton had far greater name recognition as a politician and even as a “celebrity,” since she was the wife of a two-term president and was later a senator. Despite this, she lost to a virtually unknown Barack Obama in 2008. Furthermore, even after she was secretary of state for four years (becoming even more famous), she lost to businessman Donald Trump, recognized only in a certain small section of an industry.

We find the terminology awkward, perhaps because we assume we live in a classless society.

Could it be that Hillary’s “facts” and ideas, including what she is alleged to have done (or not done), played a role in a “more thoughtful outcome”—and that it is not due, as Reeves suggests, to “allowing voters to choose among smaller numbers of candidates”?

In Chile in 1970, Marxist Salvador Allende won the plurality among only three candidates; the majority wanted a non-Marxist, but the other two split the vote. A more likely theory to Reeves’s conclusion is that competition is obviously good even in politics. Instead, he allows himself to come up with a theory that appears politically biased.

VICTOR FELSZEGI ’78
New York City

Justin Reeves responds: Thank you for reading the article and offering your thoughts. Please allow me to clarify a few things about the study that may not have been apparent from the brief *Harvard Magazine* write-up.

First, while the article couches things in an American context and triggers readers to consider the recent 2016 election, the study in fact originated in 2011 with the bulk of the data and findings coming out of field

work that was conducted in 2013—far pre-dating Trump’s candidacy. It was a positive empirical exercise focused primarily on Japan, and the only “agenda” to speak of was exploring the consequences of a particular set of electoral rules—rules that don’t apply to the U.S. general election or to the Chilean presidential race of 1970. There was no mention of Clinton or the DNC here because it simply wasn’t relevant.

There is another part of the same project that didn’t have to do with electoral systems and therefore wasn’t discussed much at the talk given at Harvard due to time constraints. That part of the study deals precisely with the issue you raise—namely, perceptions of corruption redounding to the benefit of “outsider” candidates who also enjoy high degrees of name recognition. There, another voter experiment was employed in Japan to isolate the impact that public distrust of establishment politicians has on support for celebrity candidates.

To be clear, I do argue that the mechanism highlighted by the magazine article is applicable to U.S. *primary* elections when there

is a crowded field of co-partisans running, and I do believe it played a role in Trump’s early success against other Republican competitors. I agree wholeheartedly that Clinton’s baggage and the DNC scandal played a strong role in the outcome of the 2016 general election, but I doubt it did anything to give Trump an edge over candidates like Ben Carson and Carly Fiorina among an exclusively Republican electorate. That, I would argue, had a lot to do with mere name recognition.

If we’re going to say anything normative about the findings of the study, the takeaway is not that “more competition is bad,” but that in some contexts it poses serious trade-offs. What contexts? Well, particularly when strong informative cues like partisanship don’t allow voters to narrow their choice options.

THE MIDDLE CLASS

FOR MANY YEARS I have wondered why our leaders across the political spectrum commonly refer to “the middle class” in our country. Andrea Louise Campbell, in reviewing a new book by Joan C. Williams, includes this term in “Class Cluelessness”

SPEAK UP, PLEASE

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(July-August, page 60). The review does not use the term “upper class,” but it does refer to “working class.” Clearly, many of us find the terminology awkward with respect to class, perhaps because we assume we live in a classless society. Why not simply refer to “middle income” instead of “middle class,” and avoid using other labels that place us in obsolete “class” categories?

DAVID A. RIGNEY '60, S.M. '62
Professor emeritus, Ohio State University
Columbus, Ohio

RESEARCH VS. DIRECT CARE

I FOUND IT interesting but sad that your article on the genetics of schizophrenia (“Probing Psychoses,” July-August, page 40) provided such a good example of the “class cluelessness” discussed elsewhere in the issue (page 60). With no disrespect to the young man the author chose as an example of a person with schizophrenia, he is a best-case scenario in that he has good physical health, the ability to research and advocate for himself, a supportive family, and the option to live with that family in what appears to be stable middle-class housing. He in no way (other than diagnosis) resembles the clients in an inner-city partial-hospital program I worked with for some years. These clients often faced multiple challenges in addition to their psychiatric diagnosis. Among these were multiple medical conditions including tuberculosis and HIV infection, as well as the more common hypertension and diabetes—the latter two often related to the significant weight gain associated with the newer types of psychotropic medications. Other challenges were coexisting substance abuse, legal concerns, lack of social supports, and inadequate or even abusive housing in poorly run group homes.

There is absolutely no glamor or prestige in working with people with schizophrenia, but even with our incomplete current understanding, they can be tangibly helped. For a fraction of the nearly one billion dollars already allocated to the arcane genetic and cellular research described in the article, many people could be helped in a matter of weeks or months rather than the “decades” (if ever) before the research yields usable outcomes. It is already well known that social conditions have a very real impact on the overall functioning of people with schizophrenia.

The creation of an exemplary direct-

care program could provide substantial benefits to clients, especially in this time of cutbacks in public funding. It saddens me that the Stanley Center has not included a direct-care component to its costly and prestigious research activities and that the author of the article doesn't even consider such an option. Lack of advocacy for those unlike “us” is part of what “class cluelessness” is about.

JILL BECKER, M.A.T. '65
Licensed professional counselor
Lambertville, N.J.

Editor's note: The article was not on schizophrenia care overall, but merely on this aspect of the research. If that research does prove fruitful over time—and obviously, the people pursuing it very much hope it will; Steven Hyman was director of the National Institute of Mental Health—that will alleviate a lot of suffering. Society should pursue both research and care, and an article focused on the former was not a commentary on the latter.

THE PHILOSOPHY CHAMBER

I JUST encountered your article on “The Lost Museum” (by Jonathan Shaw, May-June, page 42). Fascinating story! I thought, perchance, you might be interested in an episode in 1817 pertaining to the Museum/Philosophy Chamber.

Sampson Reed [A.B. 1818], in his *Biographical Sketch of Thomas Worcester, D.D.*, relates a story, or quotes an account by Worcester himself, which tells of a visit to that room:

Mr. Hill, of whom I have already spoken, is said to have had great hopes of Harvard University. Following the example of Swedenborg, he presented to the college library a set of the original edition in Latin of the *Arcana Coelestia*, and perhaps some few of the other works. Mr. Worcester had heard that these works were in the library and went to obtain them. His experience was so remarkable that I give it in his own words:

“Upon my return to college, after I had begun to read Swedenborg, I went to the library the second time to see if I could find any of his works. The librarian looked into the catalogue again, and found the alcove and shelves where they ought to have been; but they were not there. Then we began a thorough search. We looked through the whole library, in place and out of place, but could not find them. Then we began to

think of other rooms. At that time the library was in the second story of the west end of Harvard Hall. In the east end was a large room, called the ‘Philosophical Room.’ And between this room and the library was a small room, which for the want of a proper name was called the ‘Museum.’ It was filled with rubbish, old curiosities, cast off, superseded, and obsolete philosophical apparatus, and so forth, all covered with dust. We could see no reason for hunting here, except that we had hunted everywhere else, without finding what we wanted.

“There was a long table in the room. Upon it, and under it, were piles of useless articles; and beyond it were shelves against the wall, where various things were stored away. On the under shelf, as far out of sight as



possible, I saw some books. I told the librarian, and he went round and worked his way until he got at them, and found that the large books were volumes of the *Arcana Coelestia*. There were also several other works of Swedenborg, all of them covered with dust. I immediately got an order from President Kirkland, giving me authority to take the books and keep them in my room; and this I did for the rest of my college life.

“By what means or for what purpose these ‘Heavenly Doctrines’ were cast out of the library of Harvard College must be left to conjecture. Of the 50,000 or 60,000 volumes then belonging to the library, these were the only ones that were treated in this manner. The fact seems to represent the state of the New Church at that time” (pages 17f in the Google online scan of Reed's book).

STEPHEN D. COLE
Assistant professor of religion and philosophy
Bryn Athyn College
Bryn Athyn, Pa.

Right Now

The expanding Harvard universe



LINKING LIMB TO TISSUE

A Better Way to Amputate

TODAY'S state-of-the-art prosthetic limbs are scientific marvels, designed with robotics and sensors that respond to neural and muscular signals, to give users the possibility of greater function and control.

But amputation techniques lag far behind these sophisticated prostheses. "The amputation paradigm hasn't significantly changed in the last 200 years," explains Shriya Srinivasan, a doctoral student in the Harvard-MIT

Health Sciences and Technology (HST) program. In typical amputations, nerves and muscles are cut and arranged somewhat haphazardly; the main goal is to create a sturdy, well-padded appendage. "The types of neural signals and muscles signals that you get are really unstable. They decrease over time, and sometimes researchers can't isolate individual muscles," Srinivasan says, calling this "a mismatch between the technology and the human physiology."

Working on a team that included Matthew J. Carty '95, associate professor of surgery at Harvard Medical School (HMS) and a reconstructive plastic surgeon at Brigham and Women's Hospital, and Hugh Herr, her adviser, who heads the biomechanics lab at MIT, Srinivasan helped develop a new process for performing amputations. It ensures better communication between the body and prosthesis, with the goal of giving the patient more natural sensation and movement.

This approach, known as the agonist-antagonist myoneural interface (AMI), uses muscle grafts from the patient's body and existing nerves at the amputation site to create muscle pairs that mimic those found in uninjured limbs. Ordinarily, when one mus-



A surgical technique designed to preserve proprioceptive signals after amputation should allow patients to sense the location of their prostheses, feedback that is often compromised by conventional surgery.

cle contracts, the opposing muscle stretches, actions that provide key sensory feedback—proprioception—about the location of the body. Thus someone with a normally functioning foot stepping off a curb knows “where that foot is in space and is able to adjust to the change in height automatically,” Srinivasan says, intuitively sensing the speed of movement and amount of force required. “A person without any of that sensory feedback has to watch the ankle or leg as it moves off the curb and onto the street,” and then calculate how to place the body. (Some people with lower-limb amputations describe a “ski boot” sensation, in which their ankle joint feels locked and unable to move.)

Srinivasan and her colleagues tested the AMI surgical process in rats (research they describe in *Science Robotics*), and confirmed that they could successfully create these dynamic muscle pairs. Nerve tissue in the muscles regenerated quickly, allowing the muscles to communicate with the brain. The researchers expect similar results in humans. They are just beginning to perform the AMI surgery on human candidates; Hugh Herr himself, a double amputee who earned his Harvard doc-

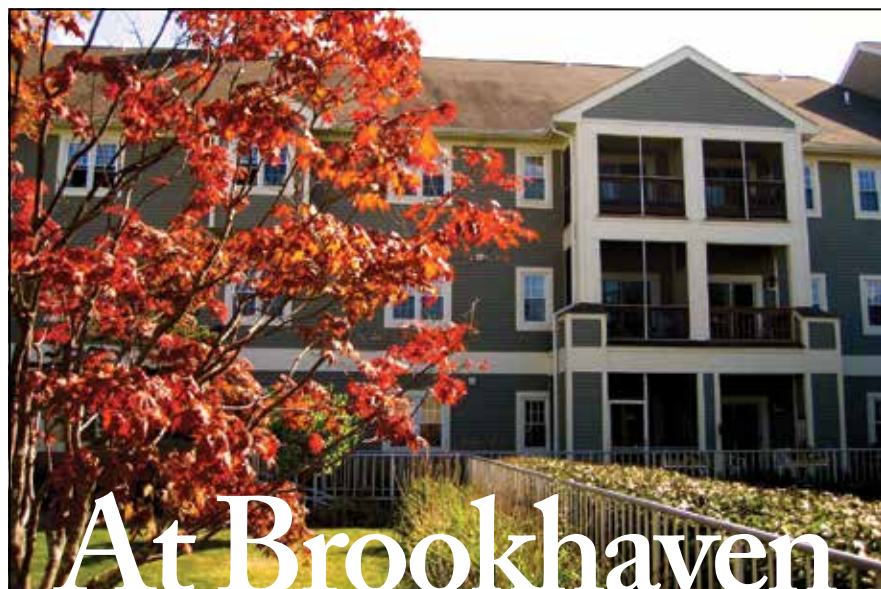
“The amputation paradigm hasn’t significantly changed in the last 200 years.”

torate in biophysics in 1998, plans to undergo it. The researchers say the procedure will work both in new amputations and in cases where the initial surgery occurred many years ago. As an additional benefit, AMI may solve the problem of neuromas, common in normal amputation, in which severed nerves become painfully hypersensitive when embedded in muscle tissue. “We give the transected nerves a home to live in, and they grow back into the muscles,” Srinivasan explains. “We don’t see the same unhealthy nervous tissue formation that normally occurs.”

To develop AMI, the researchers drew insights from a multidisciplinary approach historically missing in amputation and the prosthetics field. “There’s been a lack of communication among surgeons, researchers, prosthetists, and the people who are actually designing the robots used in prosthetics,” Srinivasan says. By using a systems perspective, Carty reports, “We’ve been able

to have discussions that yield solutions that I think none of us could have come up with on our own as effectively or as gracefully.”

Srinivasan says the HST program has been ideal because it has allowed her to combine her work in MIT’s biomechanics lab with clinical courses and HMS rotations that have deepened her understanding of human physiology. She has long considered the challenges of moving with a prosthetic limb; she is co-founder of Anubhava Dance Company, a professional group of classical Indian dancers from around North America who gather frequently to perform. One of her fellow dancers, a close friend from childhood, uses a leg prosthesis. “When you’re dancing, it’s all about having your mind in tune with the rest of your body, and being able to feel your arms and legs in space,” she says. “I’m hopeful that we’ve found a more elegant solution for people like my friend, who could have a much greater sense of functionality.”



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Carty foresees a day when AMI is the standard approach for amputations. “This technique could allow patients who’ve undergone limb loss to recapture a degree of ‘wholeness’ that is usually lost forever for amputees,” he says. “This represents a way to get at least some of that—and maybe a lot of that—back.” ~ERIN O'DONNELL

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Anti-Aging Approaches

DECADES of research have shown that calorie restriction extends lifespan and delays morbidity in many small, short-lived species: yeast, spiders, and various fish and rodents. In humans, though, the benefits of calorie restriction are still unproven, and prob-

ably less straightforward. And *how* calorie restriction slows the aging process is still not well understood. “The interesting thing about calorie restriction is that we used to think the body was in some way slowing down, maybe in the number of heartbeats or production of free radicals,” says professor of genetics David Sinclair. “But it turns out that’s wrong...When we’re calorie restricting, what we’re really doing is telling the body that now is not the time to go forth and multiply. It’s time to conserve your resources, repair things better, fight free radicals, and repair broken DNA.”

Sinclair believes that a compound found in all living cells, nicotinamide adenine dinucleotide (NAD), could be used to mimic these effects in humans without the starvation or decreased reproductive capacity associated with calorie restriction; his human trials of a therapy that could increase NAD levels are due to begin this month. Meanwhile, a similar compound is already being marketed as a supplement by a health start-up with several distinguished scientists (including three Harvard faculty members) on its advisory board—even though there’s still no evidence that the substance works.

Sinclair’s approach is based on a broad view that links diseases of age such as cancer, diabetes, Alzheimer’s, and heart failure to common cellular processes. His lab aims to understand these processes and then use that understanding to develop medical therapies.

Underlying the wide-ranging benefits of calorie restriction, Sinclair explains, are sirtuins—a group of seven genes that appear to be very important in regulating the aging process. “These longevity-gene pathways are turned on by changes in lifestyle” such as exercise and calorie restriction, he says. They “control a variety of protective processes—there’s hundreds of things that they do, and we still don’t know everything. But they protect the chromosomes, they protect stem cells from being lost, they protect cells from senescing.” Sirtuins can be activated by a lack of amino acids or of sugar, or through an increase in NAD. (The compound’s level in the body declines with age.)

Earlier this year, research from Sinclair’s lab showed that feeding mice nicotinamide



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Karen Van Winkle is a Harvard alum and has been a member for nearly 35 years. She was recently named the first female president of the Harvard Club of Boston. Here’s why she joined.

“I joined the Harvard Club immediately upon graduation, and from the first moment I walked in the door, other members encouraged me to get involved in leadership positions. I’ve served on several committees, including the House Committee and Program Committee and have had two tours on the Board of Governors. The incredible diversity of people here is one of the main reasons I value my membership. It’s a supportive environment for women to develop and hone their leadership skills, and a great place to network and connect with some of Boston’s most influential people.” - **Karen Van Winkle ’80**



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mononucleotide (NMN)—a related, precursor compound that the body converts into NAD—may slow aging in the animals, mimicking the effects of calorie restriction. “We get the same effects as exercise or dieting,” he says. “The mice are leaner, have more energy. They can run further on a treadmill.” That research continues, and is poised to be tested in humans: the first stage of the trials of NMN that he was preparing to begin in August at a

Human trials of an anti-aging therapy will begin this month.

Harvard-affiliated hospital will test for NAD increases in the blood; after that, he plans to study NMN’s efficacy in treating diseases. Sinclair has been taking the compound himself for about a year. He’s reticent about that, to avoid sounding like a “kook,” but claims his lipid profile has improved dramatically and he feels generally less fatigued—though he admits this is not scientific.

There is a cautionary note to sound, says Jeffrey Flier, Walker professor of medicine and former dean of Harvard Medical School (HMS). The NAD precursor already on the market as a dietary supplement, nicotinamide riboside (NR), is sold by New York-based Elysium Health, founded by MIT biologist Leonard Guarente, Ph.D. ’79, who played a central role in establishing the link between sirtuins and aging, and was

Sinclair’s doctoral adviser. The company doesn’t make any specific claims about aging prevention (legally, it can’t); instead, it promotes its product as “the one daily supplement your cells need.” Flier has criticized the company for using the names of the highly credentialed scientists on its advisory board (featured prominently on its website) to market an unproven product: “Elysium is selling pills [without] evidence that they actually work in humans at all,” he says, echoing the strongly worded *Boston Globe* op-ed he wrote earlier this year condemning the company’s marketing scheme.

Sinclair, who co-directs the Glenn Center for the Biology of Aging at HMS, is not linked to Elysium—his clinical trials go squarely down the traditional medical route, rather than through the loosely regulated supplement industry. “That’s the contrast,” he says. “I’m taking a pharmaceutical approach, FDA approval.” Still, whatever animal research portends about the potential of NAD (and however alluring the promise of a cure for aging), the history of pharmaceutical development suggests it’s much too soon to expect any benefits for humans. Often “molecules may be helpful to animals in a limited set of studies, but then are not shown to be helpful in humans,” Flier warns. “There are *many, many, many* examples of that.” ~MARINA BOLOTNIKOVA

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Recipes for Thriving Cities

WHAT DOES IT TAKE for a nation to become a bustling center for international trade? Ricardo Hausmann, professor of the practice of economic development and director of Harvard's Center for International Development, has determined that countries with economies that are more complex—those with the most skills and capabilities—will be able to produce the greatest diversity of goods, and therefore become wealthier through success in international trade (see “Complexity and the Wealth of Nations,” March-April 2010, page 8). Now, Hausmann and postdoctoral fellows Andrés Gómez-Liévano



COURTESY OF RICARDO HAUSMANN

and Oscar Patterson-Lomba are applying a similar framework to determine the factors that enable a city to become a technological hub—or the scene of an outbreak of sexually transmitted disease. Their model for urban outcomes, surprisingly, is something many families have in their cupboards at home: the game of Scrabble™.

On the researchers' game board, the players are the cities themselves, each possessing a number of letters proportional to their population size. As a result, larger cities, armed with more letters than their smaller counterparts, are able to assemble longer and more complex words, echoing

Ricardo Hausmann

Hausmann's previous studies of the factors that lead to success in national economies. In this case, words represent various positive and negative social phenomena, like high literacy rates or rampant drug abuse. A phenomenon like higher literacy rates may be fairly simple to assemble, letterwise. Unlike in Scrabble, however, longer words aren't necessarily better, Hausmann explains: “Crimes and diseases may be more complex, in the sense that they require more factors to be present in order for the activity to take place.”

Hausmann's research helps to explain why various social phenomena have taken root in certain cities across the United States and elsewhere, and not others. The film industry, for example, did not develop in Tulsa, but rather in Los Angeles, because producing a film requires skills from scriptwriting to video editing to special effects—a

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range of talents, Hausmann notes, less likely to exist in smaller cities, which tend to be less diverse. While it might seem simplistic to say that Boston is a mecca for tech startups (there are nearly 5,000 within city limits, according to AngelList)—because it has the venture capitalists to provide funds for new companies; state-of-the-art legal support; and employees with the technological know-how to get a product up and running—the model goes a long way toward predicting what can or cannot take place in a given setting without adding or subtracting a key ingredient.

The model is powerful in that it can give civic leaders a way of thinking about the best path to regional economic development—or the savviest strategy for fighting a public-health emergency. For example, the prerequisites for high prevalence of sexually transmitted diseases include a dense social network, subpar health services, and anonymity (it is easier, Hausmann says, for people to act in irresponsible ways when they feel anonymous in a big city, compared to the relatively more intimate nature of a

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PAOLO BONATO

small town or village). Identifying ingredients leads to opportunities for intervention; lack of education about drug use, for example, can be a critical factor that leads to substance abuse.

Though the complexity of the conditions necessary to create these phenomena might suggest that it is impossible for smaller cit-

ies to distinguish themselves in the arts or as centers for groundbreaking medical research, Hausmann and his colleagues determine that a more homogenous society (despite possessing fewer letters) might have an easier time agreeing on how things should be run. "People don't expect the same things from governments when there is socioeconomic



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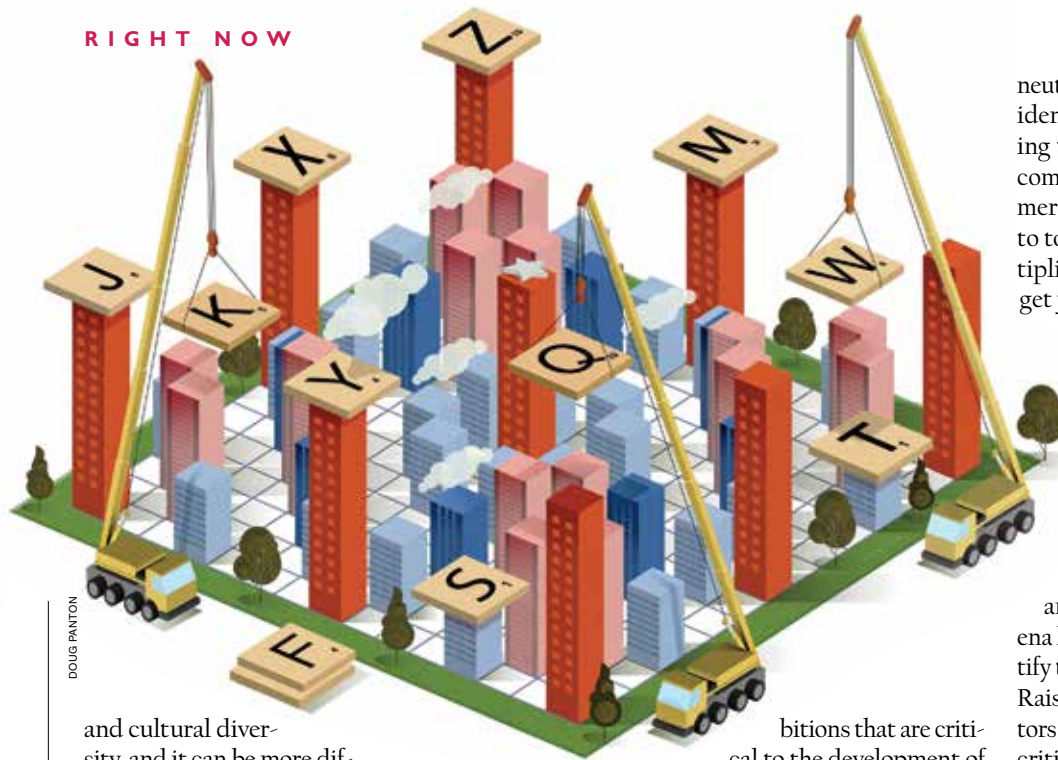
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neutralize xenophobia among current residents (Hausmann cites research indicating that foreigners are much less likely to commit violent crimes, for example). Still, merely attracting new talents isn't enough to totally transform a city: "You need multiplicative increases in the size of a city to get just additive increases in its diversity,"

says Gómez-Liévano. The ability to retain those newcomers continues to be a major reason that cities like New York thrive in industries like finance and technology, while Detroit and Cleveland lag behind.

One of the researchers' aims is to see their findings used as a predictive tool by civic leaders. Cities seeking to anticipate and remedy negative phenomena like drug abuse and poverty could identify the presence of the necessary conditions. Raising awareness of the kinds of social factors to look out for, the researchers hope, is a critical step in making these kinds of policy decisions.

—OSET BABÜR

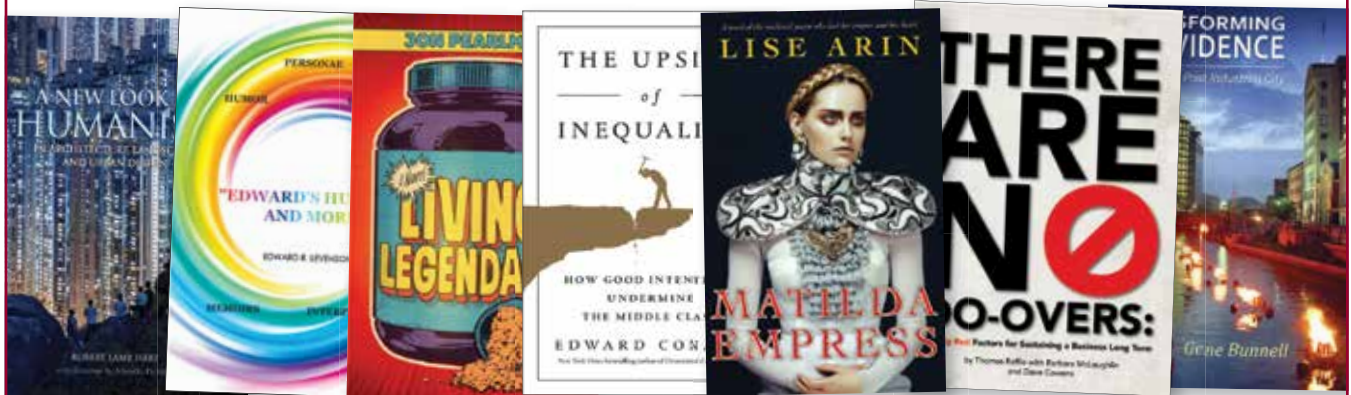
RICARDO HAUSMANN EMAIL:

ricardo_hausmann@hks.harvard.edu

and cultural diversity, and it can be more difficult to get things done," says Hausmann. From a policy perspective, city governments can implement a number of policies to attract people with new skills, occupations, and am-

bitions that are critical to the development of different social phenomena. Thus a city could encourage immigration by making foreigners feel safer and more welcome, while simultaneously using education to

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SEASONAL

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FILM

Harvard Film Archive

www.hcl.harvard.edu/hfa

By Chantal Akerman explores the Belgian filmmaker's personal and political nuances

From left: a detail from *Procession*, by Leonid and Rimma Brailovsky, at the Museum of Russian Icons; one of the photographs by Kippy Goldfarb at the Arnold Arboretum; *Creamer and Sugar*, *Swans in Sky* (2016), by Amber Cowan, at the Fuller Craft Museum

through screenings of *Jeanne Dielman, 23 Quai du Commerce, 1080 Bruxelles* and other works. (September 8-November 12)

The Animation of Jan Lenica. This retrospective explores works by the Polish designer and illustrator. (October 21-30)

LECTURES

Radcliffe Institute for Advanced Study

www.radcliffe.harvard.edu

Social Justice and the New Food Activism. Radcliffe fellow Julie Guthman discuss-

FROM LEFT: COURTESY OF THE COLLECTION OF VLADIMIR AND VERA TORCHILIN/PHOTOGRAPH COURTESY OF BALLETS RUSSSES ARTS INITIATIVE AND THE MUSEUM OF RUSSIAN ICONS; PHOTOGRAPH BY KIPPY GOLDFARB, COURTESY OF THE HARVARD ARBORETUM; PHOTOGRAPH BY MATTHEW HOLLERBUSH; COURTESY OF THE FULLER CRAFT MUSEUM



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STAFF PICK: New Views of Boston

Terri Evans has a soft spot for Millennium Tower. The 60-story residential skyscraper, opened last year in Downtown Crossing, is “slim and graceful and conveys a sense of almost floating in the sky.”

Yet she and the other volunteer Boston By Foot guides who lead architecture cruises along the Charles River and into Boston Harbor are equally devoted to traditional icons—the Citgo sign, Longfellow Bridge—and happy to delve into the topography, politics, and history that have long configured Boston’s built environment. “I love how cities grow and change,” Evans says, “and the clues that are left behind that give insight into what was there before.”

Passengers embark at the Charles Riverboat Company’s dock on the Lechmere Canal in East Cambridge. The boat passes the Museum of Science, then slips beneath both the old Boston and Maine Railroad Bridge and the new Leonard P. Zakim Bunker Hill Memorial Bridge before entering the Charles River Dam’s locks, which open and close depending on the tides, Evans explains. The inner harbor features views of Charlestown and the North End. Beyond, the financial district includes the Custom House Tower and India Wharf—the nineteenth-century center of international trade that’s now home to the Brutalist-era Harbor Towers.

Then it’s on to the Seaport District. The thriving business and tourist nexus was tidal mudflats until the late 1800s, then became



COURTESY OF THE CHARLES RIVERBOAT COMPANY

a shipping hub before regressing into a no-man’s land of vacant lots, parking lots, and warehouses tied to the Port of Boston.

Last spring workers erecting 121 Seaport Boulevard—a 17-story retail and office building—found the remains of a double-masted, wooden cargo ship that had sunk there between 1850 and 1870. Also among the striking structures is the Institute of Contemporary Art (ICA), a sleek, Lego-like building that’s both cantilevered over the water and sited on part of the emerging 47-mile Harbor Walk. “Boston is this amazing city,” declares Evans. “People can actually walk throughout the landscape on a pedestrian path that’s at or near the edge of the water.”

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—N.P.B.

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MUSIC

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The **Parker Quartet** plays works by Bartók and Mozart. (September 29) “Guido Adler: Musicology Then and Now” features the **Boston Trio** playing music by the Bohemian-Austrian composer’s students and contemporaries. (October 13)

Sanders Theatre

www.boxoffice.harvard.edu

The **Harvard Wind Ensemble**, **Monday Jazz Band**, and **Harvard University Band** join forces for the annual Montage Concert. (October 8)

The **Harvard Choruses** and **Harvard-Radcliffe Orchestra** perform *Chichester Psalms*, among other works, to honor the coming centennial of composer Leonard Bernstein ’39, D.Mus. ’67. (October 28)

NATURE AND SCIENCE

The Arnold Arboretum

www.arboretum.harvard.edu

Boston-based photographer Kippy Goldfarb, Ed.M. ’82, reveals patterns and kaleidoscopic images of nature in **Reverberations: A Virtual Tour**. (October 20-February 4)

THEATER

American Repertory Theater

www.americanrepertorytheater.org

Adapted by Rob Roth from audiotaped conversations between Truman Capote and Andy Warhol, **Warhol Capote** captures the 1970s *Zeitgeist*, along with the artists’ signature creative drives and personalities. Directed by Michael Mayer. (September 9-October 13)

EXHIBITIONS & EVENTS

Harvard Museum of Natural History

www.hmnh.harvard.edu

World in a Drop: Photographic Explorations of Microbial Life features images by Harvard Medical School research fellow Scott Chimileski. (See “Life Beyond Sight,” page 40.) He and HMS professor Roberto Kolter, coauthors of *Life at the Edge of Sight: A Photographic Exploration of the Microbial World*, discuss their work on October 19. (Exhibit runs through January 7.)

RISD Museum

www.risdmuseum.org

Lines of Thought: Drawings from Michelangelo to Now, from the British Museum elucidates how a deceptively simple art form influences and connects artists and viewers over time. (Opens October 6)

Fuller Craft Museum

www.fullercraft.org

Amber Cowan: Rel/Collection. The Philadelphia artist creates intricate sculptures, some unearthly, others arthropodic, out

of bits and pieces of recycled vintage glass. (Through October 8)

The Museum of Russian Icons

www.museumofrussianicons.org

Coinciding with the centenary of the October Revolution of 1917, **Migration + Memory: Jewish Artists of the Russian and Soviet Empires** reflects cultural history and individual trajectories. (Opens October 12)

Events listings are also available at www.harvardmagazine.edu.



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Radical Living

Canterbury Shaker Village's enduring appeal
by NELL PORTER BROWN



The village grew up around the Meeting House, built in 1792 (above), followed by the Dwelling House (far left), with its simply furnished bedrooms. Behind the “garden barn” and shed (top), are meadows and vegetable crops.

ALAMY STOCK IMAGES

THERE'S NOTHING superfluous about Canterbury Shaker Village. That's just the way members of the separatist Christian sect who lived on this New Hampshire hilltop for two centuries wanted it. The self-sufficient Shaker “brothers” and “sisters” worked hard and lived simply—prizing order, quality, cleanliness, and the common good. “Everything that was done here was done in the name of God,” says village tour guide Claudia Rein. “From the minute they got up in the morning to the minute they went to bed at night.”

These days, visitors crest that same hill to

see the 25 original white-clapboard buildings standing like stalwart parishioners themselves on 700 acres of pastoral land under open skies. Rein calls it “magically spiritual,” to see “this place intact, these buildings that have been here for more than 200 years, untouched. You can feel the presence of peacefulness.” Panoramic views are unmarred by commercial elements. Out back, rows of vegetable and flower gardens meet hay fields that slope to woodland trails and ponds.

Established in 1792, Canterbury was the sixth Shaker community. The uniquely American movement, derived from Quak-

erism, was brought from England by a charismatic leader, “Mother Ann” Lee in 1774. Shakers reveled in ecstatic displays during worship—stomping, singing, dancing—that broke with the increasingly reserved Quakers. They also believed in the second coming of Christ, communal living, equality between the sexes, repentance in the form of confession, and celibacy.

Lee was illiterate. Revelatory visions, experienced while imprisoned for her beliefs in England, informed her radical preaching in America, Rein says, but her ideas also likely stemmed from personal disillusionment:



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HARVARD SQUARED

Lee's four children all died before turning six, and, unhappy in a forced marriage, she "became convinced that God wanted her to do something else with her life." For a woman to declare herself a Christian prophetess was rare enough, notes Sue Maynard, a trustee of Canterbury Shaker Village Inc., the nonprofit that preserved and operates the village as a historic site and museum. But when "she and seven colleagues left England, they were *it*: these eight people who were nobodies, and had nothing, were the origin of this American religion."

By the time Lee died a decade later, she'd attracted dozens of followers, established the first Shaker community in Niskayuna, New York, near Albany, in 1779, and laid the groundwork for the spread of Shakerism. Nineteen Christian-based utopias ultimately developed, most in upstate New York and New England, but some as far away as Ohio, Kentucky, and Florida. And Shaker values, reflected in their elegant yet utilitarian furniture, household objects, and other products, would come to reflect traditional American sensibilities.

Other former Shaker sites, like Hancock Shaker Village (New York) and Pleasant Hill (Kentucky), are also open to the public and help shed light on the sect's enduring legacy. But only Canterbury was "continually occupied by Shakers and has never been shut, or used as anything other than a Shaker Village," notes Maynard. As the site's unofficial historian, she has conducted "exhaustive and exhausting research" on all 1,809 people who ever lived at Canterbury, taken oral histories, and written the only full-length biography of the last brother to live there, Irving Greenwood, who died in 1939.

He "made sure they bought a car, a 1907 REO," she reports, "so instead of the long ride in the horse and carriage to Concord, they could drive there much more quickly." The Shakers were not ascetics. They had plenty of food and clothing. Tasks rotated, so nobody got stuck with the dirtiest jobs for long. And everyone had free time, Maynard points out, and enjoyed "entertainments" in the form of community plays and concerts: "They were trying to make as good a life as they could."

Unlike the Amish and Mennonites, Shakers also explored and gamely adopted—and often improved on—outside technology and material goods. Canterbury Shakers developed and patented a commercial-sized washing machine, put it on display at the 1876 U.S. Centennial Exhibition in Philadelphia, and

went on to sell models to hotels and other institutions. In 1898 they bought telephones, and 12 years later they installed electricity—even before New Hampshire’s capital city, Concord, did. Greenwood brought in a radio set in 1921, at the dawn of that era, and several years later, as modern household appliances began to appear, the Canterbury sisters eagerly purchased a KitchenAid mixer. “Then they got an electric refrigerator—and a Maytag washer,” Maynard notes.

This creativity and adaptability—and a series of talented elders—she says, made Canterbury one of the most successful Shaker communities. Yet what about it today draws 35,000 annual visitors, many from around the world? Why is there abiding interest in the Shakers, a religious sect that, at its mid-nineteenth century peak only had about 5,000 members? Some people who come are spiritually minded, others are utopian-seekers, who “see this alternative communal organization as a model for the way that everyone could live,” Maynard says. Many are “struck by the achievements of these people who were basically uneducated in any formal way, but who designed and

Even the views (here populated by cows) have likely not changed much in 200 years.

built these buildings, these objects, these businesses, simply from their own inspiration,” she continues. “From their own determination and imaginations, they created what they regarded as ‘Heaven on earth.’ It’s a very American idea.”

VISITORS CAN ROAM the site on their own, or take a guided tour. Those who share in the Shakers’ devotion to craftsmanship might learn from artisans’ daily demonstrations of traditional Canterbury Shaker activities: spinning and weaving, letterpress printing, and constructing brooms and the famous oval storage boxes. Seasonal workshops for making chairs, rugs, and folk-art dolls run through November, and several events are planned: the Canterbury Artisan Festival (September 16), Vintage Car

Show (October 14), and Ghost Encounters (October 28). Walking trails good for all ages wind through woods and meadows, and skirt ponds marked by remnants of the Shakers’ elaborate mill system.

Two different tours—one geared for adults, another for families—offer a grounding in Shaker history, and a sense of how the Canterbury community evolved over time. The village began with new convert and farmer Benjamin Whitcher and 43 other believers intent on transforming his 100-



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The Dwelling House, built in 1793, is where Shaker “sisters” and “brothers” lived in separate quarters; the chapel, below, was added to the building in 1835.

recent tour. A few people in the group knew the song “Simple Gifts,” written in 1838 by Maine Shaker Joseph Brackett (it became famous after Aaron Copland incorporated it in his orchestral suite *Appalachian Spring*); they sang it along with Rein at the end.



Shakers took their singing and fervent worshipping public to recruit converts, but not surprisingly, they were not always embraced,

even in America. “In your town, if you saw a bunch of people in black hats and dark clothes shaking and throwing themselves on the ground, and saying, ‘You are a sinner, come join us! Throw your lust away! You—leave your husband and join our sect!’” Rein

asked, “wouldn’t you pick up the phone and call the police and say, ‘Get these people off the street. They’re disturbing the peace!’?”

Within the Shaker communities themselves, sisters and brothers never touched. In 1793, the Canterbury Dwelling House was built, and the gender groups came and went through different doors, and stairways, and slept in separate quarters.

Yet they worked closely together, mindfully divvying up workloads and decision-making powers, even around finances. Always “entrepreneurs, inventors, and businesspeople,” Rein noted, they pooled their worldly assets upon conversion and worked collectively to earn money and sustain their communities. At Canterbury, a range of ventures developed over the years, from selling farm products, patented medicines, and clothing to cookbooks, household objects, and furniture.

Visitors see artifacts from their commercial ventures, like brooms, bonnets, boxes, and baskets, and from their daily lives, at the exhibition hall. Furniture is also on display—wardrobes, corner cupboards, chairs, tables, and a ingeniously designed double-sided sewing cabinet and desk, and the Ken

acre homestead into a communal agrarian utopia: “Heaven on Earth.” First to rise was the Meeting House. There, devotees eschewed ministers and fire-and-brimstone sermons in favor of listening to community elders offering relevant lessons or reflections during meetings for worship. Singing was prevalent; the Canterbury Shakers alone composed about 10,000 hymns, along with dances and music, Rein said during a



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ALL IN A DAY: World's End

Exactly when and how World's End got its name remains a mystery. But when you step out from the trees along the farthest edge of this 251-acre peninsula jutting into Hingham Harbor and look back across the water at the toothpick peaks of the Boston skyline 15 miles away, the name seems to fit.

The Trustees of Reservations acquired the little hunk of land on Boston's South Shore in 1967, and has been celebrating its fiftieth anniversary this year. Guided hikes illuminate the property's history, and on September 15, a family-friendly tour highlights hidden pathways through the woods and other "curiosities."

Originally an island carved out by glaciers, the property was relinked to the mainland by colonial farmers and in the 1800s became part of a vast farming estate owned by

businessman John Brewer. In 1889 Brewer commissioned landscape architect Frederick Law Olmsted, A.M. 1864, LL.D. '93, to draw up plans to turn World's End into a 163-lot subdivision. The development never materialized, but the carriage roads Olmsted designed were built and saplings planted alongside them; now those trees form a massive canopy, and the roads are wide, curving walking trails. In years past, other proposals have threatened the park: in 1945, it was considered for the UN's headquarters (bound, eventually, for Manhattan); in 1965, for a nuclear plant.

With its hilly meadows, rocky beaches, woods, wetlands, and a tidal marsh—plus those stunning views

Stunning views of Hingham Harbor (top) and the Boston skyline (lower left); trails formed from treelined carriage roads; al fresco diners at Caffè Tosca

across the bay—World's End can easily occupy two or three hours. Through October 31, visitors can wander through Danish artist Jeppe Hein's conceptual work, *A New End*, whose mirrored columns mimic the surrounding landscape.

On busy days, traffic can clog narrow Martins Lane, leading to the reservation entrance, and the parking lot often fills up. There is a car-free alternative: take the MBTA Greenbush Line to Nantasket Junction, and from there it's an easy one-mile walk or bike ride. Or take the commuter ferry from Long Wharf in Boston to Hingham Harbor; from there by bike it's less than four miles.

Heading toward Boston, visitors can stop at Hingham's Bathing Beach and the farmers' market (open Saturdays through November 18). For full meals, there's comfort food at Stars on Hingham Harbor; pricier, refined Italian fare at Caffè Tosca; or fresh lobster rolls and chowders at the Hingham Lobster Pound.

Hingham can be a quintessential New England day trip. World's End is a popular Trustees site—more than 60,000 people visited last year—but even when the parking lot is full, the place doesn't feel crowded. Standing at the edge of the water, you'll have the view all to yourself. ~LYDIA LEGIBSON



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Burns documentary about Canterbury, *The Shakers: Hands to Work, Hearts to God*, is shown. The Shakers established their own communal economy “that challenged the basic tenets of an emerging American capitalism by rejecting individual ownership in favor of joint interest,” reads an exhibition panel about the 1842 visit to the village by Ralph Waldo Emerson, A.B. 1821, LL.D. 1866, who called the Shaker economy a “peoples’ capitalism.”



Canterbury was among the Shaker villages credited with pioneering commercial crops grown for seeds, which they packaged and sold throughout much of the nineteenth century; it also produced tens of thousands of flat brooms, another Shaker invention. Canterbury physician Thomas Corbett (1780-1857) spearheaded the village’s packaged-herb business, but more importantly, developed popular cure-alls, like his sarsaparilla-syrup compound, which residents produced, marketed, and sold for 60 years.

The village even had its own printing operation under the dynamic leader and Renaissance man Henry Blinn. It became the locus of published materials for all of the Shaker communities, printing the monthly *Manifesto*, and accepting jobs from outside the community as well. Visitors can explore the equipment used and learn about the arduous process that, by the 1890s, included typesetting done by some of the sisters.

Shakers were perfectionists, Rein noted, and their products are “synonymous with quality.” Tours highlight how their labor,

A carpenter's workbench, tools, and furniture, displayed at the Dwelling House

work ethic, and aesthetic are linked to spirituality. Lee reportedly preached: “Do all your work as though you had a thousand years to live; and as you would if you knew you must die tomorrow.” But Joseph Meacham of the Enfield, New Hampshire, Shaker village, is credited with writing, more practically: “All work done, or things made in the Church for their own use, ought to be faithfully and well done but plain and without superfluity.”

The work of God extended to nurturing children. The Shakers had none of their own, but before the era of official orphanages, they routinely acted as foster families for children in need. Canterbury helped hundreds of children over the years, raising and educating them until age 21, when they could choose to sign the Shaker covenant and stay on, or join the “World’s People,” as outsiders were called.

This was decades after the number of Shakers overall began to decline, starting in 1850 (around the time Canterbury’s own population peaked at 250). Male converts were the first to ebb, with the onset of the American Industrial Revolution. Women soon predominated, playing even larger roles

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in financial matters. At Canterbury, Dorothy Durgin, who arrived at age nine, in 1834, rose to become an eldress. The multitasking leader, among other pursuits, designed the "Dorothy Cloak," a wool shoulder cape with a hood (there's one at the exhibition hall) that became a trend among society ladies.

(In 1893, first lady Frances Cleveland wore one at her husband's second inauguration.) That entrepreneurship and the clothing line itself expanded during the early twentieth century. Other sisters formed the Hart and Shepard Company, going on the road with trunk-loads of cloaks and other handmade goods, traveling as far as Florida, to resort hotels, Maynard says, "then working their way up the coast, selling thousands of dollars' worth.... They were dressed in their Shaker bonnets and dresses and cloaks, but they had independence and were businesswomen."

Then, as earlier, Shaker life could offer women "a sort of sanctuary—a safe and comfortable life where what they did was



Clockwise from top left: Dorothy Durgin; Henry C. Blinn (tending his bee hives); a sister using a KitchenAid mixer, c. 1926; hundreds of children were fostered at Canterbury, and some joined the community themselves. This image is from 1916.



appreciated," Maynard adds. In the outside world, options for an uneducated single woman were sparse. "She could work as a domestic, an unpaid servant in the home of a married sibling, or stay home and take care of aging parents," Maynard adds. "But

what then? What happened as she grew old herself? At the village, as people aged, they were given tasks they *could* do, and if they became infirm, they were cared for."

The sisters nursed Irving Greenwood until his death in 1939. There were only 30 women left then, and no new converts permanently joined after that. Most of the

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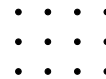


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HARVARD SQUARED



Arriving at Canterbury Shaker Village, north of Concord, New Hampshire

other villages had closed or consolidated, and the flow of potential youthful converts ended as governments and charities developed orphanages and foster care. Among the last sisters to arrive at Canterbury and stay—Ethel Hudson, who came as a child in 1907—was the last sister to die there, in 1992.

By 1965, with eight remaining Shaker sisters in Canterbury, the covenant was effectively closed. Leaders there “recognized that the era had passed for the original intent of the villages,” according to Maynard, “and that this was just the natural way of things.” (Two people still live at Sabbathday Lake Shaker Village in New Gloucester, Maine, which is also open to the public.) Four years later, in 1969, a handful of Canterbury sisters laid plans to preserve the Shaker legacy and property by founding Canterbury Shaker Village Inc.

Village visitors come across the country, and from all over the world, to see the restored, original buildings and some of the thousands of photographs, artifacts, and documents that help explain who the Shakers were and what they might mean for the contemporary world. The BBC was there this spring to film the village and interview Maynard for its series, *Utopia: In Search of the Dream*.

Around that time, a tour included New Englanders and visitors from Maryland, Georgia, and California. What did they find compelling? “They were very spiritual people and they knew their purpose,” answered Mary Street, of North Reading, Massachusetts. For her husband, Scott, it was the “simple beauty” of the place, the furniture, and their relationship to spiritual beliefs. “That they were progressive, and also part of the world—and being celibate,” he paused, considering the fact. “It’s strange, and sort of fascinating how they pulled that all off.”

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A Neighborly Bistro

Branch Line highlights Watertown's past—and future



Branch Line, which pairs fresh fare with craft beers on tap, transformed part of a historic building and created a seasonal outdoor dining room at the former Watertown Arsenal.

PATIO DINERS at Branch Line can watch the sun go down—and might even catch a breeze from the Charles River—amid the Watertown Arsenal's historic red-brick buildings. The restaurant sits blissfully removed from traffic, and often feels as if it's in its own quiet little neighborhood.

Then there's the food. Branch Line is a partnership between the owner and the general manager of Eastern Standard, in Boston, and shares its brasserie-style flair. Slow-cooked French rotisserie chicken (\$19/\$38) and grilled steak (\$24) rightly lead the menu. But the potato gnocchi with "beef-cheek ragu" and pecorino (\$23) is a rich treat, or go for the more nuanced grilled branzino (whole fish, or filet), with olives, harissa, and a side of micro-greens (\$28). The vegetarian entrée, though—featuring chunks of smoked eggplant over too-dry braised chickpeas and a layer of almond romesco—tasted something like a burnt oven smells.

Sides and starters had more zip. Steamed

mussels came in a beer-laced broth spiced with Calabrian chiles (\$14). The sugar-snap-pea salad, with marcona almonds and loads of ricotta cheese and fresh mint, was crunchy and refreshing (\$12). The lamb and pork meatballs drenched in *sugo al pomodoro*—classic tomato sauce—were divinely filling (\$5).

There's no hard liquor: Branch Line serves wine, beer, and mocktails. Friendly, assiduous staff can describe every one of the 20 rotating craft drafts. A few are familiar (German wheat-ale and Jack's Abbey lager), but most are not. Note: the Tartare Rouge, from California's Bear Republic Brewing Co., is sour red ale fermented with "airborne wild yeast and bacteria."

Adventurous beer hounds are among the families, celebrants, and date-nighters who frequent Branch Line. Post-work relaxers who stream over from the arsenal's 11 buildings boost the bar tab and neighborly vibe.

No homes exist on the cur-

rent "campus," as the arsenal is now called by owner and primary occupier, Athenahealth (to which Harvard sold the property in 2013), but Branch Line is joined by a very good Mexican restaurant, La Casa de Pedro, and the Mohesian Center for the Arts (galleries, classrooms, and live theaters), along with a seasonal farmers' market and special public events, like outdoor concerts. Fledgling trees, native plants, a central plaza, and other new landscaping are further signs of Athenahealth's efforts to reinvigorate this corner of urban life. The oldest buildings date to the Civil War, but the arsenal itself (designed by Boston architect Alexander Parris, later known for Quincy Market) was originally established in 1816 by the U.S. Army, and is now on the National Register of Historic Places. (For self-guided tours, visit <http://thearsenalonthecharles.com/history/walkingtour>.)

For its part, Branch Line has integrated modern, industrial-chic décor with preserved elements like tall windows and exposed steel beams, and attracted a lively following—thus laudably linking community development and history through its delicious food. ~N.P.B.

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JOHN HARVARD'S

JOURNAL

Transition Time

DREW GILPIN FAUST announced on June 14 that she would step down as Harvard's twenty-eighth president on June 30, 2018, the end of the new academic year, concluding service that began on July 1, 2007. Her

planned retirement from Massachusetts Hall is a logical transition:

- It coincides with the scheduled completion of The Harvard Campaign (which had raised \$8 billion as of the date of her announcement).

- It echoes the orderly transition effected by Neil L. Rudenstine, who announced in May 2000—just after the celebration for the \$2.6-billion University Campaign—that he would conclude his presidency in June 2001.

- Conveying the news now provides the Harvard Corporation (enlarged and reconstituted during Faust's tenure) with plenty of time to conduct a search for her successor. It also affords her time to

pursue remaining items on her likely to-do list: further fundraising (for the Allston science and engineering center shown above, House renewal, financial aid, the arts, and so on); and advocacy for higher education and public support for basic research (at a time of heightened political rhetoric concerning both).

From a personal standpoint, the transition should have the welcome effect of enabling Faust to contemplate the end of a grueling travel schedule (campaign events worldwide, and this year, frequent trips to Washington to discuss changes in immigration policy, federal funding for research, and more), and to enjoy time with her husband, Charles Rosenberg, Monrad professor of the social sciences emeritus (an historian of medicine), and family members and friends. Faust turns 70 this September, and Rosenberg will be 81 in November.

Envois...

IN HER MESSAGE emailed to the community, Faust wrote:

It will be the right time for the tran-

Drew Faust



KRIS SNIBBE/HAC

JOHN HARVARD, general contractor, was flat-out this summer—in all seriousness, perhaps the University's busiest building season. Marquee projects include assembling the future home of much of the engineering and applied sciences faculty.

Construction was halted during the financial crisis, in early 2010; the new facility, redesigned in a smaller footprint, is to open by the 2020-2021 academic year. Work also began on the district energy plant that will serve the area. Mockups of the science complex's façade, shown here, suggest the detailed construction ahead. Meanwhile, Harvard Business School's sidewalk superintendents had plenty to watch at Klarman Hall (below), the future conference center, where the applied scientists will no doubt be welcomed (see page 22).

(continued on page 17)



sition to Harvard's next chapter, led by a new president.

It has been a privilege beyond words to work with all of you to lead Harvard, in the words of her alma mater, "through change and through storm." We have shared ample portions of both over the last decade and have confronted them together in ways that have made the University stronger—more integrated both intellectually and administratively, more effectively governed, more open and diverse, more in the world and across the world, more innovative and experimental. The dedication of students, faculty, and staff to the ideal and excellence of Harvard, and to the importance of its pursuit of Veritas has made all this possible. I know this commitment will carry Harvard forward, from strength to strength, in the years to come.

Separately, the Corporation's senior fellow, William F. Lee, wrote of Faust, "For the last 10 years, she has approached every

day with a singular purpose:

to ensure that Harvard remains the pre-eminent academic institution in the world by constantly driving Harvard forward." He reminded the community that during that period, her presidency was especially challenging:

She came into office after a period of strife and controversy on campus, and she quickly restored trust and a sense of common purpose.... But just over a year later, Harvard faced an even more profound challenge—as did the rest of the world—in the form of a global financial crisis. While the crisis challenged every major research university, Harvard was particularly hard hit. Drew acted swiftly and decisively to minimize exposure, curtail risk, and chart a disciplined and responsible course forward. She made hard decisions—and unpopular ones.

Their full statements, and a detailed overview of Faust's presidency (the important challenges sketched in Lee's note, plus ac-

ademic priorities such as engineering and applied sciences; governance reforms; the rebooted fundraising campaign; initiatives on diversity and inclusion; and more) and an outline of pending business for the Corporation and a new president (investing in life sciences amid uncertainty in Washington, D.C.; the University's evolving, and no less uncertain, financial model; articulating Harvard's strategy leading up to its four-hundredth anniversary in 2036) are discussed at

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length at harvardmag.com/faustexit-17. As is customary, *Harvard Magazine* will publish a full review of President Faust's administration at its conclusion, following what may well be an eventful final year.

...and the Search

IN A CONVERSATION on June 14, Lee commented on organizing a search to ensure that "the transition is smooth and in the best interest of Harvard." It will differ from prior searches because the Corporation now comprises a dozen members plus the president (who will not be involved)—twice

the size of earlier cohorts. Lee said the enlarged Corporation brings to the task broader "experience, expertise, and judgment" than were available to the senior governing board in 2006-2007, and more channels through which to reach out for ideas and suggestions.

He also noted the "unique" asset of having four university leaders affiliated with the Corporation (Faust; Wellesley and Duke president emerita Nannerl O. Keohane, whose service concluded June 30; Tufts president emeritus Lawrence S. Bacow; and Princeton president emerita

Shirley M. Tilghman) and said, "We'd be crazy not to get the benefit of that." Bacow and Tilghman will obviously be directly involved, Lee continued, and he expects that Keohane's continued counsel will be sought as well.

Consistent with past practice, three Overseers will join the Corporation members, making a 15-person search committee. The full roster was released in a July 11 message from Lee to the community. He also announced that following the precedents set in 2006, when the search for a successor to Lawrence H. Summers resulted in Faust's appointment, faculty and student advisory committees will again be formally organized—joined this time by a committee of staff members. Lee solicited perspectives on:

- the principal opportunities and challenges likely to face Harvard and higher education in the coming years and the priorities that our new president should have most in mind;
- the qualities and experience most important in the next president; [and]
- any individuals you believe warrant serious consideration as possible candidates.

Comments may be directed to pssearch@harvard.edu or mailed to Harvard University Presidential Search Committee, Loeb House, 17 Quincy Street, Cambridge, Massachusetts 02138.

Further details on the search appear at harvardmag.com/prezsearch-17.

~JOHN S. ROSENBERG



William F. Lee

STEPHANIE MITCHELL/HPAC

Making a MOOC

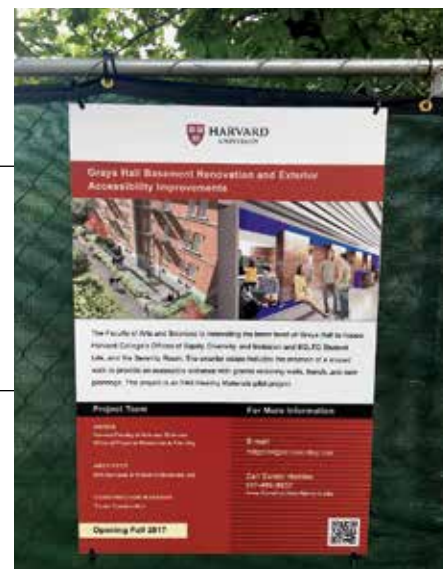
A WELL-KNOWN public-health anecdote, the birth-weight paradox, is often used to illustrate how cause and effect can become tangled: "You probably know that maternal smoking during pregnancy is associated with increased infant mortality. What you may not know," explains Miguel Hernán, "is that maternal smoking is associated with a lower risk of mortality among infants who had a low birth weight." In other words, in a cohort of low-birth-weight babies, those

born to mothers who smoked were healthier than those born to mothers who didn't. Could maternal smoking be beneficial for some infants—or is there some other explanation? Hernán, the Kolokotronis professor of biostatistics and epidemiology, teaches students how to use a tool called a causal diagram—an intuitive picture that maps the causal structure of problems—to clarify what is really going on. (The answer: the *other* causes of low birth-weight are associated with health problems more severe than those caused by maternal smoking.)

Hernán is a hot property: a leading, and



The former Holyoke Center's rear entry was razed during its makeover into Smith Campus Center; surrounding streets gave way to heavy work on Lowell House, and finish work at Winthrop, including new faculty-dean quarters—all part of undergraduate House renewal. In addition (though not shown): Lavietes Pavilion will reemerge for fall basketball; the Sackler Museum is being renovated for new users; and Soldiers Field Park renovation continues. And smaller nips and tucks, as at Grays Hall in Harvard Yard (for a serenity room and BGLTQ offices), were undertaken, too.



charismatic, exponent of these causal diagrams, which in the past 20 years have become critical tools for assessing the effectiveness of treatment strategies and policy interventions in the health and social sciences. Now, as one of a small number of Harvard faculty members each year whose course is selected to become a MOOC (a massive, online, open course), he is about to go global. Just 20 new courses are chosen by a faculty review committee annually, all of them ultimately offered to learners in at least one free version—part of Harvard's commitment to improve access to education globally through HarvardX (HX), the University's online course initiative. Hernán's course is based on Epidemiology (EPI) 289: "Models for Causal Inference," the core offering he's taught for 14 years at the Harvard Chan School of Public Health (HSPH). *Harvard Magazine* accompanied Hernán during the making of his MOOC to find out what it takes to produce one, and how that compares to creating a traditional course.

Examples of other real-world public-health problems like the birth-weight paradox—"hooks" to engage and draw learn-

ers into the subject quickly—open each of the course's five lessons, and are one of the major changes in pedagogical approach Hernán has made to adapt his course for HarvardX. (HX project lead April Opoliner advocated the "hook" strategy.) Within each lesson, five seven-minute videos produced in the HX studio expand on the problem introduced in the hook; a closing video then demonstrates how causal diagrams are used to resolve it. Supplementing these lessons are case studies shot on location at HSPH in which Hernán interviews leading public-health scholars. Because causal diagrams can be applied to problems in many disciplines, he hopes in a future version to expand the cases to include interviews with faculty members from outside the health sciences.

Faculty members typically spend 96 to 142 hours helping produce and run an eight-week MOOC, according to HarvardX estimates. The production of Hernán's—its pacing dictated by his availability amid a packed schedule of lectures in the United States and abroad—will have spanned 20 months, a bit longer than usual. But when complete, it will free him from much of the

time and expense of traveling to teach this fundamental introductory material.

IN THE HARVARDX STUDIO, Hernán stands in front of a greenscreen, as technicians prepare to shoot the first video of the course. It's early 2016. A boom mike hangs from the ceiling, just out of frame. "3-1, take 4," calls out HX videographer Alex Auriema. *Craaack!* The arm of the clapperboard snaps down, signaling a new scene. It is Hernán's first day in front of the camera, and the videographers have been prepping him, adjusting his clothes, attaching a microphone to his shirt, taking his eyeglasses on and off, offering him water, repositioning lights, adding a diffuser, running sound checks, and marking the floor with colored tape to ensure repeatability in the perfect positioning of equipment—a whirl of activity. Hernán says he's a little nervous, too, even though he knows the material so well that he gives three near-



STURLOSNER

HarvardX project leader April Opoliner with Kolokotronis professor of biostatistics and epidemiology Miguel Hernán and teaching assistant Barbra Dickerman

perfect takes, all on the same subject, almost without repeating himself. But he and the HarvardX team for this course, shepherded by project leader Opoliner, are perfectionists. The *fourth* take is the keeper.

Opoliner, S.D. '13, took this very class with Hernán, as a student. Energetic, creative, and upbeat, she will coordinate translating and simplifying the course for an online format. It takes a team of skilled professionals—HX employs a staff of about 45, including managers, videographers, graphic designers, digital editors, and even a copyright attorney and an accessibility coordinator (who helps make the materials usable for sight- and hearing-impaired learners)—to make each MOOC, at a cost that ranges widely, depending on the nature of the course and the sites of location shoots. This one cost about \$100,000 to make. Producing a typical lecture course, by contrast, is something Hernán can do largely alone. He can also assign readings that are freely accessible at the library to residen-

tial students, without having to clear copyright. (For an HX course designed for global distribution, copyrights are critical. HX currently tracks 19,000 copyrights it has permission to use in its database.)

Jennifer Walker, video editor for the project, stitches together the best takes from each filming session. A former theater manager for live performances at the House of Blues, she also assists as a second videographer during dual-camera location shoots at Hernán's HSPH office. That snap of the clapperboard? During later editing on Walker's computer screen, it appears as a dramatic vertical spike in the visual representation of the sound file, allowing her to easily align the video and audio tracks. (She also creates animations of the causal diagrams that are key to this course, bringing static images to life on the screen.)

TUCKED IN an off-street building between Mount Auburn and Brattle streets, Har-



Words to inspire outside the HarvardX studio. Manager Sarah Grafman on location

vardX has been one of the University's fastest growing units since its launch in May 2012. It can handle about 40 projects at any given time—20 new courses per year, plus “reboots,” or revisions to existing offerings. (HX generally commits to two such revisions for each course it produces). Millions of people have registered for at least one of its more than 100 courses; a third of enrollees who responded to a pre-course survey identify themselves as current or former educators interested in continuing education.

Among the University's goals in supporting the production of courses like Hernán's is maximizing their “reach” as part of “Harvard's contribution to a rising tide of education globally,” says HX faculty director Robert Lue. He has long been interested in experimenting with hybrid educational models that incorporate technology: his Biovisions project, dating to 1999, uses animations of molecular and cellular biological processes in teaching, and is now widely deployed in public schools. Another goal is conducting research: “HarvardX represents a wonderful sandbox to explore new possibilities at the interface of learning and technology,” he says. The third objective—which Hernán already practices—is creating content to benefit residential students.

Like Lue, Hernán has been interested in experimenting with different modes of teaching for some time. After adding live polling to his campus classes—stopping a lecture for five to 10 minutes to ask questions—he observed that this changed the classroom dynamic because instruction was “no longer one way.” Working with HX is a natural progression that lets him experiment with other new pedagogical approaches, whether for international audiences or students in Boston.



JONATHAN SHAW (2)

He is especially eager to find out how the course will fare with nonresidential learners, because with an online offering, “you can lose students at any time. If they get bored, they will stop watching. You have to construct your course in a different way.” A video lecture therefore becomes a short unit in which to make one point, “not five. Because if I try to make five points, I need 50 minutes.” The hooks—the real-world applications—mean that “I start each lesson by telling students why this is important, why they should keep watching....You are in a competition for attention, which doesn’t happen as much in a live setting.”

HSPH and Harvard Medical School (HMS) students have been receptive to the videos. This past January, a year into the MOOC project, Hernán began assigning seven-minute, single-concept modules from that course’s first lesson as pre-class homework in two residential courses. He sought feedback from the students on the presentation, and their assessment of this “flipped” approach: learning a concept by watching a video before class, then discussing it with the professor in class rather than listening to a lecture. From Hernán’s perspective, the flipped approach lets him use his “face-to-face teaching time in a more effective way”: he doesn’t have to “start every time from the basics and build up.” Even in draft form, he declares, “the effect has been amazing. You just assign the lesson, and then discuss real-world problems” in class, using causal diagrams as tools to dissect them. In the past, he says, that point in the learning process came so late, the course was nearly over.

Flipped classrooms do come with caveats. Peter Bol—who as vice provost for advances in learning oversees HX; the Harvard Initiative for Teaching and Learning (HILT); and a research group run by professor of government Dustin Tingley (Harvard Portrait, July-August 2016, page 23)—says that studies of flipped classrooms (including his own ChinaX course) have shown that they improve learning, but at the cost of creating much more work for students.

So far, however, reaction among residential students has been overwhelmingly positive, reports Barbra Dickerman, a teaching assistant in several of Hernán’s courses at HSPH and HMS. “Students loved how they could go back and re-watch and revisit; that’s something you can’t always do in the classroom setting. Further, students come to class having already watched the videos,



Sunil Amrith

“Picture the Bay of Bengal as an expanse of tropical water: still and blue in the calm of the January winter, or raging and turbid with silt at the peak of the summer rains,” writes historian Sunil Amrith in *Crossing the Bay of Bengal: The Furies of Nature and the Fortunes of Migrants*. “Now imagine the sea as a mental map: as a family tree of cousins, uncles, sisters, sons, connected by letters and journeys and stories.” *Crossing’s* ambitious mental map tells the story of how one in four people in the modern world came to live in countries that border the Bay—a sea echoing with a fugue of languages from Malay to Portuguese, Arabic to Dutch. An elegant wordsmith whose research and writing have earned him major awards from the European Research Council and the British Academy, Amrith credits novelists Michael Ondaatje and Amitav Ghosh’s stories of migration with influencing his outlook as an historian. His own biography is peripatetic: born in Kenya to parents from the Bay-bounded south Indian state of Tamil Nadu, schooled first in Singapore, and then at Cambridge, where his “dream job at 18 was working for the UN.” But history let him explain issues he cares about, and led him to stay in Cambridge for a doctorate, focused on global-health organizations in India and Southeast Asia. He came to Harvard in 2015 as Mehta professor of South Asian studies and professor of history, and will become chair of South Asian studies in 2018. He hopes the department can convey “the vitality and excitement of studying South Asia” in the twenty-first century through collaborations across disciplines and regional boundaries—goals he’s pursuing as co-director of the Center for History and Economics and in classes co-taught with colleagues in East Asian studies.

—SPENCER LENFIELD

which leaves more time for active learning through discussion and application.” HX hired Dickerman, a critical support in producing the course, to help develop creative materials for the animations, illustrations, hooks, cases, and so on.

Reflecting on what she has learned by working on this MOOC, Dickerman cites, above all, how “to present information concisely.” In addition, she has a new appreciation for “the power of visuals and graph-

of barriers that keep people from being here in the classroom.” And it optimizes resources: “For example, it seems obvious, but there’s only one Miguel Hernán. And he can either teach a class of 70” once a year, “or develop this course that reaches many more around the world and across different disciplines.”

Though the full, online course will launch around the time this magazine goes to press, Hernán is already pleased because the residential students who’ve used those online

The use of “hooks” to engage and draw learners into the subject quickly are among the major changes in Hernán’s pedagogical approach.

ics and movement to augment the content that’s being spoken. I think that is a powerful advantage over the classroom setting.” And she, too, praises the MOOC advantage of allowing students to move through the material at their own pace.

“I think this kind of format is going to be a big part of the future of education,” she continues. “It’s effective. It breaks down all kinds

modules are learning more. “Instead of spending 90 percent of the course listening to me lecture,” he points out, they watch a 10-minute video, “and then we spend 90 percent of the course in scientific discussion. It’s completely different, the level at which they absorb the material. They are asking questions that they were not asking before.”

—JONATHAN SHAW

News Briefs

Social Club Ban?

IN JULY, a Harvard committee recommended banning students from joining any final club or other unrecognized social organization, whether gender neutral in its membership practices or not. The ban, modeled on one at Williams College, would take effect beginning with students entering in the fall of 2018, and effectively end undergraduate participation in off-campus social organizations by 2022.

Prior committees charged with studying the impact of such organizations on undergraduate life published reports seeking to link them to sexual assault, and cited gender discrimination as the source of their negative social impacts. But the ban proposed by the current committee of faculty members, administrators, and students pivots to an expanded rationale: these organizations “go against the educational mission and principles espoused by Harvard University.” Citing student comments submitted as part of an earlier survey (rather than the survey data itself), the latest report argues

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Music, Italian Style

Knafel professor of music Thomas Kelly on a day teaching at the Naples Conservatory
harvardmag.com/kelly-naples-17



Title IX at 45

A Radcliffe Institute exhibit explores how Title IX expanded women’s opportunities in sports.
harvardmag.com/titleix-17



Wikipedia Against Censorship

Researchers at the Berkman Klein Center for Internet & Society find that global censorship of Wikipedia is declining.
harvardmag.com/censorship-17

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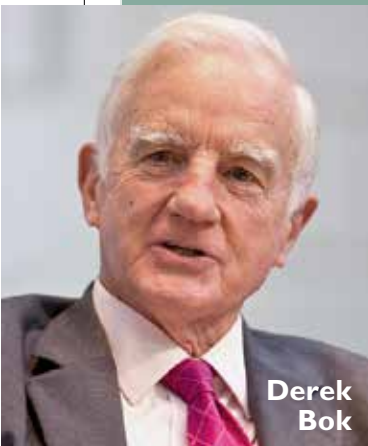
Digging Deep into Chinese History

Hudson professor of archaeology Rowan Flad reflects on an excavation in Gansu Province, China, a part of his work on the origins and development of socially complex societies in China during late prehistory—particularly the third and second millennia B.C.E.—during which major transformations took place.

harvardmag.com/chinadig-17

COUNTER CLOCKWISE FROM TOP RIGHT: ROWAN FLAD; ZMEEL PHOTOGRAPHY / ISTOCK; COURTESY OF SCHLESINGER LIBRARY; THOMAS FORREST KELLY

Back-to-School Bookshelf



Derek Bok

JUSTIN IDE/HPAC

By now, Derek Bok's two-decade initial stint as Harvard's president seems only a chapter in his career as a leader in American higher education. *The Struggle to Reform Our Colleges* (Princeton, \$29.95) is the most recent in his long series of distinguished analyses: critiques that credit the value of higher education by treating its flaws seriously and teasing out appropriate remedies. Unfashionably reasonable and soft-spoken, Bok here engages the fundamental irony: at a time when educational attainment matters more than ever, and scholars have gained new

insights into effective teaching and learning (and promising technologies to enhance both), the United States has, seemingly, made little progress. Citing the imperative to educate more of the populace, and to do so better, he writes, "It is the need to make progress toward both objectives simultaneously that presents the greatest challenge for America's colleges" now.

But where to turn when universities themselves are "conservative," tenure-track faculty members "reluctant" to alter pedagogies and curriculums, adjuncts too hard-pressed and insecure to have a voice, and few presidents eager to pursue major reforms "that could prove to be time-consuming, contentious, and ultimately unsuccessful"? Don't look to students, Bok says. Their future employers are a source of pressure for justifiable efforts "to evaluate the effects of a college education," opposition to which is "harder to defend" today. Technology may be promising. Foundations, state and federal government, and accrediting agencies might play constructive roles in raising graduation rates and enhancing quality—but the record is not encouraging.

Bok the educator thus suggests that colleges and universities act as, well, *learning* institutions: they should test and assess models like Arizona State's online tutoring as a possible way to enhance the efficacy of remedial courses; or marry financial aid to orientation, mentoring, and peer advising, to see if that boosts college

completion. Focus on better graduate education as well, he suggests, so future teachers are better prepared to educate their students; create *teaching* faculties (rather than beggar adjuncts, who handle so much introductory instruction); put those who teach in charge of revising the curriculum; and get serious about educational research.

Not very tweetable—but an agenda guided by experience, wisdom, and belief in gradual improvement. Bok notes near his conclusion: "many college leaders and their faculties are excessively optimistic about the performance of their own institution." Just perhaps, a few might listen to one of their own, and begin to assess their performance more realistically.

In an important, related vein, Nobel laureate Carl Wieman, now professor of physics and of education at Stanford, has brought his scholarly skills to bear on rigorous design and testing of better teaching. *Improving How Universities Teach Science* (Harvard University Press, \$35) helpfully guides readers through discoveries disseminated previously in education journals and forums. Nothing he proposes should be too difficult for any institution that cares about teaching and learning to implement, and the lessons are presented with clarity and force. This is the kind of emerging work Bok hopes to encourage—against the inertial forces Wieman's scientific colleagues understand so well in their own research.

Finally, just try to be objective about selective college admissions: you will find it impossible to separate your own experience, or hopes for loved ones, from your assessment. At the start of another frenzied admissions season, Rebecca Zwick (formerly of University of California, Santa Barbara, now affiliated with the Educational Testing Service) examines essentially every option and its trade-offs. The result is *Who Gets In?* (Harvard, \$35). Its last sentence says just about everything needed to move "public conversation" about admissions toward a "less rancorous and more productive" place: "The first step is for schools to reveal what is behind the curtain."

—J.S.R.



Carl Wieman

COURTESY OF CARL WIEMAN

that even though such organizations involve only a small number of students, their effects "permeate the fabric of campus culture."

The Harvard policy, as proposed, reads:

Harvard students may neither join nor participate in final clubs, fraternities or sororities, or other similar private, exclusionary social organizations that are exclusively or predominantly made up of Harvard students, whether they have any local or national affiliation, during their time in the College. The College will take disciplinary action against students who are found to be participating in such organizations.

Violations will be adjudicated by the Administrative Board.

In a dissenting opinion, Putnam professor of organismic and evolutionary biology David Haig framed the past academic year's fiercely debated sanctions policies (see "Social-Club Saga," May-June, page 18) as "a conflict between competing goods: on the one hand, respect for student autonomy and freedom of association; on the other hand, non-discrimination and inclusivity." He noted the lack of good data on the effects of such organizations, and the fact that faculty opinion of the sanctions is unknown, because the policy has "never come to the faculty for a vote." Because

a 2016 survey of students showed 60 percent of respondents in favor of repealing an earlier sanctions policy, and 30 percent in favor of retaining it, he pointed to "a disconnect between these numbers...and the general tone of this committee's report, which emphasizes deep unhappiness among students with the social environment created by the clubs...."

The committee recommending the ban was appointed in early March by dean of the Faculty of Arts and Sciences (FAS) Michael D. Smith, and includes dean of Harvard College Rakesh Khurana as co-chair. (Khurana's earlier recommendations had led to the existing policy, and to his work with

Yesterday's News

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

1922 “The Reds in America,” an article published in the *Boston Transcript*, charges that the University is a “hot-bed” of radicalism, that “no institution of learning in the country has been so thoroughly saturated with the ‘liberal’ activity as Harvard,” and intimates that members of the faculty “are not all unswervingly faithful to the status quo...”

1937 Through its employment agency, the College dean's office has helped more than 200 part-time-job applicants, recruiting “for every sort of position from chauffeur to chess teacher,” including, it's said, a student who can teach “jiu-jitsu.”

Prompted by President Conant's suggestion that every college graduate should have a knowledge of the cultural history of the country in the broadest sense of the term, enabling them to face the future “united and unafraid,” a voluntary examination in American history for all undergraduates who haven't taken a course in that field will be held on November 15.

1947 *The New York Times* reports that the basic cost of a Harvard education has risen only 3 percent above the pre-war

cost, versus 39 percent for other private colleges and 47 percent for public colleges.

1952 Eight Allston Burr senior tutors have been appointed as part of a new effort to enlarge the Houses' role in undergraduate life through the establishment of intra-House group-tutorial systems.

1972 The new Harvard Center for Research in Children's Television, funded by the Markle Foundation with administrative support from the University and Children's Television Workshop, will explore the effects of visual media on children.

1982 Sharon Beckman '80, her late-August attempt partly supported by a \$1,000 grant from Radcliffe College, becomes the first New England woman to swim the English Channel (covering almost 21 miles in nine hours and six minutes). She celebrates that victory two weeks later by winning the 10-mile Boston Light swim in Boston Harbor.

1997 In accord with Harvard's non-discrimination policy, Memorial Church begins holding same-sex commitment ceremonies.

an “implementation committee.”) Smith charged the group with:

- reviewing existing policy, reports, and data;

- considering “whether there are other means of achieving our stated goals, including and especially that of fully advancing the non-discrimination objectives reflected in the current policy, and to evaluate whether any would be more effective than our current policy”; and

- proposing, “should more effective means be identified, changes or expansions to the current policy or a new approach.”

If the newly recommended policy is adopted, it would do away with the existing controversial regime of sanctions set to take effect this September that has been the subject of faculty debate since last fall—but it seems likely to spark a new debate. Whether the FAS will vote on the committee's recommendations is itself likely to become an issue this fall, especially after a *Crimson* article raised questions about the committee's commitment to reflecting the diversity of faculty opinions on the subject. The report itself does not mention a vote, instead inviting faculty feedback through a website, email, or during “open faculty discussions” at the beginning of the academic year. Such feedback “will be taken into account,” the report says, when the recommendation is presented in the fall to President Drew Faust, who “will make the final decision.” (For more information, see harvardmag.com/usgsoban-17.)

—JONATHAN SHAW

Building Bridges in Allston

AS IRONWORKERS assembled the frame of the University's science and engineering complex in the summer heat (see page 14), bridge-building of an academic kind proceeded, too, as Harvard's Business and Engineering and Applied Sciences schools (HBS and SEAS) anticipate their physical proximity, scheduled for 2020, by launching a joint degree program now. The two-year master's degree in engineering, management, and design skills aims to equip students to drive innovation in new or established technology companies. Nitin Nohria and Francis Doyle III, the schools' deans, unveiled the program in June; students will enroll in August 2018.

The schools' faculties have been meeting

Illustration by Mark Steele

Antipathy Rising

In late June, President Drew Faust joined the leaders of several peer institutions at the University of Michigan, now commemorating its bicentennial, to discuss the status of research universities. Faust addressed, in part, universities' obligations to the present (the costs of attendance and debt) and to the future (in terms of research). Less than three weeks later, on July 11, the higher-education press reported the dismaying finding—from the Pew Research Center's annual opinion surveys—that a large majority of Republicans and Republican-leaning independents now feel that “colleges and universities have a negative effect on the way things are going in the country.” Amid campus disputes over free speech and identity politics, views of higher education have apparently become polarized, too: unfortunate for schools, and alarming for educators who believe in the power of teaching, learning, and discovery.

Graduate-Student Union

The National Labor Relations Board's Boston office ruled in July that Harvard should hold a new election on graduate-student unionization. It found fault with the way the election was conducted last November. The University announced that it would appeal to the national NLRB. Details appear at harvardmag.com/newelection-17.

Toward Online Credentials

Continuing the evolution of massive open online courses (MOOCs) from free sources of learning and enrichment to something more substantial, the new UCLA Global Online program aims to offer for-credit courses, certificates, and graduate degrees; it hopes to serve 15,000 students in the next five years....The Business School's HBX has unveiled “Becoming a Better Manager,” its fourth online certificate program....MIT has announced strong student enthusiasm for an experimental, online, for-credit version of a course about circuits and electronics taken last fall by regularly enrolled students on its Cambridge campus....And separately, Coursera, the for-profit competitor to EdX, has announced a \$64-million, fourth round of financing (it has now raised \$210 million). It intends to

Brevia



PRESS PERSON: George Andreou '87, who joined Alfred A. Knopf in 1990—rising to vice president and senior editor—has been appointed director of Harvard University Press, beginning in September. He succeeds William P. Sisler, who led the press from 1990 through his retirement at the end of the academic year last June. Andreou has published works by authors ranging from V.S. Naipaul, associate justice of the Supreme Court Stephen Breyer, LL.B. '64, and poet John Ashbery '49, Litt.D. '01, to current faculty members David Armitage and Henry Louis Gates Jr. He has also served on the faculty of the Writers' Institute at the Graduate Center at the City University of New York.

develop its offerings for businesses and to expand its portfolio of master's degrees—aiming for 15 to 20 programs by the end of 2019. Former Yale president Rick Levin, Coursera's CEO since 2014, relinquished that position to Jeff Maggioncalda, previously of Financial Engines; Levin will remain as senior advisor.

Capital Ideas

MIT, in the midst of a \$5-billion capital campaign, announced the most valuable of gifts: \$140 million, from an anonymous donor, to be used without any restrictions.... Johns Hopkins, backed by a \$150-million commitment from the Stavros Niarchos

Foundation, is launching an initiative to foster civic engagement and inclusive discourse worldwide....Brandeis has received a \$50-million bequest, the largest gift in its history, to support financial aid.

ART Institute's Pause

The American Repertory Theater's Institute, established in 1987 to offer a two-year graduate professional program (but culminating in an Extension School M.L.A. degree, not a Harvard M.F.A.), announced in July that it would take a three-year pause in admissions to examine strategic issues: the degree program, financial resources, and facilities (the latter in the context of a renovation of the Loeb Drama Center). It suspended admissions for the coming year last winter, after the U.S. Department of Education determined that it had failed to meet federal standards for student debt load upon graduation. Meanwhile, the University has begun implementing the arts program outlined in 2008, notably initiating the undergraduate theater, dance, and media concentration (see harvardmag.com/arts-effort-16).

Nota Bene

PRINCETON-BOUND. Sociologist Matthew Desmond, former Loeb associate professor of the social sciences and a winner of the Pulitzer Prize for his book *Evicted* (the research was the subject of the magazine's cover story, “Disrupted Lives,” January-February 2014, page 38), has been appointed professor of sociology at Princeton. His departure follows that of prominent economist and poverty researcher Raj Chetty, who decamped for Stanford in 2015 (see “Economists' Exit,” November-December 2015, page 26).

GENTLE GIANT. At his formal retirement from Harvard in 1996, Fred Glimp said he would be “forgotten but not gone.” He was, of course, neither, remaining engaged with helping the University he loved connect to supportive alumni—many thousands of whom knew him from his decades of service in admissions and alumni af-



Fred Glimp

ROSE LINCOLN/HPAC



HIGHEST HONOR: Chemist Charles M. Lieber, a pioneer in the creation of bio-compatible electronics, has been named the inaugural Friedman University Professor, a new position endowed by Joshua Friedman '76, M.B.A. '80, J.D. '82, and Beth Friedman. University Professors hold the highest faculty rank, reflecting their eminent scholarship; they may teach and conduct research in any Harvard school. Previously Hyman professor of chemistry, Lieber chairs the department of chemistry and chemical biology. For more on his work, see harvardmag.com/lieber-17.

an appreciation appears at harvardmag.com/glimp-17, along with a link to an exit interview from 1997.

MASS. HALL TO BOARDROOM. Following the precedent set for Harvard presidents by Drew Faust, who joined the board of Staples Inc., another high-level administrator, University provost Alan M. Garber, has been elected a director of Vertex Pharmaceuticals Inc., a leader in cystic-fibrosis therapies. According to Vertex's SEC filings, in addition to annual retainers, directors receive initial option and restricted equity grants totaling \$550,000, and equivalent annual sums thereafter.

TWO CHAIRS. On June 30, Harvard Law School announced two new endowed chairs: the Antonin Scalia [LL.B. '60] professorship of law, honoring the late Supreme Court justice; and the Samuel LL.M. '55, S.J.D. '59, and Judith Pizar professorship of law, and a similarly named fellowship fund, for human rights, which will support the school's International Human Rights Clinic.

fairs and development. Glimp died on June 5;

FOUNDATION'S FATHER. S. Allen Counter, the inaugural and longtime director of the Harvard Foundation for Intercultural and Race Relations, died on July 12 after a brief illness; read about his work at <http://harvardmag.com/counter-17>.



S. Allen Counter

MAKER SPACE. As construction proceeds on the Allston science and engineering center (see page 14), Harvard announced that the Cihang Foundation, affiliated with China's HNA Group, has made an undisclosed gift to equip a 5,000-square-foot "maker space" within the facility.

CLIMATE COMMITMENT. In the wake of President Donald Trump's decision to withdraw the United States from the Paris Agreement on climate change, President Drew Faust joined with the leaders of 11 other research universities to affirm their institutions' commitment to fulfilling the pact.

MISCELLANY. The Center for African Studies has opened a research center in Johannesburg; some 100 faculty mem-

bers are now conducting research or teaching on Africa....Khalil Abdur-Rashid has been appointed the University's first full-time Muslim chaplain; he came to Harvard from Southern Methodist University, where he was an adjunct professor of Islamic studies.... Adam Falk, Ph.D. '91, president of Williams College, will relinquish that post at year end to become president of the Alfred P. Sloan Foundation; it makes grants of \$80 million annually for research in economics, technology, and science....Wilson professor of business administration John Quelch, who previously served as dean of business schools in China and London, has headed for warmer climes: he is now dean of the University of Miami's B-school.... UPS Foundation professor of service management Frances X. Frei has taken a leave from the Business School to become senior vice president of leadership and strategy at Uber, the ride-sharing company.... Newly elected members of the American Philosophical Society include Nathan Distinguished Professor of pediatrics Stuart H. Orkin; Porter professor of medieval Latin Jan Ziolkowski (who is director of Dumbarton Oaks); Leverett professor of mathematics emeritus Benedict Gross (a former Harvard College dean); and Margaret H. Marshall, Ed.M. '69 (former Harvard vice president and general counsel, former chief justice of the Massachusetts Supreme Judicial Court; and president of Harvard Magazine Inc.).



Khalil Abdur-Rashid

STEPHANIE MITCHELL/HPAC

HARVARD MAGAZINE/JO



THE SQUARE SCENE: Cambridge authorities continue to review a proposal to rebuild much of the block that comes to a triangular point opposite the MBTA Red Line station, at Brattle and JFK Streets; new owners have proposed developing a high-end retail mall. Separately, across the way, where Crimson Corner operated for decades, the &pizza restaurant chain is attempting anew to secure permission to open a store; its prior application was rejected, and the storefronts are now vacant. Around the corner on Church Street, the new owner of the former Harvard Square Theater, Gerald Chan—whose family gave the public-health school a \$350-million endowment gift in 2014—has proposed a five-store office and retail structure, including a below-grade cinema. Café Algiers, a Brattle Street fixture for nearly a half-century, is closing; a new restaurant will occupy the space. And further major changes loom: *The Boston Globe* reported in July that the owners of 1-8 and 17-41A Brattle are putting both up for sale; the latter parcel is zoned for up to eight stories, making the likelihood of significant redevelopment high. (Read more about the changing Square at harvardmag.com/hvdsqredev-17.)

to explore common research interests (see “Academic Allston, At Last,” July-August 2016, page 22), but the new degree accelerates their collaboration. Its parameters suggest the kinds of synergies the deans hope their faculties will realize. Applicants must have an undergraduate degree in engineering, computer science, or a related technical field; at least two years of work experience—preferably in designing or developing technology-intensive products; and the credentials to satisfy both schools’ require-

ments for admission to degree programs. Students will be immersed in system engineering; complete the HBS first-year M.B.A. required curriculum; participate in classroom exercises in entrepreneurship (from assessing customer needs through design and prototyping, to marketing); take a new integrated-design course; and pursue team projects as a capstone for their degree.

In outlining this course of study, Doyle said, “our faculties have found a perfect balance” of management and technical-engi-

neering training, yielding a program that should prepare “individuals who have the best of both” disciplines. The S.M./M.B.A. program aims to train “the next generation of leaders,” as Nohria put it, “the set of leaders the world looks to” in technology enterprises.

Read an in-depth account of the degree, its underlying pedagogies, and the schools’ developing connections in Allston, in the broader Harvard context, at harvardmag.com/hbsseasdegree-17.

~JOHN S. ROSENBERG

THE UNDERGRADUATE

College Friends

by LILY SCHERLIS '18

I'M STARTING to feel like I've already squandered my prime friend-making years. An older acquaintance was recently telling me that it gets harder after college. There just won't be this many people your age around ever again, she said, and smiled grimly. Or, if there are, they'll all have full-time jobs and apartments far away from yours and plenty of friends already. At college everyone has so much time; everyone lives so close together; everyone has so much in common. I'm still close with my college friends, she added.

My Harvard social experience has consisted of a handful of very close friendships amid a truckload of dead-end acquaintanceships where neither of us was invested enough to make time for each other. Maybe we each felt a little guilty, but given all of our commitments, how were we supposed to fit each other in? In the face of the post-collegiate social void, I should probably be reaching out to as many people as possible to consolidate tenuous connections into durable relationships, but it's not just me. It seems like everyone around here is guilty of repeatedly postponing plans until the acquaintanceship dies on the vine.

I don't know if it's my fault or Harvard's, but I know this is true for many of us: at some point, maybe early sophomore year, our lives started to congeal around a routine. Whoever fit into that routine—whoever worked in the places

you worked or ate meals at the times and in the places you did or lived in the same suite as you—got to be a part of your life. It was easier to let the other people go.

I MET my best friend in January of my freshman year, when the two of us were newly in charge of putting on events for the College's oldest literary magazine, *The Harvard Advocate*. This meant emailing a handful of fairly unknown poets, carrying chairs, purchasing snacks and (importantly) boxed wine, and doing the dishes after. This was how I got to know him—I would wash and he would dry, or vice versa. We learned to stretch our fingers deep enough into the tall glasses to get at the congealed red wine at the bottom with soapy sponges. We sang along to Fiona Apple and talked about our respective love-interests. The chromatin of the wine

would leave a small stain on the yellow of the sponge. By March the sponge was uniformly pink and we were good friends.

When I met him, I was still new to campus. I was still figuring out where I liked to do my school work and where I liked to hang out after it was done. The rhythms of my daily life were still malleable; they molded easily around my new friend's habits, and his (firmly established over his three previous semesters) adjusted a bit to accommodate my preferences. During the subsequent two and a half years, our personal routines changed in tandem with one another: when we got sick of Café Gato Rojo, the preferred work venue of my freshman spring, we started to spend afternoons at the Darwin's Ltd. on Mount Auburn Street instead, and by my friend's senior spring (my junior spring), we were logging dozens of hours a week at Petsi Pies on Putnam Ave. Sometimes our routines got out of sync—he would spend a week working in Widener while I was hard at work on an installation in the Carpenter Center—but they always gravitated back together.

Rather than a particular café or a dining hall, his friendship became my home at school. I don't think there was a single day between that March and this May, when he graduated, that we were both on campus and didn't see each other. I always wound up inadvertently learning his course schedule, and people tended to assume we were secretly dating (though our affection for each other has always been strictly platonic). His presence—even after all the getting-to-know each other was gone, even after we'd talked our way through all possible topics of conversation into well-worn silence—was a comfort. I could always take shelter from solitude in that silence.

When, several weeks before my friend's graduation, I learned I'd be spending this summer in Manhattan, I



was apprehensive. “I have no friends there,” I told him. I imagined myself spending each day sitting silently in front of a desktop computer in some corporate cubicle and then each night sitting silently in front of a television in some empty summer sublet. “You’ll be fine,” he said. “Just make sure you reach out to people. If you forget to reach out to people, you’ll go nuts.”

I snapped back at him. He knew I hated reaching out to people. Here’s how “reaching out” seemed to work: you go on one coffee date and talk to each other, and then you go on another, and then you go on another. You “get to know” each other. The underlying principle of the coffee-date paradigm is that conversation can catalyze friendship, that knowledge of another person and intimacy are tied up in a chicken-and-egg loop of tangled causality. You learn random facts about each other until you magically feel close to one another.

I was scared of being alone, and even more scared of being lonely in constant company, cumulatively spending hundreds of hours in noisy subway cars pressed against other anonymous bodies, all of us going to and returning from dinners with acquaintances. I didn’t want artificial meals with people who would never be real parts of my life. I wanted familiar silences.

MY FRIEND MOVED to Europe shortly after graduating. We haven’t really spoken in



about a month now. I’d always assumed that we’d long ago passed a certain threshold of closeness, perhaps measured in the number of hours we’d spent laughing and crying in each other’s company, that made our friendship immune to time and distance. I assumed we’d be the kind of people who would still be hanging out when we were 45 and it wouldn’t require reconnecting because we wouldn’t have lost touch yet. No one would ever have to say anything was “just like old times” because there would always be new times to appreciate instead.

Sometimes I text: “how are you?” and he responds. His texts bring me information about the work he is doing and the places he has been—the answers to my questions—but this isn’t what I want from them. This kind of sporadic text-based conversation was never our thing, and the responses feel distant. I guess that makes sense: he’s

far away, and so am I, in a way. Maybe we will Skype each other sometime soon, but the dynamic will have changed: there will be a month to hear about, instead of an hour. There will be neither the comfortable silence of each of us hard at work, nor the almost audible energy of the frenetic conversations that punctuated those silences. Instead, we will catch up.

This loss of resolution—as if our relationship is an image file that must be compressed in order to travel long distances—terrifies me. In a low-res friendship, maybe you enjoy catching up, and Skype sessions are expressions of enduring affection. But those encounters might also be just an attempt to petrify the intimacy, to smooth over any grief. It feels like turning the fruit of our relationship into some kind of a jelly, a garnish for toast instead of a living thing.

I think I snapped at him when he told me to reach out because I felt (unreasonably) like he was supposed to *do* something to rescue me from my impending isolation. This summer felt like the prelude to my inevitable return to a campus where coffee dates would be once again imperative, and that, in turn, would be the prelude to my ejection into the colder real world, where those coffee dates would be harder to come by. I wanted him to tell me I could keep our friendship, exactly as is, the whole way.

New Fellows

The magazine’s Berta Greenwald Ledecy Undergraduate Fellows for the 2017-2018 academic year will be Natasha Lasky ’19 and Tawanda Mulalu ’20. The fellows join the editorial staff and contribute to the magazine during the year, writing the “Undergraduate” column and reporting for both the print publication and harvardmagazine.com, among other responsibilities.

Lasky, of Menlo Park, California, and Lowell House, is a junior concentrating in history and literature, with a secondary in visual and environmental studies; she has written, directed, produced, and edited several short films. Her extracurricular commitments include serving as features editor at *The Harvard Advocate*, DJ-ing for WHRB, and tutoring at the Harvard College Writing Center. This past summer she improved her Spanish language skills and studied Argentine literature in Buenos Aires.

Mulalu, of Gaborone, Botswana, and Adams House, is a sophomore contemplating a joint concentration in physics and philosophy. A writer for *The Harvard Advocate’s* features board, he spent much of the summer as a Houghton Library undergraduate fellow, “digging around for old manuscripts about the history and

physics of gravity” as sources for a future poetry collection; he also spent one week in China teaching a seminar on “Africa, America; Hip-Hop, Poetry” through the Harvard Summit for Young Leaders in China program. (He and a friend last year formed their own hip-hop group, Basimane—“boys” in his native Setswana—and have performed at colleges in the Boston area.)

The fellowships are supported by Jonathan J. Ledecy ’79, M.B.A. ’83, and named in honor of his mother. For updates on past Ledecy Fellows and links to their work, see <http://harvardmagazine.com/donate/special-gifts/ledecy>.



LAST FALL, my mom and I drove my furniture up to Boston from Pittsburgh, my hometown. We picked up my friend in Philadelphia on the way, and the two of them chatted happily while I drove the last eight hours up to Cambridge. He helped us get my furniture up the stairs of my three-story walk-up, and then, after my mom set off on the long drive back, he and I posted up at an outdoor table at Shay's on JFK Street to spend the rest of the afternoon talking about each other's summers, parent-free. It felt like there was so much time to account for. That evening my apartment felt too new and too empty, so he came over and broke in the stove making us empanadas.

This year I will get off the plane at Logan and put myself first on the Silver Line and then on the Red Line. My mom will meet me at my old apartment, days before my lease ends, and the two of us will lug my furniture down those same three flights and drive it to my new place. I'm sure she'll come to Shay's with me afterwards if I want, but eventually she'll drive away, and I'll be poised, all alone, at the start of my last year of college.

I'm a little bit scared, but also intrigued by how I can return to so familiar a place with so many familiar faces and find it uncanny, haunted by the lack of my friend's familiar presence. He's not the only one gone: most of us upperclassmen will be missing crucial companions. This is the way of college—an endless rotation of new people in and old people out. It's not as if they leave and Harvard is the same old place for the rest of us. We will melt down the remnants of our lives here and recast them around the routines of the friends who will take their places.



This summer hasn't been too bad. I bit the bullet and went on some coffee dates. Some of these meet-ups were dull, others were exciting, others comfortable. A few are starting to look like friendships, to accumulate long strings of text messages and rituals and terminologies and songs we both like and books we've told each other to read. None of them are durable yet or especially close, but I feel surrounded by a new set of companions, all of whom I want to be around, to share this city with, if not to know. We're all in the same boat, turning to each other for familiarity and routine out here in a newer and realer world. For the past three years, none of these people seemed to fit into my life at Harvard, nor I into theirs, but maybe by the end of the summer we'll be familiar enough to make space for each other.

That older acquaintance's comments made me feel pressure to preemptively fill in the gap awaiting me after Harvard, and to pave over any improbable loneliness I might feel while still at college. It's easy, faced with this kind of rhetoric, to conceptualize friendships as achievements, pos-

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sessions to be collected and then hoarded permanently, and college as an especially fruitful collection venue.

Now I see friendship as a mode of experience, a way of engaging with a place. My friend's and my relationship, relegated to the virtual recesses of our smartphones,

will have to reinvent itself a little bit to survive. In turn, college was a particular kind of place with my friend around; it will be different without him. I'm going to return to a new and familiar Harvard full of newly familiar people, and then I will leave Harvard for an unfamiliar place full of unfam-

iliar people. Many of these strangers will become friends I want to keep around for a long time. ▢

Berta Greenwald Ledecky Undergraduate Fellow Lily Scherlis '18 would (honestly) be more than happy to grab a coffee sometime.

SPORTS

Dutch Discipline, American Grit

Coach Tjerk van Herwaarden brings a new edge, and an Ivy title, to Harvard field hockey.

HARVARD hadn't beaten Princeton in 22 years. But last October, in Tjerk van Herwaarden's fifth season as the Crimson field-hockey coach, his team had a chance to break the curse.

The Crimson traveled to Princeton on a six-game winning streak, with a 4-0 record

against Ivy League rivals. With the Tigers also 4-0 in conference play, the game would determine the Ivy title. Senior co-captains Kyla Cordrey and Sarah Finnemore, veterans of van Herwaarden's system, rallied the team. "You know that question, 'How bad do you want it?'" van Herwaarden recalls. "We wanted it bad."

The coach smiles. It's a sly, confident smile. It reveals the edge he's brought to Harvard's field-hockey program: He really likes winning—and he knows how to win.

VAN HERWAARDEN, the Ivy League and Northeast coach of the year in 2016, has rebuilt Harvard's program after a long streak of losing seasons. He's done it by mixing American grit and energy with the technical discipline of field hockey in the Netherlands, where he was born.

The Dutch are the world's deepest field-hockey devotees. It's the most popular sport among Dutch women and girls, and among men and boys it's second only to soccer. "I'm from a typical hockey family," van Herwaarden says. In his baby book there's a picture of him on a hockey field when he was a year and a half old. "My dad played, my mom played, my brother played." At 16, van Herwaarden would spend Saturdays refereeing a game at 9:30 A.M., coaching at noon, and playing in his own game at 3 P.M. On Sundays, he'd watch his dad at his matches.

After playing nearly every position, from forward to defense, van Herwaarden shifted to coaching at 20. While moving up through Dutch hockey leagues as a coach, he worked a day job at a bank. "I knew my true passion was with the sport and coaching," he says. But "I always felt hockey should be something I do on the side. It's my hobby, it's something I enjoy doing. I never wanted to become financially dependent on it." Few people make a full-time living at field

Tjerk van Herwaarden



Marissa Balleza '17
in action

hockey in the Netherlands; it takes a lot of hustle, a lot of part-time jobs.

But van Herwaarden wasn't willing to give up hockey, and the sport rewarded his persistence. By 28, "I was the youngest assistant coach at the highest level," he says—for a women's team in the elite Hoofdklasse league. He felt he had to choose: less hockey and a career in finance, or the other way around.

That's when Missy Meharg, head coach of the University of Maryland field-hockey team, offered him an assistant coaching job. He took it, moving to the United States in 2005. "I'll be back in two years—that's what I told friends and family in the Netherlands," he recalls.

But Maryland won two national championships in those two years. The team, including van Herwaarden, visited the White House. He decided to stay longer.

Then he fell in love with an American and they married. The U.S. National Field Hockey program asked him to join the coaching staff of the men's team during its tournaments. Two years became seven. Two national championships with Maryland became five.

IN 2012, Van Herwaarden decided it was time to run his own program. Harvard, after a long streak of field-hockey mediocrity, was hiring a new head coach. The job was his chance to work for an elite university, in one of America's best cities, he says. But it meant a long rebuilding effort. "There was not a winning culture," he explains. "There was no confidence with the athletes of being able to accomplish anything."

To turn that around, he increased the intensity of practices. "We had to improve our skill level, improve our overall fitness level," he recalls. "I knew that once we'd do those things in the areas you can control—confidence and ability to enjoy your sport—there would be a result."

Van Herwaarden also stepped up recruiting. "Harvard had a system in place where they would recruit whoever wanted to come to Harvard," he says. "I recruit whoever I want at Harvard. That's the difference." He flashes that sly smile again.

About 20 percent of his players, he says, are students he found and recruited, while the rest reached out to Harvard personally or through coaches. Though Harvard always had international students on its team, its roster under van Herwaarden has become more global, including two teammates from

the Netherlands last year. "If they have a coach who speaks their own language," he says, "it creates a level of comfort for them to me, me to them, and their parents."

Van Herwaarden's coaching style blends a Dutch focus on technical skill with an American focus on teamwork and conditioning. "We play more structured, more organized, more with a plan than a majority of our opponents," he says. "Typically a lot of the field hockey in the NCAA is based on energy and intensity." Harvard's style, he says, is to bring that energy "whenever we feel we want to and can, and have a structure to fall back on."

The Crimson improved steadily during his first three years: 3-14 in 2012, 8-9 in 2013, and 10-7 in 2014. A 9-8 record in 2015 gave the team its first back-to-back winning seasons since 2003 and 2004.

LAST YEAR, after a slow 2-4 start against non-conference opponents, Harvard took off on that six-game winning streak. Four of those wins were against Ivy opponents, including a 3-2 double-overtime victory over Penn. The Crimson traveled to Princeton on October 22.

"There was a lot of mental buildup to the game," van Herwaarden says. "We approached the game the same as any other—though we might've looked at one or two more videos of Princeton, and we might've thought twice about which corner to play at what time." Because of an injury to starting center back Olivia Allin '19, van Herwaarden substituted Bente van Vlijmen, a talented freshman from the Netherlands. "That was new, and also might've surprised them a bit," he says.

The Crimson started strong, firing one scoring opportunity after another at the Tigers' defense. "I think Princeton was overwhelmed with the power we were able to bring onto the field," the coach recalls. Harvard scored the first two goals.

But in the second half, the Crimson couldn't finish their scoring chances, and Princeton, with time running out, began to push further. "You could sense some reservation, some 'What now?' moments from my athletes, while we were in control," van Herwaarden remembers.

Just before regulation time ended, Princeton came back with two goals to force a sudden-death overtime. "You don't know how the team is going to persevere," he says. But

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the Crimson had already played four overtimes that season and won three, so they came out with confidence. They took possession and sent the ball up the right side with van Vlijmen, who fired a long pass to speedy sophomore Kathleen Young. She took the defender to the outside, then cut back to the inside to confront the goalkeeper.

"While still under pressure from the defender," recalls van Herwaarden, "[Young] stays very, very calm on the ball, sees what the goalkeeper does, sees maybe two inches between the goal keeper and the end line. And those two inches were enough for her to push the ball alongside and get the goal." Game over.

Van Herwaarden and Harvard's assistant coaches jumped into each others' arms, then congratulated the team on the victory that broke the 22-year-old curse. "On the bus, people started to tweet, 'The last time Harvard did this, I was not even alive yet!'" van Herwaarden recalls. "It was a glorious moment for Harvard field hockey."

The Crimson finished 12-6 overall and 7-0 in Ivy League play, winning their first title since 2004. Van Herwaarden finished one shy of the most wins in the first five seasons by a Harvard field-hockey coach. The Crimson made the NCAA championship tournament, losing in the first round to defending national champions Syracuse. Van Herwaarden has built the winning program he aimed for five years ago, and he's not finished. The team graduated several seniors after last season (forward Marissa Balleza, a top scorer, was among them), but a strong core will return, to be joined by new recruits from the Netherlands, South Africa, and England. Their coach hopes his players repeat as Ivy champs and go at least one round farther in the NCAA tournament. He expects at least to compete for the title and return to the post-season. "We strive for excellence," he says. "We should compete for an Ivy League championship on a yearly basis."

—ERICK TRICKEY

The 2017 season begins on September 1 with three road games in California; the Crimson will play its first home game September 10, against the University of Connecticut.



All of us. Rainy day. Lincoln Center.
Opening of the B-Side !!
October 9, 2010.

The Portraitist

Elsa Dorfman's Polaroid photography

by Sophia Nguyen | photographs by Elsa Dorfman

ALL FAMILY SNAPSHOTS look alike, except to the people in them—and except, perhaps, to Elsa Dorfman, BI '73. But the thousands she's taken over the years, all Polaroid portraits, really are exceptional. For one thing, they're 24 inches tall and 20 wide, produced by a 200-pound camera that's one of only six of its kind in the world. Then there's their clarity, printed, according to Dorfman, with some of the most beautiful film ever manufactured and never, ever, to be made again—the demand is too low, and the chemical reagents too difficult to obtain.

Back in 1994, for a small show of her work at Boston's Museum of Fine Arts (MFA), she conducted a playful census of her oeuvre. "Largest group photographed: 26 people, four generations. Age of youngest person: 14 days....Age of oldest person: 94....Number of people wearing T-shirts: 437....Number of families who posed with a pet rabbit: 3....Worst experience by far: family of 12; eight members each blinked once. Most frequent subject: Allen Ginsberg....Best metonymic prop: steering wheel brought by suburban mom."

In her home studio in Cambridge, Massachusetts, the portraits in her possession are filed flat and organized by year. Family photos are basically ritual objects, meant to be pored over together, to be strip-mined for information: how Mom used to wear her hair; Dad's hippie phase; that was the style back then. They furnish evidence, and provide an excuse to compare memories and come to some agreed-upon version of the story. On a dreary winter afternoon, heater rattling, Dorfman goes through the images with the help of her longtime neighbor and self-described "wran-

gler," retired sociology professor Margot Kempers, BI '92, and supplies commentary for each one. Of herself posing with a client's kickline of bridesmaids, all in different huge pastel hats: "Oh, that's pretty weird, you've gotta admit." Of three shirtless young men, wings tattooed across their pallid clavicles: "Oh! Oh! Their father was a banker!" And a more frequent refrain, now that she's turned 80: "I hope they're still alive. Life happens, that's the horrible thing."

She also savors little technical details, like the amber bar of light striping an image, or a fringe of blue ink at the top: "There's no way of controlling it. It's like a gift from the camera." Once, she might have trimmed them away, to neaten everything up. Only in retrospect, now that Polaroid—the Apple of her day—is gone, and digital images can be infinitely duplicated, does that feel precious. Each Polaroid photo has always been a unique object, but somehow, now, that matters more.

— * * * —

DORFMAN HAS LIVED south of Mass. Ave. and north of the Charles River for nearly 50 years, and in Cambridge for even longer. Born at Mount Auburn Hospital, she grew up in the Roxbury neighborhood of what was then, in her words, "Jewish Boston." Her speech is salted with its wide-open R's (yes, as in "Hahvahd Yahd"). Her website is designed to mimic the branches of the city's subway. "For an American of my generation, I'm not well-traveled at all," says Dorfman. "Europe on one end"—she studied abroad in Germany and France—"and California on the other." And yet, says Gail Mazur, BI '97, RI '09, a poet who teaches at Boston University and Dorfman's close friend since high school, "She was just, from my point of view, fearless. Not that she would jump off a four-story building or anything—but that any idea she had could be executed."

Graduating from Tufts University,



Dorfman moved to New York City and, at her job at Grove Press, befriended poets like Allen Ginsberg and Robert Creeley, her future collaborators. Yet she struggled to find a model of female artistic life. In Errol Morris's new biographical documentary, *The B-Side*, she recalls, "There was no woman I met who wasn't an alcoholic, promiscuous, or a druggie, but was also creative."

So she returned to her hometown. She did what nice, practical girls did (go into teaching), and what they did not (refuse to live with their parents; instead she ran a poetry-reading circuit from a studio apartment 20 minutes away). She lasted a year at a classroom in Concord, where the fifth-graders called her not "Ellie" but "Miss Dorfman" and she shocked everyone by assigning Beat verse.

"It was so embarrassing not to be anything," she has said of this period. One of the Concord parents, sensing her dislocation, suggested that she might find work at MIT's Educational Development Corporation. At her summer position there, a colleague handed her a Hasselblad, her first camera. And so, at 28, Dorfman declared herself a photographer. She set up a darkroom right across from her bed, painting two of the walls black. "I was cavalier about darkroom chemicals," she says.

She cobbled together a freelance living, mostly copy-editing and indexing books; she wrote poems. (A typed packet of these, with encouraging annotations from Ginsberg in pencil, now resides at Columbia's manuscript library. Ask her about them, and Dorfman will let out a full-body, Muppet-y shudder: "Bleeeeeagh!")

Eventually, she started making money giving slide shows at col-

leges, selling images to textbook publishers, taking the odd commercial gig. A fellowship at Radcliffe College's Bunting Institute paid her rent for two years. Showing her work there at an event in 1972, she recounted how when a real-estate agency hired her to take photos for their brochure, "They wanted pictures with the men's desks neat. The men had to be wearing jackets and ties. You know how a man's jacket sort of hikes up in the back, with a little pleat? None of that." Most people weren't interested in really good photographs, she explained, just ones with the right kind of information in them.

She was more interested in photographing people as they were. This inclination came from working with her first subjects: people dear to her. Dorfman started out taking photos of Mazur's young children, and of the writers hanging out at the Grolier Poetry Book Shop. She got used to having her camera close at hand when she went out. Visitors would idly pick up the prints and look at them, and that encouraged her to take more. The images are straightforward and gentle, captured at a familiar but unintrusive distance: a friend draped over her couch, face down, for a nap; another cross-legged in her kitchen.

While working on an article about marijuana legalization, Dorfman met a young criminal-defense lawyer fresh out of Harvard, Harvey Silverglate, LL.B. '67. She remembers that when she knocked on the door of the law firm Crane, Inker & Oteri, for an interview, "The boss said, 'Let the dame in!' And there was this nice Jewish boy. Adorable! He was wearing what I thought was a wedding ring. But it turned out that was his father's ring, and it was on the wrong hand, anyhow." With sly humor, she would later versify an early date of theirs, consisting of supper at her place, for which he arrived two hours late, bearing a gift: "You came up the stairs/Carrying your salami like a banner/Baby, I thought/Is it ever long." Silverglate became a frequent subject of her photographs. "I love taking pictures of Harvey, partly because it's a switch on the usual combination—male photographer, female lover," she wrote at the time. In 1968, she moved to a Harvard-owned duplex, on Flagg Street; he moved three houses up. "We broke up every year," says Dorfman. They married in 1976.

In the new neighborhood, her ambit encircled Harvard's undergraduate residence Mather House, where Dorfman got the position of "tutor" by walking into the office of its senior administrator and offering her services. She helped run the darkroom and taught non-credit photography seminars, eating dinner in the dining hall. She also became a fixture of Harvard Square, wrapped in a fur coat, selling photographs for a couple of bucks each out of a borrowed shopping cart.

The work from these years culminated in the 1974 publication of *Elsa's Housebook: A Woman's Photojournal*. Drawing on a tradition of women's domestic diaries, her book reads like a personal album, each portrait hand-labeled with a name and date, and accompanied by chatty entries. The entries document an artist's everyday inputs and outputs: the people who come and go, her enthusiasms, the way she scrapes by. But it's also an implicitly feminist project, presenting the life Dorfman invented for herself as a young single woman. The book conveys the warp and weft of her social fabric, her existence enmeshed with others but also, and oddly, untethered. Presenting the work-in-progress at the Bunting Institute in 1974, Dorfman told her audience, "When you live alone and you're not married and you don't have children, you have to invent ways of making your life responsive and gratifying. And I think one of the ways that I've done it is with my camera and with my work. And I've matched my style as a person and my needs as a person



Amy Cohen, Michelle Dorfman, Emily Buck, Jenna Paulami,
Molly Thomas
October 18, 2000

living alone with this instrument, the camera.”

In the book, Dorfman writes, “The women’s movement has been an enormous help in making me comfortable. It’s made being unmarried less freakish; it’s challenged the notion that only life with children is complete.” Yet she wished she could unequivocally say that she didn’t want a family. “I wish I were tougher.”

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DORFMAN FOUND HER WAY into photography on the cusp of its coming of age as a fine-arts medium. In the 1970s, museums began to collect photographs, and private galleries to exhibit them; art schools started up formal training programs. A half-generation behind her, a group of young artists known collectively as the Boston School—Nan Goldin, David Armstrong, and Philip-Lorca diCorcia among them—documented the city’s subcultures and experimented with color, their portraits swooning and gritty, flirting with the lurid.

Boston was a hub for photography thanks to Polaroid. Originally founded as Land-Wheelwright Laboratories by two-time Harvard dropout Edwin Land ’30, S.D. ’57, and his physics instructor, they started out making polarizing sheets for use in objects from sunglasses and automobile headlights to gunsights and periscopes (see “The Polaroid Moment,” March-April, page 76). But photography equipment became Polaroid’s signature product, and artists were key to the tech company’s research and development process. At first, photographers like Ansel Adams were hired “primarily for their technical know-how, and their photos, when kept, were technical evidence,” writes art historian Peter Buse: “it was thought that they would make special demands on the film.” But by the late 1960s, with the founding of the Artists Support Program, the company had established a patronage system that put industry in the service of aesthetics. Polaroid invited photographers to Cambridge to use its studio space and technicians, and traded free film for publicity, feedback, and prints.

Land was a master showman of his inventions. The headliner of the 1976 shareholders’ meeting was to be a large-format 8-by-10-inch film for professional photographers. Three days before the event, Land decided that he wanted something even bigger. Using parts they had lying around, the staff of the company’s Miscellaneous Research unit engineered the 20 x 24 virtually overnight. Polaroid

The men posed with their books and musical instruments; they took all their clothes off. Under the studio lights, the flower bloomed.

decided to build only a handful and disperse them strategically, and one ended up at the art school associated with the MFA. (Another massive Polaroid invention from that year also resided there: a whale of a camera—room-sized, and nicknamed “Moby C”—which could make life-sized replicas of artworks.)

Contraptions had often charmed Dorfman. At the store of her friend Ilene Lang, M.B.A. ’73, she’d fallen in love with the instant poster machine, making 60 the first day she met it; she had similar zeal for the iTech machine at Harvard’s Carpenter Center, which could make large prints. (Just last year, she put out a new edition of the *Housebook*, using a robot that turned the original’s pages and held them flat to scan, and the “Paige M. Gutenberg” at Harvard Book Store, which prints perfect-bound books on demand.) In February



*Alvaro Bedoya, Heather Long, Patti Jackson, Dennis
Dieck, T. Ben Jackson Oct 18, 2001*

1980, she got her chance with the 20 x 24. Ginsberg and Orlovsky were in town for a reading, and she struck a deal with Polaroid: a subsidized portrait session in exchange for the two best prints.

The men wore suits to the studio, and snagged a closed red amar-
yllis, a gift from Silvergate, on their way out of her home. They posed with their books and musical instruments; they took all their clothes off. Only the first 10 exposures were free, but Dorfman, accustomed to small-format cameras and cheap film, clicked away. One of the most striking images from this session is of Orlovsky delicately picking a fleck of lint off Ginsberg’s suit. In the moment, she says, “I was so mad at myself, that I hit the shutter and I wasted 50 dollars! Because that was what a sheet of paper was, and I was so broke,” says Dorfman. Now, “Everybody looks at it, and says, *Ohh*.” Under the studio lights, the flower bloomed.

By this time, Dorfman and Silvergate were raising a young son, Isaac, having eloped before his birth, and naming Ginsberg and feminist writer Andrea Dworkin his godparents after. The demands of a young child and her husband’s career made photography more difficult. “Working the darkroom, you have to be a man with a wife, or a woman without a family,” she says. “It’s just a lot of work. And it’s domestic in a way. It’s washing, it’s stirring, it’s cooking, it’s like being a chef, and it’s thankless. It’s fun, but fun is the least of it.

And then it's time to pick him up at nursery school, and blah blah blah." With Polaroid, the image was done as soon as she peeled it apart. The 20 x 24 offered her a way forward: she'd rent the camera for one day a month and take paying clients. She could make art amid her life, and a living from her art.

It's become a critical commonplace to en-dow Polaroid's instant photography with an almost anthropomorphic degree of warmth and intimacy. The 20 x 24 had an additional gift: it produced prints with an unusually high resolution. A number of influential photographers have used the camera: David Levinthal for his tableaux with miniature figurines, Ellen Carey for kaleidoscopic abstractions. Chuck Close once declared that one of its prints "contains an infinite amount of information." But none have worked so exclusively with the camera as Dorfman. She says she was never one of Polaroid's favored "pets," but by 1987, when one of the 20 x 24s was returning stateside from Japan, she was on good enough terms with the company that she contrived to lease it indefinitely, for use in her private studio in a Cambridge office building. It's been in her possession ever since.

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LAND HIMSELF CREDITED his three-year-old daughter Jennifer with the idea for instant photography: on vacation in Santa Fe, she'd asked why she couldn't immediately see the pictures he'd taken. When the SX-70 was invented, the impatience and wonderment

Dorfman has always taken self-portraits:

"Well, if I take off my glasses and I look in the mirror, I can't see myself. Most people have a really good idea of what they look like."

jects also faced her lens: artist friends, Harvard professors, a biker gang, a whole series of women in their favorite Marimekko dresses. She invited Mather students to come by for sessions, hanging their portraits in the House.

Taking clients for the 20 x 24 was the first time Dorfman consistently photographed strangers. But that camera, with its wooden body, steampunk absurdity, and almost creaturely eye, helped—its presence was so unavoidable, and so alive, that it absolved people of their self-consciousness. So did the fact that she stood next to and not behind it, usually in stocking feet and an apron, as if her subjects had just dropped by for supper. Dorfman involved them in a theatrical ritual: assembling themselves against the white backdrop, holding still, checking the print, then getting back to place for the next shot.

For all that the 20 x 24 was the exemplary Polaroid camera, it also cut against key features of instant photography. The average camera was a great party prop, a means for strangers to approach each other, bonding with a flash. The general consumer liked that prints were

cheap, and lots could be made quickly and collected; they were appealingly, immediately tactile, and could be passed around, hand to hand. The 20 x 24 was obviously laborious, its prints expensive (now \$10,000 for a session), and meant for display (Dorfman custom-framed hers under Plexiglass). The images took hours to dry.

It was also slow. Operating the 20 x 24 is highly physical, usually requiring some assistance, though Dorfman managed solo until age and kidney disease interfered a few years ago. She'd wheel the camera into position and step

on a stool to see through the focusing screen, fiddling with the bellows to focus the lens and closing the door on the back. A cable release triggered the shutter. The camera exposed the negative with the open lens, and sandwiched it with the positive between a set of rollers, bursting a chemical pod. Dorfman, kneeling—she's compared it to both midwifery and prayer—would pull out the exposure and cut it off the roll. Then she would wait for 70 seconds, a built-in timer counting the seconds in red.

The whole thing was rife with suspense. Subjects would crowd



Dorfman's Cambridge studio

of children were key to its marketing: *Life* put Land on its cover in October 1970, surrounded by tow-headed tots reaching for his new toy. So naturally the bulk of Dorfman's clients were families. She thrilled to see whole dynasties, with new generations and extended wings, checking in every few years; she had a soft spot for working with mothers and daughters. She worked well with children, but was initially leery of babies, who moved too quickly, and were too young to recognize their names when called. (Dogs had the opposite problem; they ran toward the speaker when named.) But other sub-

JIM HARRISON

around as she peeled away the negative—presto!—to reveal the image. The excess chemical gunk would be scraped off with a knife resting on the foot of the camera, or a stiff piece of scrap positive paper, staining the linoleum with rusty spatter. Amid all these logistics, she managed to create an air of spontaneity, telling her clients, to a one, “Let’s have fun, you look lovely,” and meaning it every time. She loved what people looked like. “This will be easy,” she’d often say. “Look! It’s easy.” The final step was for her to caption and sign the bottom in India ink.

The resulting images sometimes feel like a play on those monumental Renaissance portraits in which lacquered significance is built up stroke by stroke, the subjects’ hands resting coyly on a symbolic ledger or cupping a jar of ointment. Posing for Dorfman, actress Faye Dunaway sat with playwright William Alfred (then Lowell professor of the humanities), arm wrapped around a copy of his play *Hogan’s Goat*. Other subjects surrounded themselves with camping gear, cradled baguettes in their arms, and dressed up in tuxedos while wielding power tools.

“There is something both straightforward and so fresh, both modest and proud, you know?” says Anne Havinga, photography curator at MFA (which holds nine of Dorfman’s Polaroids). “There’s something so wonderfully casual about them—and consistently so.”

“There’s humor in this work, which you don’t often see in portraiture,” comments Makeda Best, curator of photography at the Harvard Art Museums (which holds 29). Dorfman rarely got to choose her subjects; clients called her. And yet, asks Best: “Are they commissions, or collaborations?”

She photographed her own family innumerable times. On the whole, these Polaroids feel far less formal—some taken at New Year’s and proms, but many for no reason at all. One of her favorites is of Silverglate in a light-reflecting yellow safety vest (she made a diptych, snapping him front and back). Another night, she had her husband and son pad down Mass. Ave. to her basement studio for a group portrait in their red-flannel pajamas. The expressions on their faces are sometimes amused, sometimes playing along, other times seeming just barely to humor her, ready to get the hell aboveground. These photos feel less like events than like occasions she conjured from everyday life, moments pilfered from the timestream.

Along the way, Dorfman also made self-portraits. At first, she did this to understand what her subjects felt under her lens. Now, she likes to attribute it to her lifelong myopia. “Well, if I take off my glasses and I look in the mirror, I can’t see myself,” she explains. “Most people have a really good idea of what they look like.” Dorfman thinks the Polaroids of herself are less angsty than the black and whites from her youth—perhaps because the prints were so much more expensive, required so much more setting up, that by the time the shutter clicked she’d been reminded of all the things that she enjoyed about her life. One common motif, across the years and aesthetic phases, is the long shutter-release cable extending from her hand to the camera—like an umbilical cord, or an astronaut’s tether.

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DORFMAN CAN BE evasive about her work. She’s happy to discuss all the surrounding circumstances—but any transcendent artistic truths are kept close to the chest. In an essay, she once wrote that she never sought to capture anyone’s soul—but if any was revealed, it was hers. Asked now, after her decades in the business, what she thinks she might reveal, she says, “Oh, I don’t know. What if I knew? It’d be creepy. Don’t you think?”



I met Bobbie Dorfman around 1966. She was a friend of Harriet Glinney my Son at Chatham High. They were brilliant friends.

She does say that a central part of her practice is to make her subjects comfortable. “I sort of go to the most vulnerable person in the group. I can do it very fast. Really, within four minutes.” What’s the tip-off? Oh: “Something. If I knew, I would be on Brattle Street taking patients.” She goes on, “So I really concentrate on making that person comfortable. And sometimes I’m way off, but I try.” So is it that she makes herself vulnerable to that person? “No. No...it’s my wanting to take care of people, I suppose. Or—,” she stops herself. “I don’t know! I don’t know. I don’t know. I don’t know. I don’t know. I don’t know. And I think actually if I knew, I would ruin it.”

This mental stoppage is surprising, coming from someone whose eye is so frank, and whose manner is so unselfconsciously open. On a typical visit, Dorfman opened the door caroling, “The spirit of youth is here!” She greeted strangers with a broad smile, a question mark at the corner, expecting nothing, open to anything. Over a split tuna fish sandwich, from the café down the street, she’d lose her breath laughing, a high, giddy cackle.

A respect for people—not just for their privacy, but for what they wish to show—runs deep. Compared to, say, Diane Arbus, she had limits, and missed her chance to take certain pictures as a result. That ruthless forwardness was Arbus’s genius, Dorfman reflected in the *Housebook*: “It separates her from all the rest of us.” But her own unwillingness to take what was not readily offered was what forged her connection with others. She took people as they wished to appear, the face they’d prepared to meet the faces that they meet. “For me,” she has said, “the key word is ‘apparently.’”

For years, Gail Mazur counted herself as someone dear to Dorfman whom the artist *couldn’t* photograph. When they were young,

Each photo is a compact between Dorfman and her subject, a sprightly conspiracy. “For me,” she has said, “the key word is ‘apparently.’”

Dorfman took the author photo for Mazur’s first book. “She didn’t love it any more than I did,” Mazur reports. “We felt that somehow we couldn’t pull it off. And it had to be my fault.” She didn’t like the camera; she was too concerned with how she looked. Then, in 2008, “I realized one day that I had to learn how to have Ellie take my picture.” Mazur had caught a snippet of a TED talk by Amy Cuddy (then a faculty member at Harvard Business School) about “power poses” in body language. That was it: she’d stare down the 20 x 24, standing like Wonder Woman. Mazur loves that photo, she says, “But I also think it’s funny that I assumed a virtue that I didn’t have. It must have made Ellie happy too, because I wasn’t acting afraid of the camera.” In it, only one hand remains on Mazur’s hip—the other is at her side. She’s standing in a three-quarters turn toward the camera, like she’s fallen out of the pose, caught in mid-laugh.

Though some over the years have dismissed Dorfman’s portraits as too sunny or only skin-deep, the images collectively form a worldview, and together advance an ethic. Each photo is a compact between her and her subject, a sprightly conspiracy. A person’s appearance is not a mask to rip off, a wrapper to tear away, a shell to pierce—no need for some drastic excavation. These convivial social surfaces rustle on their own: with earnestness, with anxiety, with

cheer (false or real), with solemnity. Her work is a gentle reminder of the vitality of the exterior, those outmost layers that brush up against each other every day. This eddying sociability is what everyone swims in, that carries us, with

more or less effort on our part, through all our days. Dorfman’s work says: this is the water that surrounds us, and it also sustains.

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POLAROID WEATHERED the new millennium badly. Between 2001 and 2009, the company declared bankruptcy twice, and was sold three times. In 2006, it ceased camera production. In 2008, it announced that it would stop producing instant film, demolishing its manufacturing equipment.

Dorfman called up venture capitalist Daniel Stern ’83, M.B.A. ’88. While studying at the Business School, he’d been one of her first tenants in what was then her family’s new residence in Cambridge. Over the years, she had photographed his parents, wife, and kids; when she wanted to shoot the performers of the Big Apple Circus, he convinced them to let her take her equipment into the ring. With Stern’s funding, a group of former Polaroid employees and 20 x 24 devotees bought six years’ worth of film and paper, a pod-filling machine, and a reactor, and figured out how to mix up new batches. Stern even commissioned two new cameras, which now operate in San Francisco and New York City.

When the greatly exaggerated news of the 20 x 24’s death reached Ronald Jou ’01, he got alarmed. He remembered biking down to Dorfman’s studio as a student at Mather House, and thinking very little of it. “My classmates and I just signed up,” he said in a recent phone interview. “We exchanged a few words and shook hands, but we didn’t actually end up spending that much time with her.” It had seemed so easy at the time—lots of students were doing it. Their portrait hung in the House with the rest, and when the friends graduated, buying it seemed so out of reach that they joked about returning for a reunion to “borrow” it. Jou learned more about the 20 x 24 and Edwin Land while in medical school in San Francisco, and recalled that his freshman research position had been in a lab in the Land building. He became more intent on having the photo. When he graduated from residency, his wife surprised him with it—all with Dorfman’s aid and abetment. For months she fielded Jou’s frantic emails, pretending to have misplaced it. It hangs in the family’s Palo Alto loft.

“I look at it all the time,” he says quietly, and when he does, “I see three kids who—thought they knew a lot. We were a year short of graduation. Bobo [Kwabena Blankson ’01] and I were both applying to medical school, and we thought we pretty much knew everything. And then, when I look back, I know that obviously we knew nothing. At all. That photo in 2000 was taken 10 years and one day before my oldest son was born...your whole life changes.” Knowing that the film stock was dwindling, Jou and Blankson rushed to get their families together in Cambridge for a reunion photo in May 2016. In it, one of their young daughters is holding a powder-blue plastic instant camera, jauntily, in her right hand.

One of the ironies of Polaroid’s last years was that the demand for its instant film didn’t fall to zero. As recounted by journalist Christopher Bonanos in his book *Instant*, the supply of film that was projected to last a decade ran out in five; sales were brisk. Its cultural cachet was strong enough that when the photo-sharing service



Kristalleon Big Apple Circus April 1993

Instagram launched in 2010, its logo riffed on the Polaroid camera, and allowed users to add filters and frames that aped the real-life thing. Today, companies like the Impossible Project manufacture instant film. Vintage re-sellers do good business on Ebay; retailers like Urban Outfitters sell instant cameras brand new.

In 1970, Land dreamed of a time when taking out a camera would be as reflexive as taking a wallet out of one's pocket, "a camera that you would use as often as your pencil or your eyeglasses." We live in the world that Polaroid created: one of mass amateur photography, constant documentation, instant images, and the habit of sharing. On social media, photos are used not to commemorate but communicate—in fact, with popular services like Snapchat, these postcards from the present disappear within seconds. So interest in the analog endures, as does investment in physical objects. If the prints' chemistry is unstable, and prone to fading, that, too, has an appeal: the Polaroid haze feels like a gentle alternative to the ruthless clarity of digital image or the scrutiny and high publicity of digital life.

It's happened that the close of Dorfman's career has brought a flurry of media attention, from well beyond Boston—in particular, a *New York Times* profile in January 2016 that she thinks spurred her old friend Errol Morris to make *The B-Side*, the film about her he'd been threatening for years. ("He's sort of an eccentric torturer," she says, fondly.) For one scene, the crew came to record an errand at her home: movers coming to take a pair of 40-by-80-inch portraits for scanning. Morris made them repeat the action over and over again—maneuvering around corners and handing them gingerly down three floors—for hours before he was satisfied.

When her friend Ilene Lang made a short black-and-white movie about her in the 1970s, Dorfman found it odd to be so passive, and to have no control over what would be recorded. But for the Morris project, she committed. "I made up my mind that if I was going to do this, I was going to do it right." Though the film often shows Dorfman holding her photos up and in front of her face, her eyes just peering over the top edge, she resolved to answer all of their questions, and not "to create some sort of character." Dorfman, Kempers, and the producers met weekly, looking at old photographs, documents, her high-school yearbook—hunting, she says, for triggers for her memory.

The B-Side may seem unusually sweet-tempered to viewers who know the documentarian's more confrontational, investigative films. But other affinities make Dorfman a natural subject for Morris, and Morris an ideal portraitist for her: his work, too, has been profoundly shaped by the grace of a marvelous machine, in his case the Interrottron, which uses a system of mirrors so that interviewees could speak while staring dead-on into the lens.

For the movie's premiere at the Telluride Film Festival last September, Dorfman flew out to Colorado, and the camera followed on a truck. Though at this point she ordinarily takes only a few photographs a day, during that weekend, though sick with the flu, she took 47—a dizzying array of celebrities, including Janelle Monáe, Mahershala Ali, Casey Affleck, and Clint Eastwood, as well as some of the most exciting pets she'd ever encountered: two golden eagles from Mongolia. ("You have no idea how big they were. They were as big as two filing cabinets!")

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WHEN ALL THE CIRCUMSTANCES ALIGN—when her health is good, and the photo paper and chemicals and technical help are available, and the camera behaves, and there's an eager client—Dorfman still shoots the occasional portrait. "I can't bring myself to clean my



Me and my camera. September 15, 1986. Dorfman

studio and close the door and turn the key," she says. "Especially if it's a lovely person."

Mostly, though, she's turned her attention from producing work to preserving it. She and Kempers are arranging to digitize and store the photographs, and organizing her papers. Just the other day, Dorfman says, they stumbled on the original manuscript of the *Housebook*, wedged in a cabinet.

Sitting on a stool in her framing studio, portraits laid out on various surfaces, she gazes around her. "I must say, I feel really good, looking at these. I should come out here when I'm feeling, *ughhhh*," she says. "I know that they're marvelous. You know, when I'm up there, singing with the angels..."

A strong intellectual tradition has made photography out to be a singularly melancholy art, its every exposure shadowed by loss. Roland Barthes's *Camera Lucida* was sparked by his mother's passing; Susan Sontag declared, "All photographs are *memento mori*." In *The B-Side*, Dorfman herself wonders if photographs arrive at their ultimate meaning only after the subject has died. Yet her images themselves insist otherwise: Silverglate in his fluorescent vest; a clown blowing a bubble; a plump cat spilling out of its owner's arms; the toddler clutching a juicebox. These photos may be talismans, a futile attempt to ward off change. And yet they glow, as if with the possibility of an afterlife. ▢

Associate editor Sophia Nguyen wrote about the Woodberry Poetry Room in the July-August issue.



Visit harvardmag.com to read more about Polaroid and the 20 x 24 camera.

Carl Thorne-Thomsen

Brief life of a man of principle: 1946-1967

by BONNIE DOCHERTY

THE VIETNAM WAR era at Harvard is largely remembered as a time of resistance. In the late 1960s, students burned draft cards, occupied University Hall, and helped drive ROTC off campus. But before the anti-war movement became daily news in *The Harvard Crimson*, one undergraduate—Carl Thorne-Thomsen '68—engaged in a personal and uncommon act of protest.

Those who knew him describe someone smart and athletic, enthusiastic and genuine, funny and at ease with himself and others. Though his humor often masked it, he also had a thoughtful side, writing in a high-school friend's yearbook, "Perhaps I do not seem serious...but nonetheless I am." Above all, Thorne-Thomsen possessed a sense of justice that led him to fight in a war he did not believe in.

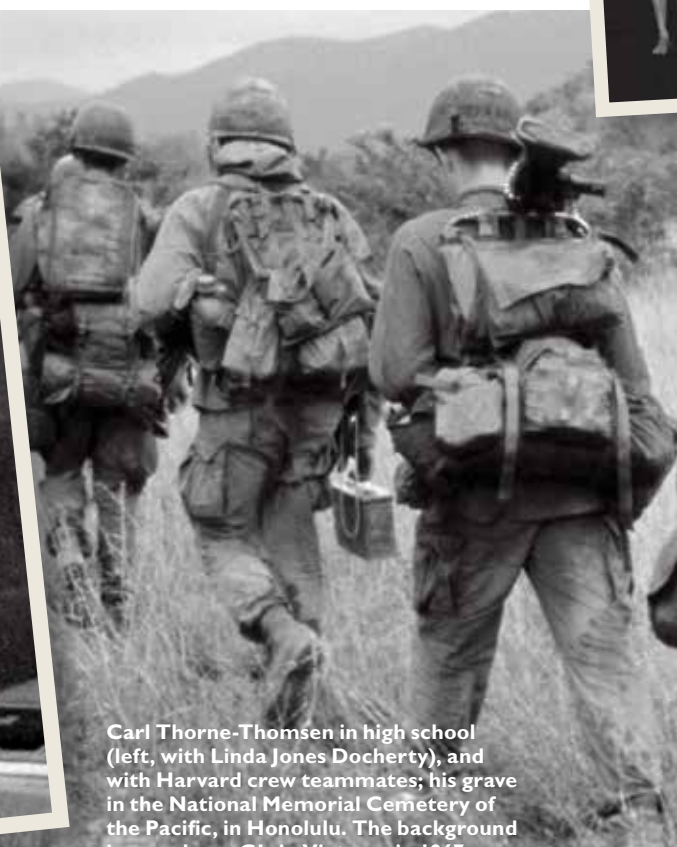
The fourth of five children in a politically conscious family, he grew up north of Chicago. At Lake Forest High School, he earned academic honors, played the cello, and was a standout athlete. His best friend, Jim Kahle, recalls summers when "we would go sailing, swimming, and play wiffle ball during the day and at night engage in solving the world's problems." As student-council president,

Thorne-Thomsen demonstrated his democratic values by working to eliminate a grade-point requirement for future officers.

At Harvard, the six-foot Midwesterner tried out for freshman crew and became one of two first-time oarsmen in the 1965 undefeated lightweight boat, rowing in the number-five seat. Teammate Chris Cutler remembers an exceptional athlete who "brought humor and joy to the boathouse." Bill Braun adds, "Carl always wanted to do more than his fair share. You never had to look over your shoulder to see if he was pulling his oar."

But the Dunster House resident had more on his mind than rowing. With the Vietnam War escalating, concern about the draft led students to forgo leaves of absence, join the Peace Corps, and apply to graduate school. According to the 1966 Harvard yearbook, many considered military service in the unpopular conflict to be a "waste of time" and "the work of a high-school dropout."

Thorne-Thomsen saw it differently. He believed it was unjust for him to remain sheltered at Harvard while the government sent poorer, less well-educated young men to war. In late 1966, he told his friend Linda Jones (Docherty), who had served with him on



Carl Thorne-Thomsen in high school (left, with Linda Jones Docherty), and with Harvard crew teammates; his grave in the National Memorial Cemetery of the Pacific, in Honolulu. The background image shows GIs in Vietnam in 1967.

student council, that he was thinking of leaving college; she recalls him saying, “Talk me out of it.” She couldn’t, nor could the few family members and friends in whom he confided. “He scorned that student deferment,” says his oldest brother, Leif. Thorne-Thomsen withdrew from Harvard in his junior spring and was drafted shortly thereafter. Rejecting the offer of a hiding place in Canada, and a safer post in the Pentagon, he told his father, “I have to do this.” His mother, who begged him not to go, wrote later that his decision exemplified “the qualities I loved most in him. He was perceptive, he hated unfairness, he was courageous, and he lived by his principles and acted on them despite personal consequences.”

Pfc. Thorne-Thomsen arrived in Vietnam on August 23, 1967, and quickly bonded with his unit—Alpha Company, Second Battalion, Twelfth Infantry. He wrote home that he was “glad to be in the infantry because of the lack of ‘pretension’ there.” Army buddies Charlie Page and John Stone knew him as friendly, quick-witted, articulate, and sensitive. Impressed by his abilities, Lt. Burnie Quick made him a radio operator, a vital but dangerous position.

Alpha Company operated out of Dau Tieng, between Saigon and the Cambodian border. A Vietcong supply route ran through the region, and the unit searched for and destroyed enemy bases, weapons, and food. On one mission, ordered to clear villages where

the Vietcong had been hiding, it evacuated dozens of civilians, then burned down their homes. “It is justifiable in terms of winning the war,”

Thorne-Thomsen wrote. “Now if we could only justify the war.”

On October 25, as Harvard students protested campus recruiting by napalm manufacturer Dow Chemical, undermanned Alpha Company trudged through dense jungle. Entering a clearing of tall elephant grass, the soldiers received fire from all sides. Thorne-Thomsen repeatedly exposed himself to maintain radio contact and facilitate the unit’s maneuvers, until a grenade exploded above him, killing him instantly. When reinforcements arrived two and a half hours later, four more men were dead, and about 30 wounded.

The *Crimson* did not report it, but Harvard responded to Thorne-Thomsen’s death. According to an Al Gore biography, “the news swept through [Dunster dining] room like a shock wave.” The varsity lightweight crew named a new racing shell in his honor. A 1968 yearbook essay, “The War Comes to Harvard,” opened by noting that “a junior who had left Harvard last year had been awarded the Bronze Star...posthumously ‘for heroism.’” One of only 22 men on Memorial Church’s Vietnam honor roll, Thorne-Thomsen also received a Bronze Star “for outstanding meritorious service.”

Fifty years later, his personal act of protest elicits admiration. Leif Thorne-Thomsen, who initially viewed his brother’s reasoning as crazy, now sees his choice as that of a “remarkable man.” Crew teammate Monk Terry observes, “[It] shows a lot more strength of character than the rest of us had.” Bill Comeau, a draftee from a poor family and Thorne-Thomsen’s predecessor as radio operator, regards him as a hero for “tak[ing] the risks and mak[ing] the sacrifices to right what he considered an injustice perpetrated on the underprivileged class.” Made without fanfare, Thorne-Thomsen’s decision to forsake self-interest for principle retains the power to inspire. ▢

Bonnie Docherty ’94, J.D. ’01, is a lecturer at Harvard Law School and the daughter of Thorne-Thomsen’s friend Linda Jones Docherty.



Life Beyond Sight

The microbial earth, brought into view

IN ROCKS AND SOIL, air, ponds and oceans, life is dominated by creatures that humans cannot see. Microbes thrive everywhere, from gardens and kitchens to the harshest environments on the planet: under polar ice, in hydrothermal vents at the bottom of the sea, in hot springs that spew acid. A single gram of soil teems with billions of them, and their genetic diversity is equally impressive, dwarfing that of all the plants and animals on Earth. *Life at the Edge of Sight: A Photographic Exploration of the Microbial World* (forthcoming from The Belknap Press of Harvard University Press) brings the planet-shaping diversity of these single-celled, microscopic organisms into view through stunning images. Co-authors Roberto Kolter, professor of microbiology and immunology, and Scott Chimi-



To simply say that the White Cliffs of Dover (above) are made of chalk would miss the point of *Life at the Edge of Sight: A Photographic Exploration of the Microbial World*. The chalk giving the famous cliffs their white appearance was formed from the exoskeletons of plated marine microbes called coccolithophores (far left, *Emiliania huxleyi*) that shed their disc-shaped armor over millions of years, allowing it to accumulate at the bottom of the ocean. With the aid of a scanning electron microscope, those round coccolith structures (left) can be seen in a sample of natural chalk from the Cretaceous period.

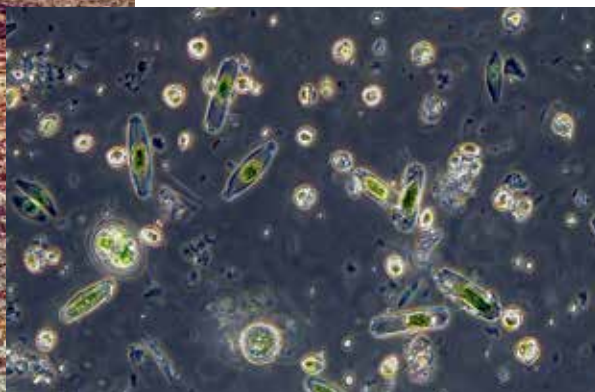


An outcrop of 200-million-year-old fossilized stromatolites (foreground, above), at Capitol Reef National Park, Utah, formed by microbial mats that grew undisturbed for millennia before there were any animals to eat them.

As long as three billion years ago, the ancestors of modern photosynthesizing cyanobacteria produced oxygen that led to the formation of the earth's protective ozone layer and the rise of life as we know it. They left behind traces like this 2.4-billion-year-old banded iron formation (left) from the Pilbara region of western Australia, formed in layers of sediment at the bottom of oceans as the oxygen from these ancient cyanobacteria reacted with dissolved iron.



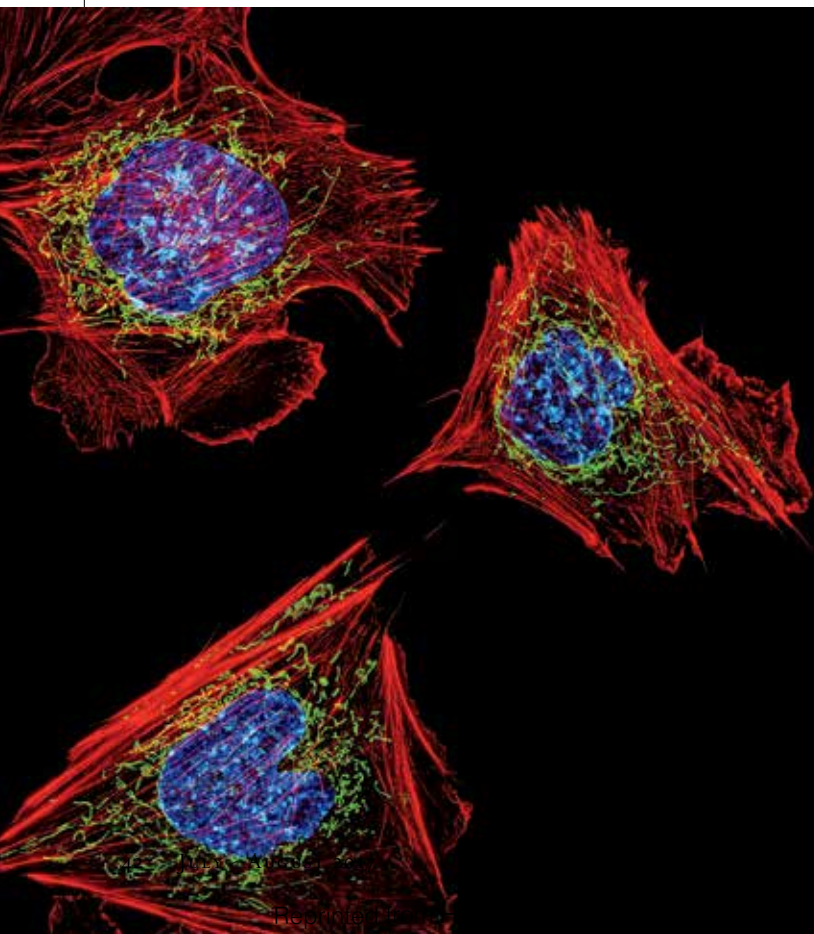
A biofilm of red, salt-loving halophilic microbes at the edge of Great Salt Lake in Utah gives a glimpse of the way microbes formed mats before the rise of multicellular organisms. Over thousands of years, minerals precipitating due to microbial activity formed reef-like structures. Today, these mats thrive where other forms of life cannot. Raising the magnification on a sample of these microbes diluted in saline solution reveals glassy green diatoms (below), their cell walls made of silicon dioxide. Electron microscopy provides an even closer look at these diatoms: the large, photosynthetic eukaryotes (right), embedded in a mud biofilm.





Chefs know them as button mushrooms (left), but they are the fruiting bodies of a fungus called *Agaricus bisporus*. From spores, the fungus forms filamentous hyphae that grow into thicker-branched networks of mycelia inside a log or other medium. Mycelia form buds that grow to become mushrooms. Though the species is typically brown-capped, during the 1920s a grower in Pennsylvania selected a white variant for cultivation, thinking it would be more marketable. That strain is now the main commercial variety worldwide.

Although the many-headed slime mold *Physarum polycephalum* (above) moves and pulses like a multicellular organism, it is, in fact, one cell with a single, continuous cytoplasm.



Even the eukaryotic cells (left) that make up mammalian tissue show traces of their origins as free-living cells. The energy-producing mitochondria (green) in these mouse cells are derived from bacteria captured in the distant past. Fluorescence confocal microscopy also reveals each cell's nucleus (blue) and cytoskeleton (red).

DYLAN BURNETTE AND JENNIFER LIPPINCOTT-SCHWARTZ, EUNICE KENNEDY SHRIVER NATIONAL INSTITUTE OF CHILD HEALTH AND HUMAN DEVELOPMENT, NATIONAL INSTITUTES OF HEALTH

leski, a research fellow in microbiology and immunology at Harvard Medical School, share their passion for the subject in part by magnifying what cannot be seen unaided, in part by revealing large-scale microbial impacts on the landscape. Kolter has long been a leader in microbial science at Harvard, while Chimileski brings to his scholarship a talent for landscape, macro, and technical photography.

Humanity, they note in the preface, is a fleeting presence in the four-billion-year-old story of life on the planet. Microbes, on the other hand—omnipresent and abundant beyond comprehension—have dominated that story for three billion years. In fact, microbes have *written* it, forming rocks and giving rise to the oxygen in the atmosphere, and underpinning many other atmospheric and geological processes that can span millennia. (For more about microbes, sometimes perjoratively referred to as germs, see “The Undiscovered Planet,” November-December 2007, page 44.)

In crafting a human-scale narrative, the authors remind readers that the local ecology of microbes is closely tied to health: most germs protect people by keeping harmful microbes in



The blue mold *Penicillium roqueforti*, which forms fuzzy green colonies in cavities within cheese, has been domesticated for more than a thousand years. Cheesemakers use it to impart particular aromas, textures, or colors to their products.

Aspergillus oryzae is a filamentous mold, shown here growing on rice kernels. In Japan, it has been used for thousands of years to produce sake, miso, and soy sauce.

The so-called hedgehog microbial ecosystem of human dental plaque (below right), as seen using fluorescence microscopy. The colors of this microbiome represent different bacterial groups, including *Streptococci* (green), *Corynebacterium* (pink), *Leptotrichia* (light blue), *Capnocytophaga* (red), *Porphyromonas* (blue), *Neisseriaceae* (purple), and *Haemophilus* (orange).



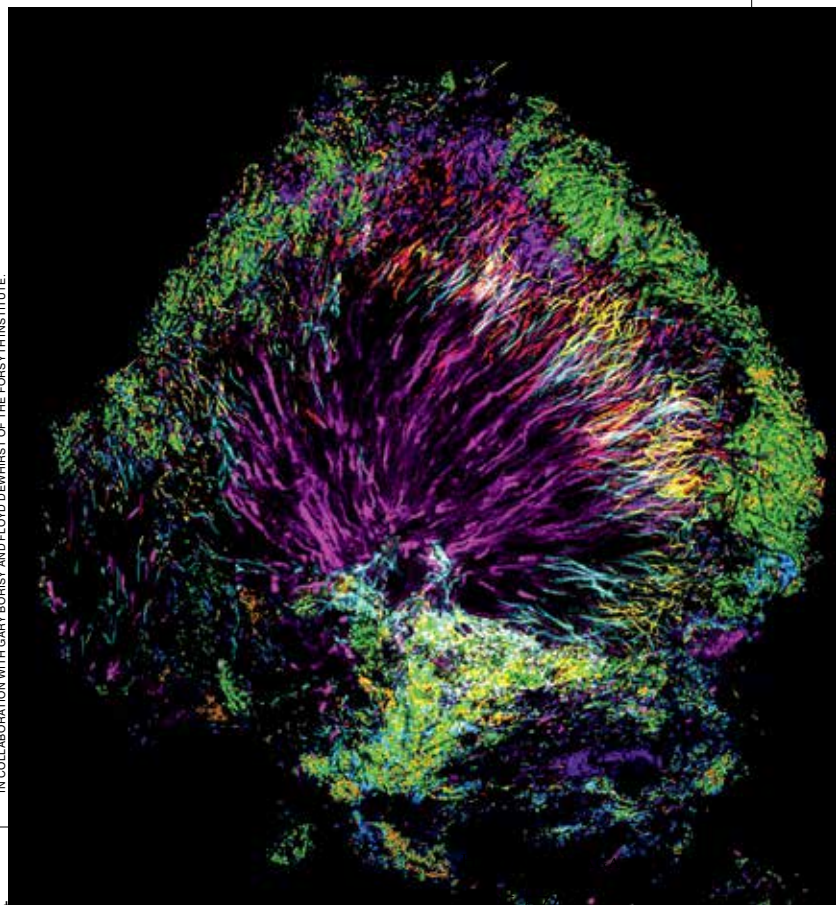
check, boost access to nutrients in food, and only rarely cause disease—not surprising, because genus *Homo* evolved in a microbial world. Humans have even domesticated some microbes, albeit unwittingly for most of history: in the fermentation of wine, or the culturing of cheese.

From these familiar examples, the authors pivot to specimens so bizarre that they seem almost extraterrestrial: single-celled intelligent slime molds (cabbage-sized, or larger) that can crawl along a decaying log at five centimeters an hour, or a “humongous fungus,” covering 10 square kilometers in Oregon, that lives in the soil and reaches up into trees, fruiting from under the bark as mushrooms each autumn. The mutability and generative force of microbes are so great, in fact, that Kolter and Chimileski assert that if life exists in distant galaxies, microbes are almost certainly involved.

Kolter and Chimileski created their book together to help others appreciate “the beauty that is inherent in visualizing the life of microbes.” To accomplish that, they deployed a range of technologies, from simple handheld cameras to high-energy fluorescence imaging that can capture three dimensions, to electron microscopy’s 10-million-times-magnifications. Above all, they aspire to make the microbial world accessible. In an epilogue, they note that with a Foldscope—a magnifying device made from nothing but a sheet of paper and a lens—anyone can take in the microbial world, perhaps over a bottle of wine and a wedge of cheese.

—JONATHAN SHAW

MICROGRAPH BY JESSICA MARK WELCH OF THE MARINE BIOLOGICAL LAB OF WOODS HOLE, MASSACHUSETTS, IN COLLABORATION WITH GARY BORST AND FLORENCE DEWINTER OF THE FORSYTH INSTITUTE.



IN EARLY 2014, Alec Karakatsanis, J.D. '08, used some of the money that he and a law-school classmate had recently received from the school's Public Service Venture Fund seed grant to buy a plane ticket to Birmingham, Alabama, and rent a car. He planned to visit the judge he had clerked for in Montgomery after graduating, as well as other people he'd met during his time as a clerk and federal defender. Along the way, he was stopping in at local courts to see what was going on. "I would just go places with my hooded sweatshirt on," he recalls, "and sit there and watch and interview people."

One of the courtrooms was in Montgomery. It was a winter morning, and Karakatsanis saw that 67 people were set to be called in front of the judge. As he would later tell it, "All of them were African American; not a single one of them [was] accused of a crime. They were all in jail because they owed money to the city of Montgomery for unpaid traffic tickets."

When Karakatsanis met her, she showed him that piece of paper, now stained with tears, on which she had been scribbling calculations, "desperately trying to figure out" how quickly she could return to her children.

Karakatsanis also saw a man named Lorenzo Brown called in front of the judge that day. Brown, as Karakatsanis's complaint put it, was a "58-year-old disabled Montgomery resident" who "was arrested early in the morning on January 24, 2014, when City police came to the dilapidated boarding house in which he lives with a number of other impoverished people and took him into custody for failure to pay court fines, fees, and surcharges arising from traffic tickets issued in 2010." As Karakatsanis remembers Brown's court appearance: "He got down and was begging for mercy—he asked the Lord for mercy. The judge told him something like, 'Well, I'm going to put you in jail if you don't pay me.' And the judge put him in jail to sit out a \$2,000 debt for traffic tickets."

Criminal Injustice

One of the people Karakatsanis saw called in front of the judge was Sharnalle Mitchell. She had been watching TV one Sunday night with her one-year-old on her lap and a four-year-old beside her when the Montgomery police burst into her home and arrested her—"not because she was a violent criminal or any kind of predator, but because she had some unpaid traffic tickets from 2010."

As the complaint that Karakatsanis and his co-counsel filed in federal court asserts, Mitchell "was brought to the City court and was told that she would not be released from jail unless she could pay the total amount"—now more than \$4,500—or "serve [it] out... at a rate of \$50 per day." After being brought to jail, however, "she was given a sheet of paper stating that her jail term had been reduced to 58 days 'or' payment of \$2,907." And she was told "by jail guards that she could 'work off' an additional \$25 per day toward her debt to the City if she agreed to perform labor consisting of janitorial tasks, including cleaning floors and wiping jail bars."

Struck by what he had seen, Karakatsanis went to the jail attached to the courthouse and called out Brown's name. The court officers brought Brown to the designated holding area to meet him, but Brown was "skeptical" at first—which made sense, Karakatsanis recalls, since he "was wearing a hooded sweatshirt inside out" (he has worn his clothing that way for years to avoid providing free advertising) and "didn't look like a lawyer." Brown refused to talk to Karakatsanis unless his pastor said it was OK, so the two called Brown's pastor on speakerphone from the holding cell and the pastor proceeded to Google Karakatsanis. Fortunately, Harvard had just posted a news release about the public-service grant, and the pastor read the release aloud over the phone. He then advised Brown to "let this man help you."

Mitchell and Brown became two of Karakatsanis's first clients—and named plaintiffs in a 2014 federal lawsuit. The suit challenged the de facto debtors' prison that Montgomery was running, more


ISTOCK IMAGES

than 30 years after the Supreme Court had made clear, in *Bearden v. Georgia* (1983), that “if the State determines a fine or restitution to be the appropriate and adequate penalty for the crime, it may not thereafter imprison a person solely because he lacked the resources to pay it.”

Within weeks, the city had released everyone in Mitchell and Brown’s situation. In fact, they did so right after the judge in the case had summoned Montgomery city leaders to try to justify the system: rather than try to defend it, they just decided to let everyone go. Karakatsanis emphasizes the absurdity of imprisoning them in the first place: “There was no good reason those people were in jail—such that the government could just release them all on one day. They were all there just because they couldn’t afford a few hundred dollars.”

Karakatsanis collaborated with the Southern Poverty Law Center (SPLC), which had filed individual cases on behalf of two debtors

one de Beauvoir under senior lecturer Boris Kapustin—caused him to start “questioning what I’d been told about our society.” (That study, he remembers, juxtaposed strikingly with watching classmates “go to work for corporate investment banks and consulting firms and things like that.”) Though he entered Harvard Law School (HLS) in 2005 hoping to tackle school desegregation and education policy, volunteer work with the student-practice organization Harvard Defenders as a first-year student reshaped his trajectory, exposing him to how the legal system often treats people accused of crimes—and “how difficult it was for people without resources to get any kind of help.” “I couldn’t really believe how the process was functioning,” he recalls. The more cases he took through Defenders, the more he read about the system, and the more he saw of it as a third-year student providing legal defense to indigent clients through HLS’s Criminal Justice Institute clinic, the more astonished he was.



Alec Karakatsanis puts “human caging” and “wealth-based detention” in America on trial.

by MICHAEL ZUCKERMAN

jailed under the same scheme, on negotiating a settlement with the city. “[H]e was a passionate, effective advocate,” writes Sara Zampierin, J.D. ’11, an SPLC staff attorney who worked with him on the effort, by email. “He was able to focus on the details of how the settlement would impact each person that owed money to the court while never losing sight of the larger goals for reform.”

“Within months,” Karakatsanis recalls, “we had designed a whole new municipal court system to prevent this from ever happening again.” The 16 named plaintiffs also settled their individual claims for undisclosed sums.

AGAINST “HUMAN CAGING”

KARAKATSANIS GREW UP in a well-to-do neighborhood in Pittsburgh, the son of a lawyer and a chemist at a large pharmaceutical company. At Yale, study in philosophy—particularly reading critical social theory like Frantz Fanon and Sim-

In October 2016, accepting an award at the University of Pittsburgh in front of family members and many of his elementary- and high-school teachers, Karakatsanis discussed the importance of understanding his cases in a broader context. He began by noting, “[T]his country is putting human beings in cages at rates that are unprecedented in the recorded history of the modern world.” The current rate of incarceration, he explained, is “about five times the historical average from the time this country was founded until about 1980” and “five to 10 times the incarceration rate of other comparably wealthy countries.”

And this “human caging,” he continued, is not random: “We’re doing it to human beings and bodies that belong to particular groups. We’re doing it at astronomical rates to people of color and impoverished communities. We are putting black people in cages at rates six times that of South Africa at the height of apartheid.”

Karakatsanis was being honored for his work at both Civil Rights

Corps (CRC), a legal nonprofit that he founded in 2016, and Equal Justice Under Law (EJUL), a legal nonprofit that he co-founded with law-school friend Phil Telfeyan J.D. '08 in early 2014. (He had left EJUL the month before to found CRC; Telfeyan still runs EJUL.) With his small band of colleagues—CRC just hired its tenth staff member—Karakatsanis, now 33, has swashbuckled around the country, partnering with local legal nonprofits and community groups to file lawsuits challenging egregious forms of such “human caging” across the balkanized constellation of local authorities in which the vast majority of American criminal procedure plays out each day.

Though he had clerked in Alabama, served as a federal public defender there, and practiced as a lawyer with the District of Columbia's storied Public Defender Service (PDS), co-founding EJUL was Karakatsanis's first foray into tackling what he calls “the American criminal system” more broadly. (He's observed that “if you say things like ‘the criminal justice system,’ people might get the sense that you're talking about a system that does justice.”)

For a year and a half after he and Telfeyan founded EJUL in early 2014 with their seed grant, the two of them worked out of their Washington, D.C., apartments. Karakatsanis often used his bed and a small standing desk next to it as his workspace. Juliana Ratner, J.D. '17, who first met Karakatsanis when they worked together at PDS, recalls that she “used to joke to him: ‘Do these cities that you're suing know that it's one man in a bed?’”

Their challenges to date have focused on the jailing of poor people for failing to pay municipal fines and fees, and the jailing of poor criminal defendants who cannot afford to pay the bail amounts that would allow them to be released from jail before trial. In challenging

“That kind of aggressive self-confidence has catapulted Alec into being a leader in the criminal-justice reform movement.”

these two forms of what CRC and other groups have termed “wealth-based detention,” Karakatsanis and his colleagues have launched two frontal assaults at a broader system of criminal punishment that keeps 2.3 million people locked away from the rest of society. It may sound amazing to attack something so Goliath-like with the organizational equivalent of sticks and stones. But so far, at least, they are winning.

SUING FERGUSON, MISSOURI

FROM THAT FIRST SUIT in Alabama, Karakatsanis has barnstormed the country, bringing 12 class-action lawsuits in 12 cities in the first 10 months of 2015 alone—a staggering caseload. “They're this very small team, and there's just a constant drumbeat of new cases they've filed—in small jurisdictions, and now in some really big jurisdictions,” says Larry Schwartztol, who met and worked with Karakatsanis while serving as executive director of the HLS criminal-justice policy program from June 2015 through May 2017.

Alexa Shabecoff, HLS's assistant dean for public service and director of its office of public-interest advising, recalls being worried about Karakatsanis's brashness when he and Telfeyan first applied for the school's seed funding. “But,” she reflects, “it turns out that kind of aggressive self-confidence allowed them to fearlessly file multiple federal civil-rights cases in a short amount of time and has catapulted Alec into being a leader in the criminal-justice reform movement.”

After reading about municipal-court practices in St. Louis County in the wake of the protests following the death of unarmed black teenager Michael Brown, for example, Karakatsanis connected with a local legal nonprofit, ArchCity Defenders, which had already been fighting those practices. He and executive director Thomas B. Harvey became friends (Karakatsanis stayed at Harvey's house while working on the case) as they investigated and eventually worked together to bring several federal lawsuits against municipalities.

“I drove him around to a couple different courts and a couple different areas in St. Louis that I thought would be ripe for some investigation,” Harvey recalls, “and he spent days if not weeks going and meeting people in their community, in their house, spending all day listening to people's stories, watching court, really just diving into it.”

“In the legal profession, unfortunately, that is very atypical,” Harvey notes. “We knew right away that he was the right person to partner with.”

One story that sticks out in Karakatsanis's mind comes from one of a number of house meetings in Ferguson that he helped convene. A woman had been sitting with her children, talking about how she had struggled with schizophrenia and had amassed a number of outstanding warrants for unpaid traffic tickets. “Every time she left the house,” he says, “she was worried about being pulled over. And Ferguson averaged 3.6 arrest warrants per household before we sued

them—most of them for unpaid debt....And it wasn't just a Ferguson problem, it was the whole St. Louis County region—so she had outstanding tickets in neighboring towns.”

Every time the woman was arrested, Karakatsanis recalls, “she'd spend a few days in Ferguson, and they'd try to get money out of her; she couldn't pay a couple hundred bucks bail, so after three days they'd send her to another town. And she couldn't pay there,



COURTESY OF ALEC KARAKATSANIS

Alec Karakatsanis in Montgomery, Alabama, with plaintiffs Lorenzo Brown, Sharnalle Mitchell, and Tito Williams after winning an injunction to stop the city from collecting court fines.



Karakatsanis at the Orleans Parish Criminal Courthouse, in New Orleans, where he is litigating against the money-bail system: “I love that the courthouse has inscribed, ‘The impartial administration of justice is the foundation of liberty.’”

so they’d send her to another town. At the third or fourth jail,” he remembers her saying, “I wasn’t getting my meds, and I just didn’t see a way out. And I love my children so much, but that’s when I tried to strangle myself with my bra.”

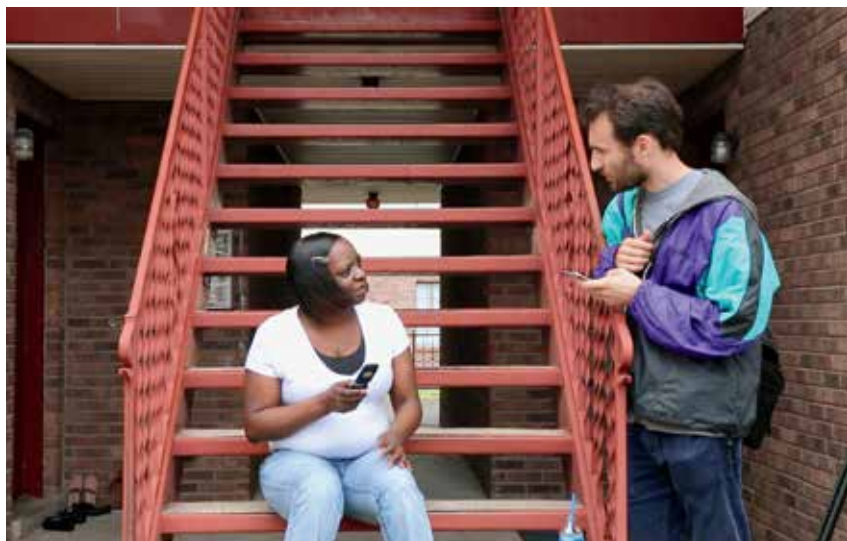
Karakatsanis and Harvey, working with the St. Louis University School of Law Legal Clinics, sued both Ferguson and the nearby city of Jennings. As the opening paragraph of their Jennings complaint alleged: “In each case, the City imprisoned a human being solely because the person could not afford to make a monetary payment.” Ultimately, the city of Jennings agreed to overhaul its practices and pay \$4.75 million in compensation to people it imprisoned and attorneys’ fees—likely the largest settlement ever in a debtors’-prison case. Their litigation against Ferguson continues.

FROM FINES AND FEES TO BAIL AND JAIL

THE ALABAMA AND Missouri cases are emblematic of Karakatsanis’s work to confront the jailing of people too poor to pay fines or fees assessed against them in municipal courts. But that is just one way in which poor Americans can find themselves locked behind bars for being unable to pay a certain price for their freedom.

As he was litigating the debtors’-prison cases, Karakatsanis recalls thinking that “the basic legal principle that we’re vindicating in these debtors’-prison cases, that no human being should be kept in a cage because she can’t make a payment, applies with equal if not *greater* force prior to trial”—when all people are still presumed innocent. To apply that basic legal principle fully and faithfully would strike at the “the entire foundation of the American money-bail system” as currently practiced.

To appreciate the power of Karakatsanis’s challenge, it’s important to understand how money bail is generally used in criminal adjudication. “In any state court system in America,” as Judge Truman Morrison, a senior judge in Washington, D.C., explains it, “if any one of your readers is arrested tonight, it will be determined whether they go home until their trial on the basis of how much money they have.” That’s because, while judges *can* hold someone in jail prior to trial on the ground that the person is a danger to the community, doing so triggers extra procedural hurdles. Instead of dealing with those hurdles, Judge Morrison says, “What happens almost everywhere is that a judge who is frightened about the prospect of releasing this person imposes a money bond.”



Meeting with client Yolanda Carney outside her home in Murfreesboro, Tennessee

a court without taking “a position on the facts alleged or the ultimate merits of the cases.” Rather, the filings “lay out our view of the correct constitutional framework and the

proper way to analyze the plaintiffs’ claims.” As Bains, who worked on the filings while serving as senior counsel to the assistant attorney general for DOJ’s civil-rights division, noted in an email, “We said that any bail system that results in jailing people because of their poverty—without consideration of their ability to pay or alternatives to incarceration—violates the Constitution.”

Though Karakatsanis started small in attacking bail, he has since become more ambitious. In May 2016, Civil Rights Corps and lawyers from the Texas Fair Defense Project and the firm Susman Godfrey filed a federal suit against Harris County, Texas. Its jail, per their complaint, is “the largest jail in Texas and the third largest jail in the

United States” and “books on average 120,000 individuals per year”—77 percent of whom are “kept in jail cells prior to trial, despite the presumption of innocence, because they cannot afford to pay money bail.” The *Houston Chronicle* reported that in the five years prior to the lawsuit, 55 people, all presumed innocent, had died there while awaiting their trials.

After considering what she described as “an extensive record consisting of hundreds of exhibits, thousands of hearing recordings, and eight days of arguments and briefing,” Chief Judge Lee Rosenthal, a federal judge for the Southern District of Texas who was appointed by President George H.W. Bush, issued an historic ruling on April 28, 2017, that granted the legal team’s motion for a preliminary injunction. That means that Harris County cannot continue to jail misdemeanor defendants (the suit did not apply to defendants charged with felonies) without considering their ability to pay during the time it takes Karakatsanis, the county, and the courts to reach a final legal resolution. In other words, the case was strong enough, and the harm of allowing the current practices to continue serious enough, that Harris County had to stop right away—even while the litigation proceeds.

How long the case itself will go on is unclear. On June 7, U.S. Supreme Court Justice Clarence Thomas denied the county’s motion to suspend Chief Judge Rosenthal’s order, and the *Chronicle* reported the next day that the county had begun releasing scores of people charged with misdemeanors—including Andre Medina, a 17-year-old high-school senior jailed after being arrested for trespassing. (As of June 13, the *Chronicle* reported, more than 600 such people had been released.) But the county, which has hired prominent D.C.-based appellate lawyer Charles J. Cooper to help with its appeals, may well fight on. (As of July 3, 2017, the *Chronicle* reported, the county had spent nearly \$3.5 million to defend the case.)

No matter how the case develops, observers praise Karakatsanis’s role in helping galvanize a movement to confront the way money bail operates today. “It’s pretty likely that some version of these questions will end up in the Supreme Court in the coming years,” notes Schwartztol, the former director of HLS’s criminal-justice policy program.

“It’s very hard for me to talk about Alec’s role without sounding like I’m exaggerating its importance,” adds Judge Morrison. “I’ve been [working on bail issues] for eight to 10 years...it’s absolutely

The process, he points out, is not transparent: “They don’t say, ‘I think you’re frightening to me and we can’t afford to release you.’” Instead, the judge effectively says, “I’m going to set your money bond so high that you can’t actually make it—that’s what judges are doing every day in courtrooms across America.”

“Any fourth-grader can understand,” Judge Morrison continues, that a person doesn’t become “less risky or dangerous” just because he’s “left his money at the clerk’s office.” But not everyone has the money to deposit at the clerk’s office in the first place—so it’s the poor who end up languishing.

The scope and consequences of this system of pretrial detention are huge. As Chiraag Bains, J.D. ’08, a visiting senior fellow at HLS’s criminal-justice policy program, notes, “There are 450,000 people in our nation’s jails today pretrial,” and “the vast majority of them are there not because they pose a flight risk or a danger to society, but simply because they can’t afford to post a monetary bond.”

“These people are legally innocent, and yet they are deprived of their liberty and subjected to often deplorable conditions,” Bains continues—which in turn makes them “more likely to plead guilty, to be convicted at trial, to be sentenced to prison time, and to be given longer sentences” (alongside other socioeconomic harms such as lost wages and difficulty in finding or keeping housing). “And all of these metrics,” he adds, “impact racial minorities more severely.”

Fred Smith Jr. ’04, an assistant professor at Berkeley Law School, writes in an email that he will “never forget when, just a few years ago, Alec tilted his head, looked at me and said, ‘I think the way money bail operates in the United States is unconstitutional.’” Smith, who now sits on CRC’s board, recalls that the argument “was as persuasive as it was ambitious and creative. And just look at what has happened since. The United States Department of Justice [DOJ] and federal courts across the country agree.”

In referencing the DOJ, Smith is alluding to the department’s decision in February 2015 (under different leadership than today’s) to file a “statement of interest” in the suit that Karakatsanis brought against Clanton, Alabama, for “jailing some of its poorest people because they...cannot afford to pay the amount of money generically set by” the city’s bail schedule. He was also referring to the DOJ’s later decision to file an amicus brief in a similar suit that he and the Southern Center for Human Rights brought against Calhoun, Georgia.

Bains explains that DOJ chooses to file those documents with

accurate to say that there is no person for my money, pardon the pun, who has done more to advance the cause of pretrial justice in America.”

“Years from now when our country is no longer deciding pretrial freedom based on money,” says Cynthia Jones, a law professor at American University and member of CRC’s board who previously served as PDS’s executive director, “Alec’s work will be cited as the impetus for this massive criminal justice reform.”

A ZEALOUS ADVOCATE

THE ILLS AFFLICTING the American criminal system were not created by any one person, and they will not be undone by any one person, either. Particularly in the case of institutions that disproportionately harm the poor and people of color, there is a danger, in focusing on the work of a privileged white man like Karakatsanis, of falling into the great-man-theory-of-history trap, or its cousin, the white-savior trap.

For whatever it’s worth, Karakatsanis seems fully alive to these concerns. He is quick to point out that “it’s really the people who have been subjected” to this system who can describe it best. He is equally quick to note that the way to a “fundamentally more just system” must ultimately be led by those most directly affected by the current system—not people like himself. In any case, he disclaims that there’s been much progress at all.

Perhaps consequently, his approach has been highly collaborative. “The real energy for replicating [a success],” he notes, “comes from building local relationships and partnerships with people in different jurisdictions”: partnering with those who “can co-counsel the case” and those who can, for example, “organize around the issue.”

“Certainly our work is lawyer-driven in a lot of ways,” he admits, “but we make a real effort to situate [it] in the context of a broader movement. Winning a couple cases is not going to fix these broader problems...it’s the kind of thing that lawyers need to look to other people for leadership on.” Others confirm that assessment. “His organization works with a very broad group of allies: big established advocacy organizations, smaller grassroots organizations, law firms, policy folks, researchers,” says Schwartztol. “I think he understands that for this work to be effective, it’s got to be engaged” effectively with that broad spectrum of actors.

Part of the price of progress is how much Karakatsanis pours into fights in which he and his comrades in arms tend to be massively outgunned by their adversaries—compare Harris County’s \$3.5 million in spending on the suit to CRC’s annual budget, which just recently approached \$1 million—not to mention the size and entrenchment of the existing system. For three years, essentially all of his time has gone to “developing this network and community so that we can bring really, really good cases that are really effective and really tied to each community.”

“I think zealous is a good word to use,” says Lark Turner, J.D. ’18, who met Karakatsanis in March 2016, on an HLS-sponsored public-service spring break to help with a case he was litigating against Rutherford County, Tennessee, and the private company that ran its misdemeanor-probation system. (The company surrendered its license to do business in Tennessee a few months later.) “He is driven by—he realizes that—his hours are finite, and he wants to use them for this cause.”

Though Karakatsanis tries to sleep seven hours a night, he hasn’t taken a vacation in years. During his first 30 months of public-in-

The ills afflicting the American criminal system were not created by any one person, and they will not be undone by any one person, either.

terest lawyering, he didn’t pay for a single hotel room in any of his travels, opting to stay with friends or co-counsel instead. (In Nashville, for example, he stays at the home of a blues musician, the father of a former PDS intern, who plays for Karakatsanis when he comes home after a long day of legal work.)

That intense dedication and work ethic also characterize the people who work with him at CRC, based in Washington, D.C. Says Premal Dharia, the organization’s new director of litigation, “[W]e believe we’re

working toward critical, meaningful change in our culture and in our legal system. So yes,...we are always working.”

Part of that endless work is driven by the fact that CRC’s mission is much broader than overhauling the use of money bail. “In the medium term,” Karakatsanis says, “we’re not interested in just money bail, we’re interested in changing the way that our society thinks about human caging and connecting a lot of these problems to bigger problems of inequality in our society, whether it’s economic or racial—really helping to resensitize everyone to the brutality of the criminal system more generally.” That’s why they have their sights set on everything from prosecutorial misconduct to underfunded indigent defense to immigration enforcement and sentencing schemes. Before all is said and done, if there is a place where “the operation of the system has been functioning really effectively for the purpose of warehousing and transferring bodies,” Karakatsanis wants to use civil-rights litigation to disrupt it.

“THE VERY NAKED MEANING OF WORDS”

THIS BROADER MISSION helps explain something that many of Karakatsanis’s admirers note immediately: his focus on the power of words. “One of the wonderful things that Alec does,” observes Judge Morrison, “is the way he uses language....He refers to the process of jailing people as what it actually is, which is human caging—he refers to judges sending people like animals to live in cages before their guilt or innocence is actually determined.”

Though his legal filings generally omit such potentially inflammatory phrases, they too are, as Harvey (Karakatsanis’s co-counsel in the Ferguson and Jennings cases) points out, “written in a way intended to get at these problems in straightforward, commonsense language”—a virtue that is not common to all lawyers. Consider this excerpt from the second paragraph of his Jennings complaint:

Once locked in the Jennings jail, impoverished people owing debts to the City endure grotesque treatment. They are kept in overcrowded cells; they are denied toothbrushes, toothpaste, and soap; they are subjected to the stench of excrement and refuse in their congested cells; they are surrounded by walls smeared with mucus, blood, and feces; they are kept in the same clothes for days and weeks without access to laundry or clean undergarments; they step on top of other inmates, whose bodies cover nearly the entire

uncleaned cell floor, in order to access a single shared toilet that the City does not clean; they huddle in cold temperatures with a single thin blanket even as they beg guards for warm blankets; they develop untreated illnesses and infections in open wounds that spread to other inmates; they sleep next to a shower space overgrown with mold and slimy debris; they endure days and weeks without being allowed to use the shower; women are not given adequate hygiene products for menstruation, and the lack of trash removal has on occasion forced women to leave bloody napkins in full view on the cell floor where inmates sleep; they are routinely denied vital medical care and prescription medication, even when their families beg to be allowed to bring medication to the jail; they are provided food so insufficient and lacking in nutrition that inmates are forced to compete to perform demeaning janitorial labor for extra food rations and exercise; and they must listen to the screams of other inmates being beaten or tased or in shrieking pain from unattended medical issues as they sit in their cells without access to books, legal materials, television, or natural light. Perhaps worst of all, they do not know when they will be allowed to leave.

Part of Karakatsanis's purpose in "using the very naked meaning of words" (as Harvey puts it) in lieu of more polite euphemisms may be that it helps persuade decisionmakers or potential allies in individual cases. But his friends also see a broader political idea at work. "Alec loves 1984 by George Orwell, so it's not just some advocacy skill that he's picked up and realized it works," says Salil Dudani, who worked as an investigator at EJUL and now attends Yale Law School. "I think he has a theoretical commitment about... how language can be used politically to downplay the interests of certain people and magnify the interests of others."

Karakatsanis himself has indicated this commitment to countering groupthink, citing Hannah Arendt's *Eichmann in Jerusalem* and resisting the temptation to think in terms of good and bad apples when confronting the American criminal system. "I think all of us are deeply complicit in the social injustices that we've allowed to fester," he explains. "I don't think a lot of the people who work in the system are bad people at all; I think that they've become cogs in a system that very few people have really scrutinized and they've become desensitized to a lot of the harm that they're doing." (He admits to being part of the problem himself when he worked as a public defender, and to "participating in" all sorts of injustices today by "not attacking" them.) He views CRC's task "not as finding and getting rid of the bad apples," but rather "convincing everybody that the whole system is deeply flawed and that we'd all be better off if we radically changed it."

"We do not act like a society that treats brutal human caging as a narrowly tailored remedy of last resort. The failure to require reasons and evidence has been a sad chapter in American legal history."

He is accordingly loath to write off other individuals, even those who sometimes restrict his clients' liberty. "I've found that a lot of police officers and sheriffs are really opposed to the stuff that goes on in the criminal system," he says. "They see some of the worst aspects of it": "women giving birth on the jail floor because they couldn't afford money bail," "people being tortured" by abuse and poor jail conditions "because they can't afford a traffic ticket." Consequently, he explains, he has "a lot of sympathy with people on the front lines...who are being asked to enforce some of these policies that our society has decided to inflict on the most marginalized people."

SURPRISINGLY UNSTRICT SCRUTINY

PART OF Karakatsanis's premise here—perhaps further following Arendt—seems to be that what's gone wrong in the American criminal system can be traced back, at least in part, to a failure to actually think hard about it in the first place. Karakatsanis made that point in a 2015 essay in the *Harvard Law Review Forum* (the print law journal's online companion). Referencing the foundational constitutional doctrine of "strict scrutiny" (that the state can't deprive someone of a "fundamental right" unless that deprivation is "narrowly tailored" to meet a "compelling governmental interest"), he argued:

[L]awyers never forced us to ask the fundamental question:

Are we sure that putting human beings in cages is absolutely necessary to creating a world with fewer people walking around smoking marijuana? And, more broadly, that it is necessary to creating the kind of flourishing society that we want to live in? All of this makes the failure of the legal system to apply strict scrutiny to criminal punishment all the more bizarre. We do not act like a society that treats brutal human caging as a narrowly tailored remedy of last resort. The failure to require reasons and evidence has been a sad chapter in American legal history.

Lawyers' failure to scrutinize a bloated, Kafkaesque, often inhumane system of criminal investigation and adjudication is a question he seems to have begun wrestling with in law school. As a second-year student and member of the *Harvard Law Review*, he published a comment on a case in which a panel of Ninth Circuit judges had affirmed a stack of mandatory-minimum sentences totaling 159.75 years. The person sentenced was a mentally ill woman, Marion Hungerford, who had helped someone who was giving her a place to stay plan a series of armed robberies, though Hungerford was not physically present for any of the robberies and "never touched a gun." (A 2010 settlement with the Montana U.S. Attorney's office eventually lowered the sentence to about seven years.) Karakatsanis observed that the panel had "dutifully" affirmed the heavy sentence, even though that decision clearly "troubled" at least one concurring member of the panel, Judge Stephen Reinhardt. As Karakatsanis wrote: "Judge Reinhardt believed that he 'lack[ed] the authority' to reform statutory penalties or Eighth Amendment precedent. He called upon those with 'both the power and the responsibility to do so' to take action. Ironically, Judge Reinhardt did not recognize that he and his colleagues on the federal bench fit this description."

If Karakatsanis has not yet persuaded the entire federal judiciary that it has the power and responsibility to reform the American criminal system, he—alongside a growing movement of other dedicated lawyers and activists—is at least chipping away at the mission. Says Schwartzol, "They're generating these amazing court

rulings that are not only destabilizing the practice of money bail in a number of jurisdictions, but providing a legal framework for other courts to adopt.”

The specter of a CRC lawsuit may also be persuading municipalities to reform on their own. The American criminal system is not a monolith—rather, it’s an agglomeration of federal, state, and especially local authorities, many of which operate in practice as individual fiefdoms. (The United States contains, for example, roughly 6,000 detention centers and 15,000 state and local courts spread across 3,000 counties.) Changing them one by one, in other words, is hard. But what Karakatsanis accomplishes when he wins in “a small town in Alabama,” Judge Morrison points out, goes beyond the city limits. Other judges, city counselors, and mayors, he explains, look at the litigation, “see that Alec is winning,” and suddenly realize that they’re vulnerable, because they do things the same way. “And so rather than wait to have Alec ride into town,” he continues, local officials figure, “[W]e better see if we can proactively try to avoid being called to account.”

At the same time, Karakatsanis seems to be persuading two other constituencies of their own power and responsibility to address the system’s failings: his clients, and aspiring lawyers.

He notes with pride, for example, a story about Lorenzo Brown, the man he met that winter morning in Montgomery. Right after the federal judge in Brown’s case had called in the city’s top officials and ordered them to come up with a bail system that would comply with the Constitution, the SPLC’s Sara Zampierin recalls holding the door for Brown as he left the courtroom. “He was walking out with his cane,” she remembers. “He smiled and said, ‘Wow, I never knew I had this much power.’”

Aspiring lawyers are moved by Karakatsanis’s dedication. “His work really drives home for me this idea that where there are no lawyers, there is no Constitution,” says Lark Turner, who joined the March 2016 HLS spring-break trip to help him in Tennessee. “Alec is single-mindedly dedicated to this work,” says Ryan Cohen, J.D.-M.P.P. ’17, another student on the trip. “That is something that’s inspiring to me as a citizen of this country who wants to improve it, and as a law student dedicated to public interest.”

Persuading budding lawyers to take their vocation’s responsibilities particularly seriously is not a new goal for Karakatsanis. In 2010, he published an unconventional essay in the *NYU Review of Law & Social Change*, mostly drafted while he was still a law student. He worried about how someone could become a “human lawyer”: one who “remembers that all abstract policy debates are about real people,” who is “sensitive to forgotten stories,” who “challenges conformity” and, in deciding how to live her life, “litigates all her moral decisions.”

The essay contains a string of vignettes, each meant to help think through part of the journey. In one, Karakatsanis tells the story of law students descending on New Orleans post-Katrina and meeting a public defender named Julian. “Julian’s house,” he relates, “had been flooded and destroyed. A fallen tree had almost evenly divided his pick-up truck in half, and he was using the bed of the truck as a makeshift office. He didn’t have a working phone.” The students watch aghast, in “a hurricane-ravaged courtroom,” as one person is told he has to remain in jail despite not being “the right ‘Dwayne

Conferring with Harvard Law School students during a spring-break trip to investigate private probation abuses in Tennessee



Jackson,” and then as Julian is appointed to defend his “twenty-first pending capital murder case”—an absurd caseload. Afterward, they find Julian and “tell him how appalled they were at what they had seen.” Julian recasts what they’re seeing as a difference in degree rather than kind: he and his colleagues have never had the resources that they need, and his clients have always languished in jail against reason and common sense.

“The hurricane brought many to the front lines, but it didn’t seem at all to change the nature of the battle Julian was fighting there in the trenches,” Karakatsanis wrote. “In the fight to improve the lives of marginalized people, the human lawyer has always worked from a broken truck, and every day is hurricane season.”

• • •

TODAY Karakatsanis is in the trenches, but he is also “one of the most important figures litigating issues related to the criminalization of poverty,” according to Smith, who notes that Karakatsanis’s cases “have deeply impacted” his own scholarship at Berkeley. “Indeed,” Smith adds, “one could make the strong case...that he is the most important figure working on those issues in the United States.”

But while planning future projects (for example, the “prosecutor accountability project” that will use strategies he’s honed to “go around the country and change the way that district attorneys are prosecuting cases”) and raising money to fund them (though CRC brings in some revenue through attorneys’ fees, the lion’s share of its budget comes from charitable donations), Karakatsanis continues to target intangible change as well.

“I think everybody should...make a decision about how they want to live their life, and how they can have the most impact on other people while they’re here,” he says. “The great thing about being a human being is that at any moment you can do something different—and you can use a lot of things that you’ve learned, and skills that you have, and wealth that you’ve accumulated, and do a great deal of good to really change our society. And what we need is a whole movement of people doing that. Because there’s a tremendous amount of suffering in the world and in this country that would be easily alleviated with a broader movement of people really caring about it.”

Michael Zuckerman ’10, J.D. ’17, graduated this past May. While in law school, he represented indigent criminal defendants through Harvard’s Criminal Justice Institute clinic and served as the 130th president of the Harvard Law Review.



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“Practicing My Purpose”

Songwriter Dan Wilson recovers his catalog.
by MAX SUECHTING

THE BEST POP SONGS seem to materialize on the radio by magic: perfect crystals of feeling without seams or joints or fingerprints. For Dan Wilson '83, however, the songwriting process is not a mystical pursuit but a practice, requiring at least as much patience and perseverance as inspiration. In the last two decades Wilson has written for or with many of the biggest names in pop, includ-

ing Halsey, John Legend, Weezer, and Joni Mitchell (with whom he worked well, Wilson says, because “she was really good at making me less nervous”). His talents have won him two Grammys (Album of the Year for his work on Adele’s album *21*, and Song of the Year for the Dixie Chicks’ impenitent comeback single, “Not Ready to Make Nice”) and two additional nominations.

A musician from an early age, as a teenager

Though songwriter Dan Wilson (left) mostly stays out of the spotlight these days, he’s still the frontman for the band Semisonic (above, at a 2012 show), which occasionally gets together to perform, mostly in their home state of Minnesota.

he played guitar and sang in several Minneapolis groups before taking his talents to Boston-area nightclubs and concert halls, often alongside his younger brother, Matt Wilson '85. In fact, Wilson says he spent so much of his time performing that, “When I went to my reunions later, people asked me, ‘You’re an interesting person, you’ve done interesting things—why did no one ever meet you in college?’ And the answer is that I was working all the time.”

O P E N B O O K

Leaders Born in Darkness

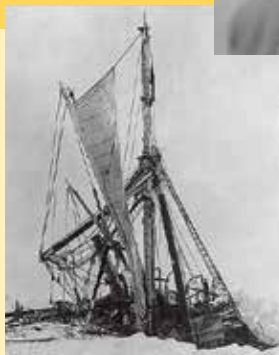
During a Twitter administration, it can astonish to be reminded that “Early in his presidency...Lincoln discovered the power of mastering his emotions in a specific situation carefully enough to take no immediate action or, in some instances, to do nothing at all.” So observes Robison professor of business administration Nancy F. Koehn, who draws her lessons on leadership from history, giving them a realistic gravity that theory or contemporary observation often lack. *Forged in Crisis: The Power of Courageous Leadership in Turbulent Times* (Scribner, \$35) tells the stories of five leaders who came to their roles “in the midst of a profound personal crisis.” Three of them, in outline, from the introduction:

Picture in your mind three snapshots from the past. The first is from late 1915. Ernest Shackleton, an explorer from Great Britain, and his 27 men are trapped on an iceberg off the coast of Antarctica. Their ship, the *Endurance*, has gone down through the ice, and he and his crew members are marooned a thousand miles from civilization with three lifeboats, canned food, and no means of communicating....Shackleton’s mission is somehow...to bring his entire team home safely. But he doesn’t know how he will do this. At night, when he can’t sleep, he slips outside his tent and paces the ice.... Sometimes, he doubts his ability to do what he knows he must.

The second snapshot is from the summer of 1862. Abraham Lincoln...is also uncertain about how he will accomplish his purpose: to save the Union in the midst of a civil war. He, too, has trouble sleeping and often spends the hours after midnight walking up and down the second-floor hall of the White House. The conflict is going badly for government armies and is proving much bloodier than anyone could have imagined. The commander in chief knows that slavery is at the heart of the contest. But he’s unsure exactly what to do about the almost four

million black Americans held in bondage. He’s also living with intense personal grief following the death of his son Willie four months earlier. In certain moments, Lincoln staggers under the weight he carries.

The third image is from the winter of 1961. It’s late at night, and Rachel Carson, a scientist and bestselling author, is alone in her study, trying to finish a manuscript titled “Silent Spring,” about the dangers of widespread pesticide use. Her subject is controversial, and she knows that large chemical companies, the U.S. Department of Agriculture, and other powerful institutions are poised to make war on her and the book as soon as it’s published. Despite the threat, Carson believes deeply in the work’s integrity and larger message: that humankind has an obligation to protect the earth and that this obligation involves a sweeping call to citizen awareness and action. She writes as carefully as she can, her work given urgency not only by the importance of her subject, but also by her medical situation. For more than a year, she has been battling aggressive, metastasizing cancer....[I]n certain moments, she doubts she can actually complete her book and say what must be said. When her anxiety rises, the author walks around the room, staring out into the darkness.



The young Rachel Carson (1940); Abraham Lincoln, wearied by the Civil War (1864); and the *Endurance* in the crushing grip of polar ice



After graduating, he returned to Minneapolis and once again joined Matt in the quirky alt-pop act Trip Shakespeare. The band recorded four albums before breaking up, leaving Wilson and bassist John Munson to form the more rock-oriented band Semisonic. Where Trip Shakespeare’s aesthetic sensibilities skewed toward surreal imagery and elaborate arrangements, Wilson’s writing for Semisonic tended toward serious and straightforward treatments of customary pop subjects: love, loss, and the travails of the aspiring artist in the jaws of the music industry. Semisonic became best known for their barfly hit “Closing Time,” which was nominated for a Grammy for Best Rock Song in 1999 and has remained a staple of jukeboxes and radio stations since.

Since the group’s last studio album (2001’s *All About Chemistry*), Wilson himself has largely stayed out of the spotlight, exchanging the jam-packed schedule of a touring band for a more stable career in the recording studios and rehearsal rooms of Los Angeles. In person, it’s easy to see why he’s become so sought-after: he radiates a sincerity that makes him seem immediately trustworthy, someone in whom you could imagine confiding a secret or from whom you might seek advice. In conversation he is friendly and easygoing, quick to laugh, but also an acute listener—he identifies the strains of Pure Prairie League’s “Amy” over the din of the crowded bar. For Wilson, who mentions sulk-pop princeling The Weeknd in the same breath as philosopher Karl Popper, songwriters share with philosophers and scientists the basic task of trying to understand and describe the world. His compositions reflect a profound faith in music’s ability to communicate that understanding.

This faith is on prominent display on Wilson’s new record, *Re-Covered*, in which he re-imagines some of the pop hits he helped shepherd into existence. He assembled a band of trusted friends and collaborators who rehearsed for several days before walking into the studio, where they opted to record each song live, performing as an entire group, rather than tracking individual



CLOCKWISE FROM TOP: U.S. FISH AND WILDLIFE SERVICE; LIBRARY OF CONGRESS (2)

instruments and then layering them with overdubs and complicated effects. This approach is evident in the band's easy chemistry: these are familiar, welcome recordings of simple, well-written songs. Wilson's uncluttered arrangements complement both his intuitive grasp of melody and the earnestness and clarity of his vocal delivery. Where the chart-topping studio versions of these songs sound carefully calibrated, processed, and polished (often quite pleasantly so), Wilson's versions sound more suited to a house party or a crowded bar than a stadium.

Indeed, *Re-Covered* often feels so lived-in it's easy to forget that these songs are "covers." Wilson's folk and country influences imbue "Not Ready to Make Nice" with a gentle sadness that avoids saccharine nostalgia; his version of Adele's "Someone Like You" pairs able guitar work with a lush string arrangement by the Kronos Quartet and shows off his impressive vocal range. But *Re-Covered* is not all mournful blues. Its distortion-laden versions of "Home" (written with Dierks Bentley) and "Landing" (a collaboration with his brother) draw from the driving, exuberant energies of hometown punk acts like Hüsker Dü and The Replacements. And Taylor Swift's "Treacherous" is sped up and stripped of its epic chorus, transformed from whispery country-pop into elegant, angular alt-rock.

For many listeners, however, the standout track will be the quietly urgent piano version of "Closing Time" that closes the album. "I still love that song," he says, and it's easy to see why. Perfect pop songs—like the Jackson 5's "I Want You Back," or Katy Perry's "Firework"—braid together the familiar with the novel. The genius of "Closing Time" is to stack that contradiction on top of the bittersweet melancholy of endings. As the lyrics put it: "Every new beginning comes from some other beginning's end."

Talking about the process of re-working songs from his repertoire, Wilson compares songs to jewels: different arrangements accentuate or dull certain characteristics, but the gem itself remains unchanged, a kernel of insight whose essential structure is durable and timeless. *Re-Covered* plays like a statement of this philosophy rather than just a compilation of recognizable singles. Indeed, it opens with what could well be considered a statement of method—some of Wilson's most memorable lines, from his collaboration with Gabe Dixon, "All Will Be Well": "The new day dawns, / And I am practicing my purpose once again."

Ensemble members reminisce in *Party People*, about the Black Panthers and Young Lords.



JENNY GRAHAM

Bards of America

Historical plays for a nation "stuck in the middle"

by LYDIALYLE GIBSON

THIRTY YEARS AGO, when Alison Carey '82 and Bill Rauch '84 were traveling the country with Cornerstone Theater Company, the ensemble they co-founded after graduating, they would set up shop for months at a time in churches and storefronts and abandoned gymnasiums. In small-town West Virginia or Nevada or North Dakota, they worked with local residents to produce classic plays adapted to the particularities of their communities. In town after town, a similar thing kept happening: the plays were almost always set in the present, but invariably, Carey says, "You'd bump into the past." A story circle in the Central Valley of California or a storefront in Mississippi would turn into a conversation about how people's families had ended up there, what traumas and triumphs

and fundamental forces had shaped their grandparents and parents and, by extension, themselves.

Carey, a history concentrator at Harvard, thinks back to those conversations now and sees a pretty clear through-line to her current work: overseeing the development of new history plays as director of the Oregon Shakespeare Festival's (OSF) American



Alison Carey

OREGON SHAKESPEARE FESTIVAL



(From left) Stephen Michael Spencer, Jack Willis, and Tramell Tillman in *Sweat*, a potent portrait of working-class frustration and fear in a Pennsylvania steel town

mental ensemble anchored by Bronx-reared playwrights Steven Sapp, Mildred Ruiz-Sapp, and William Ruiz, *Party People* incorporates hip-hop, salsa, and jazz into what Carey calls a “beautiful, intentional, thorough piece” about “maintaining one’s integrity in the face of assault, maintaining one’s sense of self and sense of purpose.” During their research, the playwrights (now OSF’s ensemble-in-residence) interviewed former members of the Black Panthers and the Young Lords, hearing their stories, but also asking permission to tell them. These were people whom the writers had known since childhood, not as abstract figures, but as neighborhood elders—“older warriors,” Carey says. Some former Lords and Panthers came to see the show. So did gold medalist Tommie Smith, one of the Olympic athletes who raised his fist on the Olympic platform in 1968. During the play, he raised his fist again.

Carey and Rauch decided from the beginning against putting many restrictions on the commissions’ subject or time period—the only requirement was that each ad-

Revolutions cycle. Rauch, now OSF artistic director, proposed the project a decade ago, to comprise 37 plays in total—the same number in Shakespeare’s canon. Of the 32 commissions so far, 10 dramas have been brought to the stage. (The last five playwrights will be announced this year; it’ll take another 15 years or so for the whole cycle to be produced.) Exploring subjects like immigration, slavery, *Roe v. Wade*, presidential elections, political assassinations,

“Whatever that revolutionary moment was,” Carey says, “it’s still sitting in the American psyche.”

and Sherman’s “March to the Sea,” the plays have attracted Tony nominations (and two awards), a Pulitzer Prize, and a few trips to Broadway. (“*Hamilton*,” Carey told an interviewer last year, was the one that got away.)

Describing the process, Carey says, “We read and see a lot of plays and find the voice that sparks us.” She and Rauch follow playwrights from year to year, “and when we are moved by someone’s work and they seem to bring something new, we call them up.” Some arrive with ideas, though not with fixed plans or written scripts (“We want them to start from scratch”) and then the real work begins. Carey works with playwrights to develop their ideas, and once a

year, convenes everyone to talk and think through their works-in-progress together. Part of the cycle’s intent is to bring many perspectives to the fore—and to as many places as possible: a few American Revolutions plays are co-commissions with other theater companies (Steppenwolf, Arena Stage, Yale Repertory Theatre) and several have premiered on other stages around the country. The cycle’s first play, *American Night: The Ballad of Juan José*, a sprawling look at 170 years of history, was adapted by playwright Richard Montoya into a version for secondary-school drama troupes to perform.

One of the most successful entries in the cycle is Robert Schenkkan’s Tony Award-winning *All the Way*, which follows Lyndon B. Johnson’s ascendance during the year after John F. Kennedy’s assassination. Schenkkan’s play is consciously Shakespearean: a grand-scale narrative of leadership and crisis, with LBJ at the center as a flawed, charismatic protagonist, plotting and battling and spouting soliloquies. Schenkkan followed up that American Revolutions project with a sequel, *Great Society*. It chronicles the hero’s moral downfall as the country descended into Vietnam and racial conflict, and his dreams of ending poverty evaporated. “Robert had to get the rest of the story out,” Carey says, “the triumph and the tragedy.” That’s Shakespearean too.

When *All the Way* premiered at OSF in 2012, it played opposite (in more ways than one) another American Revolutions production, *Party People*, which explores the legacy of the Black Panthers and the Puerto Rican Young Lords. Written by UNIVERSES, an experi-

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A Life of Adventure and Delight

There’s a new short-story cycle by Akhil Sharma, J.D. ’98, one of the most inventive fiction writers working today.

harvardmag.com/sharma-17



IVAN BAAH

dress a moment of change in American history—and many of the cycle's plays ended up revolving around the 1960s and '70s. At first Carey worried that meant they'd done something wrong, failed to ask the right question. But playwright Lynn Nottage (whose Pulitzer-winning play for the cycle, *Sweat*, about Pennsylvania factory workers in the aftermath of industrial decline, went to Broadway this year) said no. "Lynn said,



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"It's because we're still trying to work it out," Carey reports. "Whatever that revolutionary moment was, it's still

sitting in the American psyche as either a time of great success or a time of great failure, or something stuck in the middle."

In a divided country, Carey says, "I think these plays can be a path to understanding." She thinks back to her Cornerstone days: how much the ensemble members learned about the specific, individual histories of the towns they visited, and how the townspeople came to know and trust the coastal-city strangers who showed up in their communities. All through the work of putting on a play together. "Good plays make you see whole people," Carey says. "And they make you feel more whole yourself."



Peter Frechette (left) plays Hubert Humphrey and Jack Willis is Lyndon Johnson in the Tony-winning *All the Way*.

"Patchwork Futures"

Sci-fi meets the political thriller.

by MARINA BOLOTNIKOVA

IN THE FUTURE imagined by Malka Older '99, author of *Infomocracy* and its new sequel, *Null States*, the inability to distinguish narrative from reality has become a medical diagnosis, officially codified as "narrative disorder." Older describes the condition as a rewiring of the mind in a world shaped by shared narratives. "On the one hand, there's an addiction to narrative content, to wanting to distract ourselves with stories," she says. "But this is also changing how our brains work. We're changing our expectations of what's going to happen and the way people act and the kinds of characters we're likely to meet, and by changing those expectations we end up changing reality, because people act on those expectations."

Older's series takes place sometime during the 2060s, 20 years after the collapse of national boundaries has produced a global *pax democratica*. Save for some "null states" that opt out of the system—Saudi Arabia, China, Switzerland—most of the globe is carved into plots of around 100,000 people, or "centenals," each electing its local government from among dozens of political parties. The most popular party then controls the global government. The system, called "micro-democracy," relies on enforcement by "Information," the massive organization that runs the world's internet, elections, and intelligence gathering. "Through elections and relatively free immigration poli-

cies, people vote in this marketplace of ideas and innovation," Older writes, tongue-in-cheek. (Her chatty, often breathless prose can be unexpectedly funny and sardonic—of one character, she writes, "She's sick of feeling like a teenager in luv.")

In exchange for relative stability, citizens have accepted a complete breakdown of privacy, with virtually all their public actions recorded by Information's cameras and the details of their lives accessible through its search engines. They're also exposed to an overwhelming stream of data from Information's feeds.

Almost as a corrective to the incoherence, this society has developed a collective addiction to fiction narratives, produced by teenagers in content-creation sweatshops. The sensory overload also results in individuals like *Infomocracy*'s Mishima, who was diagnosed with narrative disorder as a child. The condition often leaves her unable to treat people as individuals, rather than characters—as when, misreading her lover as a spy, she stabs him in the leg. But it also empowers her to anticipate real po-



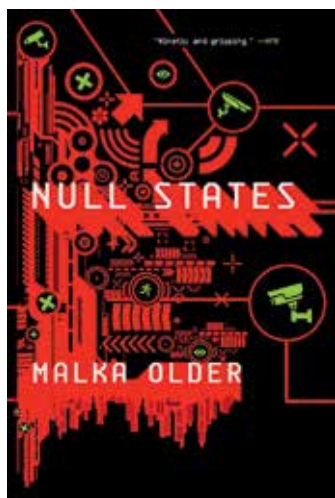
Malka Older

litical events—a veiled threat to go to war, a party leader bombing her own people—before anyone else can, and so only she can untangle the election-stealing scheme that's emerged within Information.

Older says she's thought about symptoms of narrative disorder since she was in college (citing *Don Quixote* as the classic example), though the idea coalesced only after she had the opportunity to travel widely. She's spent most of what she calls her not especially well-planned years since Harvard hopping among different humanitarian and development projects in Sri Lanka, Darfur, Indonesia, and elsewhere, first as a field worker and then in consultant and management roles. "Because narratives, and the sort of things that people think are worth reading or watching or listening to, are very culturally determined," she says, "living in different societies helps you get out of nar-

rative disorder.” Concepts like romantic love and heroism in war, she argues, are shaped by narratives, and then are enacted in reality.

Null States is concerned with a different type of narrative: the collective ones that animate ethnic and regional conflict in the era of nation-states. The sparsely populated desert of what used to be Sudan is transitioning to micro-democracy when



the head of the governing DarFur party, Al-Jabali, who's been calling for his people to embrace a larger government uniting all oppressed ethnicities, is assassinated. “Noth-

ing makes nationalists so fast as persecution,” one analyst remarks. The Information establishment appears so earnest about the promise of a post-national world as to be willfully blind to the reality that nationalism and ethnic-based identity still exert a strong pull within the micro-democratic system.

So far in the series, the former United States gets hardly a mention (aside

from a snide remark in *Infomocracy* about how it remains embroiled in a polarized party conflict)—and deliberately so, Older says. If the series has any center of grav-

ity, it's Tokyo, where the main Information hub is based. She started writing *Infomocracy* while in Japan, working in emergency response after the 2011 tsunami: “Being in Japan is a good reflection of a kind of patchwork future,” she says. In that regard, her series shows the influence of cyberpunk, a noir-ish sci-fi subgenre often taking inspiration from that country's technological scene. But instead of relying solely on cyberpunk's heavily urbanized landscape, Older's writing is informed by the full breadth of her experience abroad. She wanted the novels to reflect a truly global system in which people on different sides of the planet still have difficulty understanding one another despite real-time translation technology. “It was really important to me—and really fun for me as a writer—to draw from Jakarta, and Sin-

Off the Shelf

Recent books with Harvard connections

Harvardiana. **The Selected Letters of John Kenneth Galbraith**, edited by Richard P.F. Holt (Cambridge, \$34.99). Economists today may look down on Galbraith's economics—but can any of them write as he did? Includes the classic exchange with Dean Henry Rosovsky on the selling of Faculty of Arts and Sciences indulgences. **Man of the Hour: James B. Conant, Warrior Scientist**, by Jennet Conant (Simon & Schuster, \$30); a massive biography of Conant '14, Ph.D. '16, LL.D. '55, whose consequential Harvard presidency seems only an episode in a life also devoted to public service during World War II and after—both in developing the most fearful weapons of mass destruction and then to reining them in. **Uncompromising Activist**, by Katherine R. Chadock (Johns Hopkins, \$24.95), is a life of Richard Theodore Greener, A.B. 1870, the first black graduate of Harvard College—a prelude to diplomatic service in Vladivostok, a law deanship, and complications about “passing” in a society sharply demarcated by color lines.

Akhil Sharma, J.D. '98, took 13 years to write his autobiographical novel **Family Life**. Now he has followed up in a fleet three

with his collection **A Life of Adventure and Delight** (W.W.Norton, \$24.95). One story, “Surrounded by Sleep,” returns to that novel's central trauma, of a young boy suffering brain damage after hitting the bottom of a swimming pool; the rest concern characters full of submerged longing. Sharma's portraits of stilted courtships and childhood disappointments are finely observed, and surprisingly funny.

Just a Journalist, by Linda Greenhouse '68 (Harvard, \$22.95). This modestly titled, succinct memoir and reflection (concerning the modestly subtitled subjects, “On the Press, Life, and the Spaces Between”) contends with the boundaries of journalism, citizenship, and balance—in a new era for each. The author, a former Overseer and now lecturer in law at Yale, writes with the clarity that distinguished her *New York Times* coverage of the Supreme Court and American law.

The Development Dilemma: Security, Prosperity, and a Return to History, by Robert H. Bates, Eaton professor of the science of government and professor of African and African American studies (Princeton, \$27.95). A distinguished scholar of development, or the lack thereof, in Africa, where he has often and long put his boots on the ground, looks back into the divergent historical paths of England and France to examine state security and the

political role in decisions about the use of wealth in his effort to tease out, succinctly, trajectories toward prosperity.

In time for the World Series, **Smart Baseball**, by Keith Law '94 (Morrow, \$27.99), senior baseball writer/analyst for ESPN, equips readers to appreciate the beauties of UZR, WAR, and other fancy metrics—often with vivid humor (on “small ball” and bunting: “so called, I think, because it produces smaller numbers on the scoreboard”). Or, you can revert to old-fashioned fandom.

Other cultures. **A New Literary History of Modern China**, edited by David Der-Wei Wang, Henderson professor of Chinese literature and of comparative literature (Harvard, \$45), contains scores of essays on the field—engagingly including, for nonexperts, film, theater, and popular song. **Pious Fashion: How Muslim Women Dress**, by Elizabeth Bucar '96 (Harvard, \$29.95), looks seriously at the meanings of clothing choices, extending far beyond the political values and controversies assigned to veiling in, say, Europe or parts of the United States. The author is associate professor of philosophy and religion at Northeastern. **Tokyo Boogie-Woogie: Japan's Pop Era and Its Discontents**, by Hiromu Nagahara, Ph.D. '11 (Harvard, \$35), examines a genre, and era, and Japan's postwar transition into a middle-class, consumer society.

gapore, and show a global system that's also local and premised on being decentralized."

"In the second book," Older continues, "I was able to get more into rural places that are less important from the perspective of a global election, but still really interesting to me in terms of how they deal with micro-democracy." In resource-poor rural regions like western Sudan, geography—and not just the size of the voting population—still matters, she points out; as a result, groups clash over territory and destabilize the larger system. Today's developing countries are still poorly networked and skeptical of tying their fates to a new global order; old religious and geopolitical allegiances still basically hold. At bottom, though, her series seems less interested in modeling a dystopia, or promoting some fixed ideology, than in observing the

Instead of relying on cyberpunk's heavily urbanized landscape, Older's writing is informed by the full breadth of her experience abroad.

clash of the characters' worldviews. In one pointed scene, when an Information agent investigating Al-Jabali's murder asks his mistress why he'd never taken her as a second wife, she replies, "He didn't marry me because I wouldn't marry him." In the other woman's smile, Older writes, the agent "detects a little *And they say these foreign women are so liberal* smugness."

"Narrative disorder is certainly something that I myself suffer from," the author says. To counteract the impulse in her work,

and avoid clinging to genre conventions, she mostly doesn't plan the plots of her novels. As for the rest: "The way I plan my life is kind of the same deal," she jokes—though now that she's living in Washington, D.C., raising two children, and finishing a Ph.D. from the Institut d'Études Politiques de Paris, Older's life has become more settled. About two-thirds finished with what will (probably) be the final book in the series, she admits, "I still don't know a lot of what's going to happen. Maybe don't tell my editor that."

The Shadow in the Garden, by James Atlas '71 (Pantheon, \$28.95). The biographer (Saul Bellow, Delmore Schwartz) and publisher of biographies now delivers "A Biographer's Tale" (the subtitle) on his own life's path. Fittingly, he writes of Edmund Wilson, "I wonder if it might have been the hybrid of biographical and autobiographical portraiture—the fugitive presence of the writer in the writing—that I admired."

Paris in the Present Tense (Overlook, \$28.95) is the new novel by Mark Helprin '69, A.M. '72, who was memorably profiled in "Literary Warrior" in these pages (May-June 2005, page 38).

The First Serious Optimist, by Ian Kumeakawa (Princeton, \$35). The author, a doctoral candidate in economic history, delivers an intellectual biography of A.C. Pigou, bringing the British economist out of the shadow of Keynes and focusing attention on the origins of welfare economics, ideas such as spillovers and externalities, and measures like a carbon tax to address the latter.

Poetic trio. Farrar, Straus and Giroux has published **Half-light: Collected Poems 1965-2016**, by Frank Bidart, A.M. '67 (\$35), including a new grouping, *Thirst*, in which the subject is increasingly the poet himself. **The Surveyors** (Knopf, \$27) is a new group of poems by Mary Jo Salter '76, who sees much in life anew, like the narrator of

"Bratislava": ("So I'm still alive and now I'm in Bratislava./...That's funny. I'd assumed my travel companion/through life would be my husband..."). Tom Jones '63—former human-rights lawyer and teacher, now poet and photographer—has gathered some of the latter work in **Beyond Existentialism** (FootHills, \$20); classmates from his decade may feel viscerally the opening of a poem from Vietnam: "Eleven months and seven days/as a grunt in the jungle/feet rotting..."

Ways of seeing. **Chromaphilia: The Story of Color in Art**, by Stella Paul '77 (Phaidon, \$49.95), is a breathtaking survey of materials and colors (separate chapters for each) in art, by a former chief exhibitions educator at the Met. **From Photon to Neuron: Light, Imaging, Vision**, by Philip Nelson, Ph.D. '84 (Princeton, \$49.50 paper), based on a course by the University of Pennsylvania physicist, joins physics and neuroscience—a suggestion of the interdisciplinary gaps and opportunities just within the sciences. Combining the



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The artist as master colorist: Henri Matisse, *Woman with a Hat (Femme au Chapeau)*, 1905

two volumes implies further gains from collaborations between sciences and humanities, for those with the skill to understand—and then to translate for curious civilians.

Always Leaning Into Wrongdoing

Stephen Greenblatt's reading of Adam and Eve

by ELIZABETH STOKER BRUENIG

WHO are we, really? Stephen Greenblatt's latest foray into that question opens on Hawaii's Big Island, in the midst of a volcanic eruption. "You can feel that you are present at the origin of the world," he writes. This raises a perplexing question: What would you be at the origin of the world? Before society, religion, culture, community, or conventional wisdom came to tell you about yourself—if you, instead, simply sprang complete from the earth, what would you have in common with who you are right this moment? And would that primordial, unformed *you* reflect something essential about you—your truest self, perhaps—or merely something unformed?

In *The Rise and Fall of Adam and Eve*, the Coogan University Professor provides an exploration of these questions through the literary and artistic history of the Abrahamic tradition's first parents.

The kind of creature humans essentially are helps decide what shape history will take. If we are essentially corrupt, then history must always have been a record of stumbles and failures, with the occasional remarkable victory; if we are essentially good, then our learning and wisdom should mount over time and history should reflect this steady improvement; if we *were* at one time good and then became corrupt, we should be able to detect both a hinge when things changed and, perhaps, an eschatological hope. All of these possible ac-

count are explored in Greenblatt's book, except, perhaps, the last segment of the final option. Greenblatt's own view emerges in the shape of his narrative. He begins with ancient Babylon, where the grand city's occupants gathered each new year at the temple of the god Marduk to listen to the *Enuma Elish*, their own creation myth—the one, in Greenblatt's telling, that Babylon's captive Jews authored the tale of Adam and Eve to negate. The author is taken with the *Enuma Elish*: in its tale of original sex, rage, and murder, "life, with its energy and noise, had triumphed over sleep and silence." So, too, is he taken with the *Epic of Gilgamesh*, another of Babylon's foundational stories he views as a likely source text for later Hebrew myths. In *Gilgamesh*, Greenblatt writes, we find "a tale of joyous sexual initiation; a gradual ascent from wildness to civility; a celebration of the city as the great good place; a difficult, reluctant acceptance of mortality; above all, a life that has at its center the experience not of marriage and family but of deep same-sex friendship."

One can hear Greenblatt's sigh when he recounts that, despite the beauty of these Mesopotamian myths, we did not receive them as part of our cultural endowment. "Instead, we inherited Genesis."

After skimming over some of the text's earliest Jewish and Christian interpreters, Greenblatt arrives at one of his book's handful of focal points: Augustine of Hippo, the Roman rhetorician who famously gave up his life of license to become a Christian, benighted by the hectoring puritanism of his mother, Monica—at least, in Greenblatt's recitation. Longtime readers of Augustine might find little recognizable in Greenblatt's rendering of either the man or his theology; there's more than a whiff of bizarre incestuous desire projected onto the future saint's relationship with Monica, and a number of questionable theological positions are attributed to him that an expert might quibble with. (Greenblatt ascribes much more sub-

stance to evil than Augustine did, for example.) Nevertheless, it is in Augustine's hands, per Greenblatt, that the tale of Adam and Eve transforms from allegory into literal truth, and the fall becomes the font of original sin. Where humanity's earliest stories had once celebrated sex and civility, the Edenic tale post-Augustine held sex in low esteem (thanks, Greenblatt argues, to Augustine's own struggles with chastity) and valorized a state of original innocence in which humans were, body and mind, free of lusty desires.

Next comes a fascinating lineage of artistic depictions of Adam and Eve, spanning their earliest illustration through the Renaissance. Greenblatt then deposits readers in the early modern era, in the midst of the unhappy first marriage of English poet John Milton. Milton's marital strife expressed itself in a number of pamphlets in favor of no-fault divorce, and eventually in the idyllic marriage imagined for the prelapsarian Adam and Eve in Milton's epic poem *Paradise Lost*. In *Paradise*,



The world's most famous fruit-plucking: detail from Hugo van der Goes, *The Fall* (after 1479)

The Rise and Fall of Adam and Eve, by Stephen Greenblatt (W.W. Norton, \$27.95)

view emerges in the shape of his narrative. He begins with ancient Babylon, where the grand city's occupants gathered each new year at the temple of the god Marduk to listen to the *Enuma Elish*, their own creation myth—the one, in Greenblatt's telling, that Babylon's captive Jews authored the tale of Adam and Eve to

Greenblatt finds Milton imbuing the primordial pair with a fleshy realism Augustine's literal reading had lacked, and returning to them the voluptuous sexuality the Bishop of Hippo had denied them: "Milton insisted," he writes, that "Adam and Eve in Paradise had spectacularly good sex." At the poem's close, Greenblatt finds the pair "liberate[d] from the story that gave them birth," with, as Milton writes, "the world...all before them."

Thus Milton rescued Adam and Eve from the admittedly Catholic clutches of Augustine, where they had spent more than a thousand years without the barest glimmer of the enchanted, pastoral pleasure their English benefactor would endow them with. But their journey, for Greenblatt, does not end there. He skims through the age of exploration and further on into modernity, monitoring signs of "the drift toward make-believe," the point where Adam and Eve ceased to be historical figures and became, at least to the cultured elite, simply symbols: "In the wake of the Enlightenment, there were too many contradictions in the origin story, too many violations of plausibility, too many awkward ethical questions to make it any longer comfortable to insist on a literal interpretation."

Here, Greenblatt introduces the last of his characters: Charles Darwin. It's with *The Descent of Man*, published in 1871, that the last claim Adam and Eve might have laid upon historical reality finally dissolves, replaced by the sturdier stuff of scientific theory. In the book's final chapter, Greenblatt visits a chimpanzee sanctuary in Uganda's Kibale National Park, on the lookout for a glimpse of Adam and Eve as they truly might've been: our first parents, linked to us not by a direct lineage or by a shared moral conscience, but by our primate DNA.

In the primeval African forest, Greenblatt discovers death and affection, joy and wonder, life unmolested by guilt or anxiety. "We should be forever grateful to them," he writes of the apes, "they enable us to see for ourselves what it would have been like to live without the knowledge of good and evil, just as they live without shame and without understanding that they are destined to die. They are still in Paradise." The book closes with two chimpanzees, a male and a female, sneaking off to mate. Greenblatt graces them with the lines Milton gave Adam and Eve, finally realized: "the world was all before them."

FOLLOW THE ARC of history as laid out in Greenblatt's account of this ancient tale,

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and you will find that we begin on a high note, with the *Enuma Elish* and *Gilgamesh* and their happy fecundity and unabashed, vivacious humanness; then we pass into the dreary clutches of Augustine and the medievals; we are freed somewhat in Milton, whose greatest credit, in Greenblatt's telling, is his Renaissance-inflected humanism; and then altogether delivered in Darwin and the apes, who return us almost to the Babylonian steppe, where violence and sex and hierarchy were simply facts of life, neither over-theorized nor laden with medieval Christianity's legacy of shame. This is the view of history one might expect Greenblatt to take, given his past work. In *The Swerve*, for example (see "Swerves," July-August 2011, page 8), he credits the Renaissance rediscovery of Epicurean philosopher Lucretius with the foundation of modernity—and Lucretius held that initial fertility and glory preceded a long period of gradual degenera-

tion. The Renaissance represents a return to that golden-age style of pagan humanism, continued in certain sectors of modernity.

But I wonder if the story is really so simple. Greenblatt allows praise for the "leveling power that is always latent in the Adam and Eve story"—that is, for the radical potential inherent in the fact that all humankind shares a single set of parents. But what of the radical potential inherent in *Augustine's* reading of Adam and Eve? In *The City of God*, Augustine writes that "[God] did not intend that His rational creature, who was made in His image, should have dominion over anything but the irrational creation—not man over man, but man over the beasts. And hence the righteous men in primitive times were made shepherds of cattle rather than kings of men." Coercive governance and hierarchy enter into the world as a result of sin; but what is natural to humankind is equality, common holding of lands

and goods, and peace—as the fourteenth-century Lollard priest John Ball famously quipped, "When Adam delved and Eve span/Who was then a gentleman?"

This was the dominant mode of reading the political meaning of Eden up until the early modern period—just when things start getting good, by Greenblatt's lights. Yet it was early modern political theorists like Thomas Hobbes and John Locke who, in their own analyses of the Adam and Eve story, found it most expedient to elide any difference whatsoever between pre- and postlapsarian states. For Hobbes, eliminating the distinction between "the way things are and the way things ought to be" was a handy way to vitiate Christian impetus for rebellion against tyranny; for Locke, arguing that "unremitting toil, inequality and the enclosure of the commons is not a symptom of the Fall, but simply the way God and Nature have arranged to make best use of the creation" was, likewise, a way to tamp down good Christian reasons for rebelling against various abuses, especially of the poor. That it was these early modern thinkers who seemed so intent on undercutting the radical political potential of Adam and Eve suggests Augustine may not have been so old-fashioned after all—or at least that the historical narrative laid out here is more complicated than it may seem at first glance.

Who are we, really? In Augustine's view, human beings are bent toward sin but *intended* for something better, always leaning into wrongdoing, but made for the good and right. There's something compelling in that narrative: it speaks to the daily struggle any person wages against selfishness and narcissism, and grants a noble heritage to the goodness in all of us. Perhaps more importantly, it counts the good in us as more real than the evil; our goodness is what is human in us, and our evil is what eats away at that.

Greenblatt's view necessitates a rather darker reading of Augustine and his medieval inheritors than this, and perhaps a rather lighter reading of those ancient Mesopotamian myths than a strictly consistent hermeneutic would produce. His vision of the essential human is of a being built for thought and for pleasure, however flawed, and his book is much the same. ▢

Elizabeth Stoker Bruenig is an editor at The Washington Post and an essayist on Christianity and politics.

Chapter & Verse

Correspondence on not-so-famous lost words

Jeffrey Tigay hopes someone can provide the source of an anecdote involving a Latin correspondence between Catherine the Great and Voltaire (or another Enlightenment figure) in which the two competed to see who could write more concisely. Eventually one sent a one-word letter, possibly *rusticabo* (I shall go to the country). The other won the day, though, by replying with a single letter, *i* (Go!—the imperative of ire).

Wayles Brown asks whether William S. Gilbert was thinking of a real example of a public figure changing nationality when he penned the *H.M.S. Pinafore* lines "For in spite of all temptations / To belong to other nations / He remains an Englishman!" "Some of the motifs in *Pinafore*," Brown writes, "are known to be based on current events of 1877-1878, such as the choice of W.H. Smith, the non-sea-going bookseller and stationer to be First Lord of the Admiralty."

"When the action gets heavy, keep the rhetoric cool" (July-August). Jim Henle identified this advice from Presi-

dent Richard M. Nixon, in response to a question about then vice president Spiro Agnew during a press conference on May 8, 1970. According to the American Presidency Project™ transcript, Nixon said, "I would hope that all the members of this administration would have in mind the fact, a rule that I have always had, and it is a very simple one: When the action is hot, keep the rhetoric cool."

"the boredom of living" (July-August). Dan Rosenberg was the first to identify this assertion by Samuel Beckett. It appears—in a passage about the dangers and mysteries of transitional periods during a person's life—in the essay "Proust," printed in various editions of the book *Proust and Three Dialogues with Georges Duthuit*. Such periods, Beckett writes, are "perilous zones...when for a moment the boredom of living is replaced by the suffering of being."

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



James Coe



Coe's backyard and frog pond are worthy of their own *plein air* paintings. Above: Two paintings of the same Cape Cod scene, *Salt Marsh Spring* (2017) and *Salt Marsh Plovers* (2013), reveal his dogged efforts to get it "just right."

ALUMNI

The Call of the Creeks

Rendering landscapes and birds—precisely

by NELL PORTER BROWN

HUDSON VALLEY artist James Coe '79 enjoys tromping through "mucky, smelly, low-tide salt marshes." A 2011 visit to the one at Mass Audubon's Wellfleet Bay Wildlife Sanctuary on Cape Cod spawned a series of studies and oil paintings, the latest of which, *Salt Marsh Spring*, is on display from September 9 through November 26 at the prestigious *Birds in Art* 2017 show at the Leigh Yawkey Woodson Art Museum, in Wausau, Wisconsin.

Salt Marsh Spring offers a close look at a continuous tidal channel (reflecting pockets of blue sky) meandering through muddy banks and clumps of straw-colored coastal grasses. After working on it for nearly four

years, Coe finally felt he'd rightly captured "the rich textural feel, to evoke the smell of the marshes"—and figured out which bird to put where.

Coe studied ornithology at Harvard, then spent 15 years as a field-guide illustrator before freeing himself to do the more spontaneous, *plein air* landscapes for which he is also now known. Once he discovered the joys of immediately channeling nature onto canvas, he painted constantly, and has produced about 850 works since making the switch in 2000.

Birds now appear on his canvases less as party crashers than as invited cameos. Standing outside his 1860 farmhouse in rural Hannacroix, New York, he points out red-

eyed vireos whistling in the woods, and "a family of chattering wrens in the bushes." And there's a common yellowthroat. Catbirds. Orioles. Within 20 minutes, in the yard alone, seven species appear, or call out. That "sweet tinkling warble?" A goldfinch. He pauses, listening. "Hear that flute-like trill, spiraling down the scale? It's wonderful. That's a veery. We get them every year.

"Even though birds are not the focus of my painting anymore, I still get a thrill seeing them," he says. "In fact, I like them better now than when I was doing the bird illustrations," he adds, "because then, they used to torture me. I'd be going to bed at night obsessing about it, maybe about a bird's toes I had been trying to draw that day, and how I could fix them."

For *Salt Marsh Spring*, Coe specifically wanted a subtle-looking species native to that habitat to provide a focal point and a sense of movement. He made a Wellfleet tidal marsh painting with three brown-speckled least sandpipers, but they were too obscure; "Is this a 'Where's Waldo' painting?" a gallery owner asked. Then he spent an entire summer trying out different wading birds. *Willet Study. Composition with Plovers*.



Clockwise from top left: Coe's Hudson Valley studio; *Flats Reflections Study* (2016); for *Beaver Swamp Haze* (2010), Coe reports, "The weathered skeletons and downed trees...seemed to call for the ghostly figure of an egret"; and *Magpie* (2015)

A greater yellowlegs won out. The elegant, white-breasted bird with spindly trademark gams offered dabs of eye-catching color and "is large enough to be seen, but doesn't dominate," he says. It flies low over the water, leading the viewer's eye across the coastal landscape toward an unseen horizon.

It was also among the first birds Coe ever identified when as a 13-year-old he began roaming the reeds and muddy slopes of Long Island Sound. He and an equally obsessed friend would bike a mile from their homes in Larchmont to search for birds. Excitement at finding them turned into drawing them—meticulously copying the work of prominent artists like Roger Tory Peterson and Don Richard Eckelberry.

This patience and particularity has routinely garnered Coe guide-book commissions, numerous awards, gallery shows, and museum exhibitions during the last 30 years. He's followed not only by bird-art enthusiasts around the globe—a larger group than

one would suspect—but by those enamored of landscapes. This fall, his work is also part of the fifty-seventh annual Society of Animal Artists exhibition at the Hiram Blauvelt Art Museum, in Oradell, New Jersey, and can be seen at the Bennington Center for the Arts, in Vermont.

Coe's recent oil paintings were shown in a solo exhibition, *Birdscapes*, at the Museum of American Bird Art, in Canton, Massachusetts, this past spring. Director Amy Montague first knew him as the author and illustrator of the field guide, *Eastern Birds* (1994), and was amazed that his later oil works, "those loose, painterly compositions," were by the same hand, as she wrote in the show's catalog: "Who was this person who seemed to be so many things: author, illustrator, naturalist, painter—and who was so successful in such different realms?" The Coe painting that Montague herself owns, *Autumn Mood* (2000-2002), is of a simple wetlands scene near his house. It hangs over the mantelpiece in her living room and, she says, "depending on where I stand and the color and intensity of the light, my perception of the painting changes dramatically."

Autumn Mood and *Salt Marsh Spring* aside, most of Coe's works depict wider, realist

views of the natural world. He has traveled to Texas and Utah to capture desert landscapes and red rocks, and this spring joined a group of artists painting the Dead Sea in Israel for the Netherlands-based Artists for Nature Foundation. But he tends to paint what's in and around the Hudson Valley: gentle subjects throughout the seasons—streams, woodland creeks, meadows, tree lines amid sunsets or moody skies—along with the farms, barns, and croplands scattered along quiet country roads.

Since 1987, Coe and his wife, Karen Scharff '79, executive director of Citizen Action of New York, in Albany, have lived in the old house on 17 acres, most of it woods. The walls are chock-full of artwork by friends and other artists he admires; he's generous with praise, talks openly about his own creative challenges, and often runs classes or workshops where he encourages aspiring painters. But the stairway leading to his second-floor home studio, which overlooks a pond dug in 1996, doubles as a gallery for his own work.

The majestic Hudson River is a 20-minute drive away. Coe frequents a shoreline park in early summer to lead a weekly painting group, or to watch an eagle's nest, but shies away from tackling the scene himself. "It's too broad, too open, almost too panoramic," he says. Instead, he's drawn, again, to a long

view of the park's tidal estuary, where trees' tangled branches cast shadows on greenish-brown water.

Often, he'll step out his front door and walk a mile and a half to West Medway Creek, which he's probably painted more than 60 times. It changes throughout the seasons, but also, he says, thanks to beavers that dam it up, and take down trees: "The place looks different every time I come."

Like *Salt Marsh Spring*, his West Medway Creek paintings take time. Coe typically paints in oil and does many full versions of the landscapes he's rendering, sometimes layering on the paints, lopping off parts of the canvas, and re-stretching it, when "other artists would say, 'I'm moving on,' or just send it out with, 'It's good enough,'" he says. "I stick with paintings for years until they are done. I'm very stubborn."

The perfectionism probably stems from the field-guide illustrations, which had to be "just right." But Coe is also exacting because he *knows* what's right, and respects the integrity of nature. After a boyhood of bird-watching, he landed at Harvard intent on becoming an ornithologist. He concentrated in biology, but took an increasing number of studio art classes during his last two years. Breaks from academic pressures meant trolling through the collections at the Museum of Comparative Zoology (MCZ), or during the spring, waking at 6 A.M. and biking to Mount Auburn Cemetery to watch scores of species migrating through.

Always, in the back of his mind, was the coupling of science and art: "I had an odd combination of interests, but I knew I was not alone. There were people out there who could make a living painting birds"—among them Don Richard Eckelberry, best known for illustrating Richard Plough's *Audubon Bird Guide* (1946), whom Coe met as a high-schooler and thinks of as a mentor.

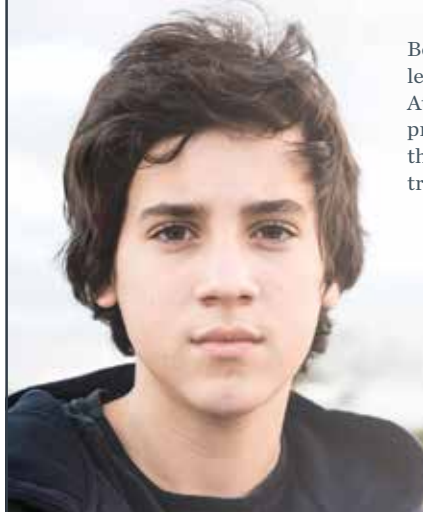
After graduation, Coe worked as a night manager at Wordsworth Bookstore so he could paint during the day. "Even then I had two strains going," he says: "large paintings of birds and a series of *en plein air* studies of overpasses and train tracks and industrial sites around Somerville, where I lived."

Through his Harvard adviser, he was soon hired to create some of the illustrations for the pioneering *Birds of New Guinea*, by Bruce Beehler, Thane Pratt, and Dale Zimmerman. Lacking photographs of most of the species, he used the MCZ's collection to research specimens. Seeking a better grounding in



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2008 Alumni survey - Opinion Dynamics

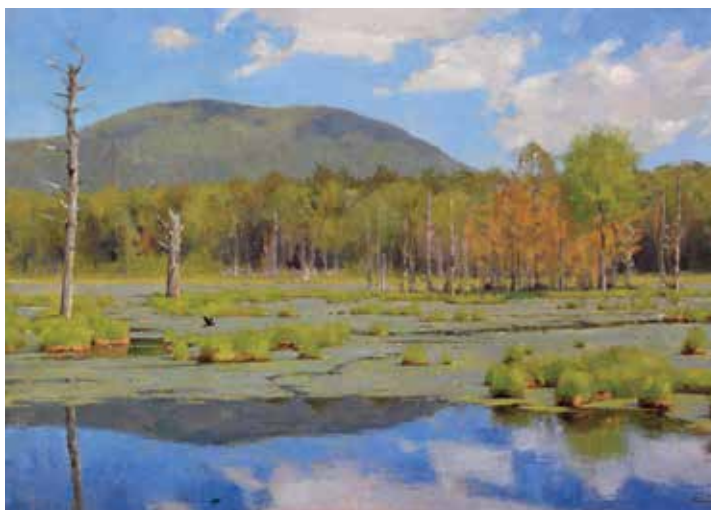
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March Evening, Study (2016), above, an oil on paper; One Morning in June (2012), at right, shows a red-winged blackbird.

art, he moved back to New York to attend Parsons School of Design in the fall of 1981.

HISTORICALLY, as soon as field-guide publishers could reproduce illustrations of birds, they did. One of the earliest American primers, Florence A. Merriam's *Birds Through*



an Opera-Glass (1889), featured etchings, and Frank Chapman, arguably the most important figure of early field guides, published his *Birds of Eastern North America* in 1895 with some full-color plates.

Nature photography was on the rise even

comprehensive and “wildly popular” book to use photography, he notes—but the pictures were stacked three to a page, and were not as easily understandable as illustrations. There’s still a good argument for the illustrated art form, he says: “As an artist, I can

then, although it would be decades before single-lens reflex cameras were in wide use, Coe notes; the arrival of telephotos with auto-focus capability, and of technology enabling ornithologists to digitally manipulate bird images, took even longer. The *Audubon Society Field Guide to North American Birds* (1977) was the first

The HAA’s “Diverse Alumni Family”

“It’s great to learn something new every day,” says Susan Morris Novick ’85, the new president of the Harvard Alumni Association (HAA). “Harvard has always been a great place to do that, and it is one of many reasons that I keep coming back.”

The Long Island native began her one-year term in July, following 25 years of volunteer service to the University. Novick has been an alumni interviewer and president of the Harvard Club of Long Island, then was appointed to the HAA’s board of directors a decade ago, and spent the past few years on its executive committee. From 2010 to 2014, Novick also co-chaired the

HAA’s continuing education committee, and enjoyed exploring “the wealth of online learning materials available to alumni,” such as HarvardX.

Although she concentrated in history and literature as an undergraduate, her favorite course was in the sciences. Agassiz professor of zoology Stephen Jay Gould’s “History of Earth and of Life,” she reports, transformed “the scientific origins of life into one of the greatest stories ever told.” Outside class, she worked on productions at the then-recently founded American Repertory Theater. She has spent most of her career as a freelance journalist, focusing on food and the arts, notably for *The New York Times*. More recently, she joined the financial industry as a portfolio manager.

In her new role at Harvard, Novick spoke at Class Day in May, sharing the Tercentenary Theatre stage with her daughter, Olivia ’17, a member of the senior class committee. (Novick’s son, Myles ’15, was already within the ranks of the HAA’s more than 300,000 constituents.) She urged the imminent alumni to “Stay grateful. Stay connected. Stay engaged.”

“I feel more connected to Harvard now than I did when I was a student because although Harvard’s footprint is here in Cambridge, the Harvard community is global,” she said, evidenced by upcoming HAA conferences in Nicaragua, Portugal, and India, where alumni “share a coming-of-age story that began right here in Harvard Yard, with common values and common interests, before they began to shape their communities, and the world. Tomorrow, you and your classmates will be welcomed into this diverse alumni family.” She left them with the HAA’s “new, unofficial motto”: *Veritas, ubiquitas, aeternitas*.

—N.P.B.



Susan Morris Novick

After spending one afternoon outside painting a “commanding view” of the Hudson River, Coe “was totally smitten.”

decide how many birds go on a page, the sequence, how they’re going to be positioned, so that your eye goes from species to species and understands which are the young ones, how they mature, and why they’re paired.” Moreover, field photography is much less consistent than artists’ drawings can be—in terms of lighting, poses, angles, and context. Coe can assemble and present images and text that enable viewers to “understand, just by looking, what the information is.”

While at Parsons, in 1983, Coe took a semester off to complete a lucrative commission for *The Audubon Society Master Guide to Birding*, a three-volume set by John Farrand. In 1986, he was offered a contract to write and illustrate his own companion set, on the *Eastern Birds* and *Western Birds* of America. By then, he and Scharff were about to get married (they met in sixth grade and were at Harvard together, but started dating only after graduation) and move from Brooklyn to Hannacroix, because Scharff had moved Citizen Action’s main office to the state capital.

There, a four-year project to complete both bird books stretched into seven, and produced only one. Coe and Scharff were busy fixing up the farmhouse, and their son, Jonah, was born in 1992. “I didn’t realize you had to pay attention to deadlines—you don’t think that way when you’re 30,” says Coe, pausing. “Maybe some people did, but I didn’t, and I was very determined that this was going to be my legacy. I wanted it to be a really good book.”

Eastern Birds was released in 1994, and remains a solid go-to for learning birders, even though it went out of print in 2012. The illustrations are biologically accurate—and really beautiful. The birds are arranged taxonomically, and within their natural habitats—the water-colored background landscapes are also by Coe.

“There’s nothing spontaneous about painting like this,” he says. More design than art, each plate had to be carefully planned, each step in the process precisely executed. “It’s so technical and I like doing it, and I’m quite good at it. A number of people have told me these are among the better plates that have been done of American birds,” he says. “But the time and the focus that go into it aren’t fully appreciated by the publisher, or the au-

thors, and it’s definitely not paid for the time it takes.”

Coe was halfway through the scheduled companion *Western Birds* when, within 14 months in 1995-1997, both his parents and his grandfather died, his daughter, Rachel, was born, and his publisher, Golden, was struggling financially. “Everything happened at once,” he recalls. “Looking back on those years, I see them as an early mid-life crisis. I burned out.” Already the primary caregiver at home, he focused on settling his parents’ estate and his own young family, and stopped making art for nearly three years.

On a summer day in 2000, he went to Olana. The former home of American landscape painter and Hudson River School progenitor Frederick Church, it is now a museum and educational center. Coe had dropped his son at a day-camp session there, and even though he hadn’t painted landscapes in oil since moving upstate, had brought along supplies, figuring he’d occupy himself instead of driving home and back. He set up an easel behind the house and painted “that commanding view of the Hudson River facing south,” he recalls. “And in one afternoon, I was totally smitten.”

That painting, and several others, sold at his first show the following year, convincing him that his new artistic career might succeed. Then he was offered his first exhibit at the Museum of American Bird Art, *Finding a Place for Birds*. For several years he painted outdoors almost exclusively, then discovered that by bringing his works into the studio, a more controlled environment, “I could make better paintings,” he says, laughing. Yet the “inspiration for every painting [still] comes from being outside,” he adds—“seeing the evocative lighting effect, or a charming motif, or getting a great look at a particular bird.”

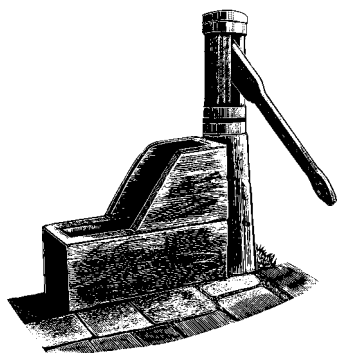


Coe advises a student capturing boats on the Hudson River; his own version is below.

Out by the pond on a late sunny afternoon, the green frogs are making their guttural “banjo twangs,” as Coe calls them. “And there’s a pileated woodpecker,” he says, raising his binoculars. “It has that red crest. In the winter, they’ll come right into the yard. Now they’re making that drumming sound”—not for food, but to claim territory. Three birdhouses at the edge of the lawn are for house wrens, tree swallows, and bluebirds. These species typically nest from April through July; Coe considers them, and all the birds that migrate through his yard, “returning friends.”

Bluebirds are a particular favorite. “That amazing blue on their backs. Their cheery and wonderful warbling song, more like a murmur,” he says. “When I was a kid, bluebirds were rare. They were at the top of my list, and it took me years to finally find one.” He watches as a playful pair pass by, dart among the leaves, then perch on the branch of a catalpa tree to sing. Perhaps he’ll paint them, too. ▢

Funny—and Afire



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

MATTHEW Browne '17 recently walked readers through a new form of collegiate humor ("Our Memes, Ourselves," July-August, page 29). But old-fashioned student satire about Crimson inanities thrives, too—at satirev.org. (Read it backwards.)

Among its recent Twitter gems: "Drew Faust Asks All 22,000 Harvard Students to Endorse Her 'Leadership' Skill on LinkedIn," after her retirement announcement (see page 14), and a shot of Facebook's CEO at Commencement (a twofer: the honorand, and the College's general-education program).

Worthwhile features have included "Résumé Absolutely Cannot Fit Onto Less Than Four Pages, Freshman Informs Adviser" ("Did I fund an entire orphanage in rural Estonia to fill ONE PAGE?" asks the irate advisee) and "Entire History of Race and Gender in the United States Covered in 4-5 Page Final Paper" ("Even though she banged out her essay in a night, Parsons apparently managed to contextualize slavery, the Civil War, Reconstruction, female suffrage, women's roles in World War II, the Civil Rights

era, all three waves of feminist thought, police brutality, and the 2016 election in just under 2,000 words"). Beyond pompous peers and the president, frequent targets include director of University Health Services Paul J. Barreira, executive vice president Katie Lapp, and College dean Rakesh Khurana—at least one of whom is a confessed, amused reader. Way to go, Satirists.



PRIMUS often steals good bits from the Memorial Minutes presented to the Faculty of Arts and Sciences: 1,000-word celebrations of the intellect and personality of a deceased colleague. On occasion, a Minute serves other purposes as well.

Gordon McKay professor of computer science Harry R. Lewis chaired the committee that memorialized Paul C. Martin, Van Vleck professor of pure and applied physics and dean of the then-division of engineering and applied sciences, presented on May 2. During the year, Lewis sharply criticized the College's proposed sanctioning of membership in final clubs; his Minute managed to play off both his subject's love of the place ("Martin once told a colleague that he had 'Harvard

tattooed on [his] chest,' which was not far from the truth") and how he, in Lewis's interpretation, helped lead it ("In Paul's Harvard...[c]ommittees existed not to ratify predetermined conclusions but to de-

velop recommendations that would survive logical and ethical scrutiny").

Politics aside, in purely human terms, "Paul's unfathomably deep devotion to Harvard's interests explained his legendary frugality. To spend a dollar of Harvard's money was to make a moral decision. Paul's assistant did not have assistants of her own, and a faculty lunch was one to which faculty brought their own sandwiches." Come to think of it, those last details, in refined Memorial Minute rhetoric, are political, too—directed with equal sting in all directions.



ON September 6, 1956, a fire destroyed Memorial Hall's clock tower; a color photograph captured the conflagration (see harvardmag.com/memhall-99). William Simon, Ph.D. '58, an emeritus professor at the University of Rochester Medical Center, and a fellow graduate student photographed the destruction. He recently published the images online, reporting that, as shown, firefighters "did not have enough pressure to reach the top of the tower," so "The clocks were gone." A thousand feet from the flames, "we could feel the heat on our faces." Simon conveyed the images to the magazine; we have deposited them at the University Archives. ~PRIMUS VI



Visit harvardmag.com to view additional images from the fire.



A Book by Its Cover

Embroidery fit for a prince

WHEN WE arrived at Houghton Library to study its collection of embroidered book bindings, we were prepared for a bit of a treasure hunt. Such bindings have not received much attention, but as needlework historians, we are used to doing research with little advance information.

Embroidered book bindings reached the peak of their popularity between 1550 and 1650. Made both professionally and domestically, these precious objects are relatively rare. They typically covered devotional texts such as psalters and bibles and were

handled daily, causing them to fall apart with wear. Embroidered books were also an integral part of the gift-giving culture, imparting a sense of respect and engendering gratitude and patronage.

When we called up item WKR 12.4.8, described as an embroidered book, we were taken aback: what we were handed was a leather-bound book with no needlework. Though disappointed, we dutifully documented our observations of the beautiful gilt tooling and delicate clasps. But as we handled and photographed the volume, we realized we had a box cleverly wrought to look like a book.

When we gently released the clasp and lifted the lid, our appreciative gasp was so audible in the reading room that other scholars came over to inquire, "What have you found?" The opened box revealed a real treasure: a book from the 1640s professionally embroidered with elaborate gold needlework. Our hunt had yielded a presentation Bible gifted to Prince Charles Stuart, later Charles II.

The book itself is in remarkably fine condition: a petite 7 by 4 inches covered with an intricate design worked in silver gilt thread (a silk core wrapped in silver that has been dipped in gold) and embellished with spangles. The needle-painted image of Charles is still vibrant and exquisitely detailed (note the delicate lace collar). The ship on the back

cover may be the *Prince Royal*, which was rebuilt in 1641.

We can date this piece to 1644-1646. The printer's mark on the frontispiece shows a printing date of 1644 and the exact fit of the embroidery indicates it was made specifically for this Bible. The image of Charles is strikingly similar to a painting by William Dobson dated 1642 or 1643, when the prince would have been 13; the portrait on the book shows a young man of the same age.

Judging by the minimal wear, this princely gift was rarely handled after its initial presentation and was either stored or regifted—a common practice even then.

—CHRISTY GORDON BATY and
ERIN HARVEY MOODY



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“David Birnbaum Cracks the Cosmic Code”

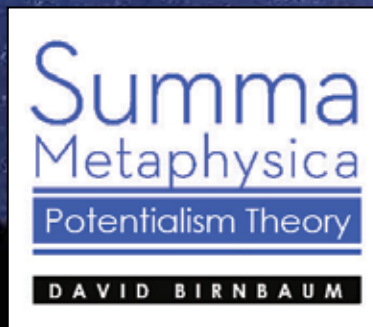
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