

Colloquy

The GRADUATE SCHOOL of ARTS AND SCIENCES | HARVARD UNIVERSITY



ACCESS TO ACADEMIA

How GSAS programs help level
the playing field in graduate studies,
academia, and beyond p. 12

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An alumni publication of Harvard University's
Graduate School of Arts and Sciences

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Cover illustration: Dante Terzigni

Facing image: A student folds pages for a hand-made journal during a January@GSAS class.
Photograph by Ben Gebo

Colloquy

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Colloquy is published three times a year by the Graduate School Alumni Association (GSAA). Governed by its Alumni Council, the GSAA represents and advances the interests of alumni of the Graduate School of Arts and Sciences through alumni events and publications.

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Colloquy does not print letters, but we welcome your feedback and story ideas. Write to: *Colloquy*, Harvard University Graduate School of Arts and Sciences, Suite 350, 1350 Massachusetts Avenue, Cambridge, MA 02138-3846; or e-mail gsaa@fas.harvard.edu.

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Colloquy is printed by PrintResource/DS Graphics.

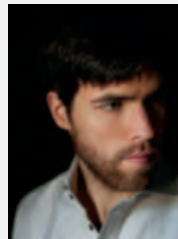
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Jonathan Calugi, who provided the illustration for “What’s the Alternative?” is a young illustrator hailing from Pistoia, Italy. His signature style at first appears to be a child-like doodling, but a closer look will reveal a world of intricate, carefully crafted patterns and eccentric geometric forms. As Jonathan puts it, “It’s like ‘Where’s Waldo?’ Each time you look, you can find a surprise.”



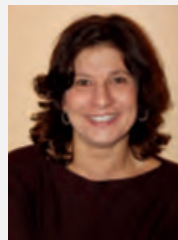
Emma Fedor is the staff assistant in the department of publications and alumni relations at GSAS, a post she has held for the past two years. She wrote this issue’s stories about January@GSAS courses. She also edits the Noted section of the magazine.



Ben Gebo is an editorial photographer working in Boston and New York. Meeting new people and hearing their stories are his main source of inspiration. His clients include Converse, Northeastern University, British Airways, Keurig, Deloitte, and *HDTV Magazine*. Follow his adventures at www.bengebo.com.

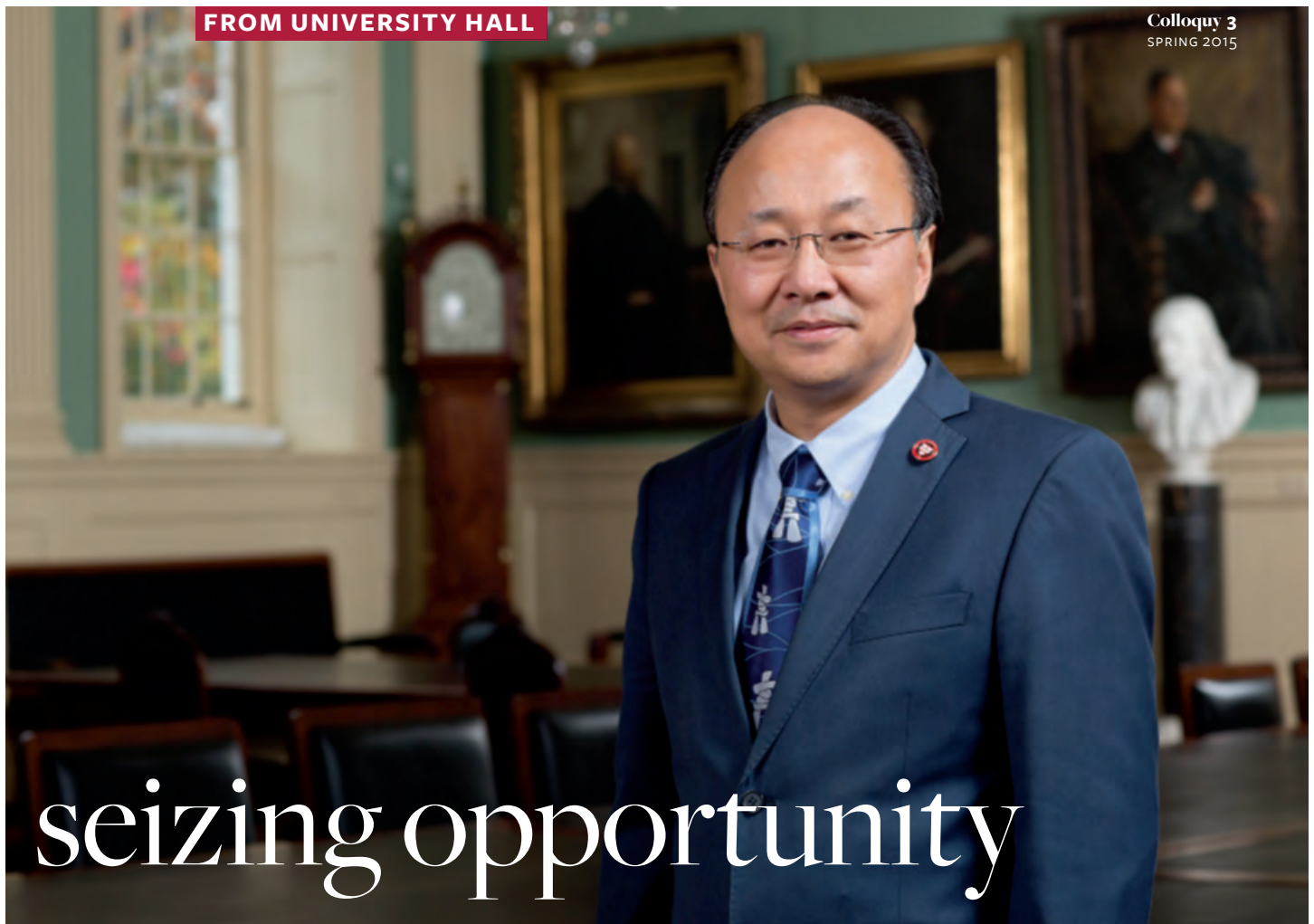


Dante Terzigni is an illustrator and designer based in Cleveland, Ohio, who has created art for a wide variety of national and international clients including IBM, American Airlines, and the *New York Times*. His illustrations are featured in the article “Access to Academia.”



Andrea L. Volpe, who wrote our article on idea-driven work beyond the academy, is a Cambridge writer who covers ideas, culture, the arts, and technology. Her work has appeared in *The New York Times*, *The Awl*, and *Cognoscenti*, among others.





seizing opportunity

At the Graduate School of Arts and Sciences, we are not just training future professors; we are training leaders who bring their talents wherever high-level skills are needed—in academia, industry, governments, the nonprofit world, and beyond. For this reason, the professional development of our students is one of our highest priorities.

This year, we are taking the lead among our peers by launching a new GSAS Professional Development initiative—a modest fund (\$2,500) to help cover the cost of professional development activities—which will be noted in the admission letter of every PhD student admitted for fall 2015. With this support, they will have the basic resources they need to participate on panels, deliver talks and papers, attend workshops or conferences to build essential skills, and participate in whatever activities that their PhD programs deem to be beneficial for their professional development. Through this new initiative and other programs, including Harvard Horizons (read about this year's Harvard Horizons Symposium on page 28), we are ensuring that our students have every opportunity to challenge themselves and increase their proficiency during their time at GSAS, so that they are better prepared to launch their careers after graduation.

By committing resources, GSAS is not only making certain that PhD students can take advantage of professional development opportunities as they arise but is also signaling the importance of cultivating these skills. Conference attendance and participation in particular are crucial

Xiao-Li Meng,
PhD '90, Dean,
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**The professional
development
of our students
is one of our
highest priorities.**

for them to present their work, network, participate in job talks, and form relationships that will benefit their careers. Departments and degree programs are eager to expand offerings to include travel, career “shadowing,” and writing workshops. I am excited that PhD candidates will now be able to take advantage of these opportunities without having to worry about the cost. I want to mention that the launch of this initiative is made possible thanks to the generosity of GSAS alumni, and we are now looking for additional contributions to make it sustainable. Any amount you can give to the Dean's Fund for Professional Development is highly appreciated.

Our graduate students seize opportunities to grow professionally within Harvard as well. They are uniquely placed to support faculty and undergraduates in equal measure as they learn and enhance the skills that will benefit them down the road. They collaborate with professors to advance cutting-edge research and develop new courses through Graduate Seminars in General Education (GSGEs) and Graduate Seminars in Undergraduate Education (GSUEs). They serve as teaching fellows, lab mentors, and House tutors in the College. These positions allow them to build professional experience that will serve them throughout their careers, wherever the future takes them.

Books come and go from Widener Library every day. Faculty, staff, and students casually stuff them into backpacks alongside notebooks, pens, packed lunches, and gym clothes. Coffee gets spilled and pages get ripped. These are but inevitable hardships in the life of the circulated book. We take what we need from them and send them back to their resting places in the library stacks, paying little attention to any damage we may have inflicted.

But down on Level D there's a team of specialists who care a great deal about these books—about their look, their feel, their construction, and their overall condition. Tasked with preserving and protecting Harvard's circulating collections, the staff of the Harvard Library Collections Care unit is dedicated to the art of restoration. It is a hospital, of sorts, for books in need of a little love.

In hopes of sharing their knowledge and exposing library-goers to the delicate intricacies of book construction, Kate Rich and Katherine Gray, both conservation technicians at Widener, led "Make Your Own Book," a hands-on, two-hour January@GSAS workshop geared toward graduate students.

Upon arrival to class, participants were welcomed to choose from a selection of delicate decorative papers for their book jackets, and thicker cardstock for the covers themselves. Waiting for them at their workstations were click knives, calipers, bone folders, darning needles, thread, paperweights, and textblocks—stacks of text-weight paper that, for the sake of time, had been pre-cut and pre-folded by Rich and Gray.

After a brief introduction on the importance of planning, precision, and paper selection, the students got started assembling their books, beginning by penciling out four evenly spaced sewing stations. After watching Rich demonstrate on an overhead projector, the novice binders were then instructed to draw their click knives down their pencil marks, creating neat slits through which to weave their needles and thread.

"Any good bookbinder will tell you that a well-sewn textbook is the foundation of a long lasting binding," Rich advised, encouraging students to work slowly and focus on the task at hand. The room fell quiet as busy fingers, many of which were handling a needle and thread for the very first time, worked to secure the bindings of what would soon be simple, handmade, non-adhesive books.

The process was not without its hiccups, as some struggled to direct, loop, and tighten their threads exactly as taught, but by the end of class all participants had successfully crafted their very own books, thus instilling them with a greater appreciation for the physical texts they rely on as scholars. Better still, for two whole hours, students were able to drown out the pressures of exams, teaching loads, paper deadlines, and job searches, to focus on something entirely tactile. And that, of course, is what January@GSAS is all about. ☺

THREADING BETWEEN THE LINES

30 UNDER THIRTY

In January, *Forbes* magazine presented its annual 30 under 30 listing of young game changers, movers, and makers. Included are three GSAS students (and six alumni, detailed in Noted on page 26) who personify the amazing work undertaken by our graduate students.

Evan Daugharthy, a PhD candidate in systems biology, helped develop a new technology called in situ sequencing, which allows researchers to detect single RNA molecules where they naturally reside—inside biological samples. “I’m currently in the process of extending this technology to detect other types of biomolecules, such as proteins and DNA,” Daugharthy says. “This is really exciting because it’s the first time researchers have been able to look inside cells and see thousands of different types of molecules at the same time.” In situ sequencing holds the potential to affect many different fields, including the study of development, neuroscience, and cancer. “For example, every tumor is different at the molecular level, having a unique pattern of single-cell cancer mutations, or infiltration of immune cells,” he explains. “In situ sequencing can detect this variation and find chinks in the tumor’s armor that a doctor can target with a specific drug.” This “personalized medicine” approach to cancer treatment may ultimately improve outcomes and reduce costs.

While winning the award was surprising, Daugharthy was pleased to be included. “I know several other people who have won this award and done really great things, so I was honored to join their ranks,” he shares. “It’s great that the *Forbes* editors and award committee recognize the potential of my research to influence the future of healthcare.”

Eran Hodis, an MD/PhD candidate in biophysics, studies how genetic mutations contribute to cancer, particularly melanomas. Working in the labs of Levi Garraway and Aviv Regev at the Broad Institute, Hodis investigates malignancy at the molecular level as he attempts to elucidate how a normal cell becomes cancerous. “This knowledge is interest-

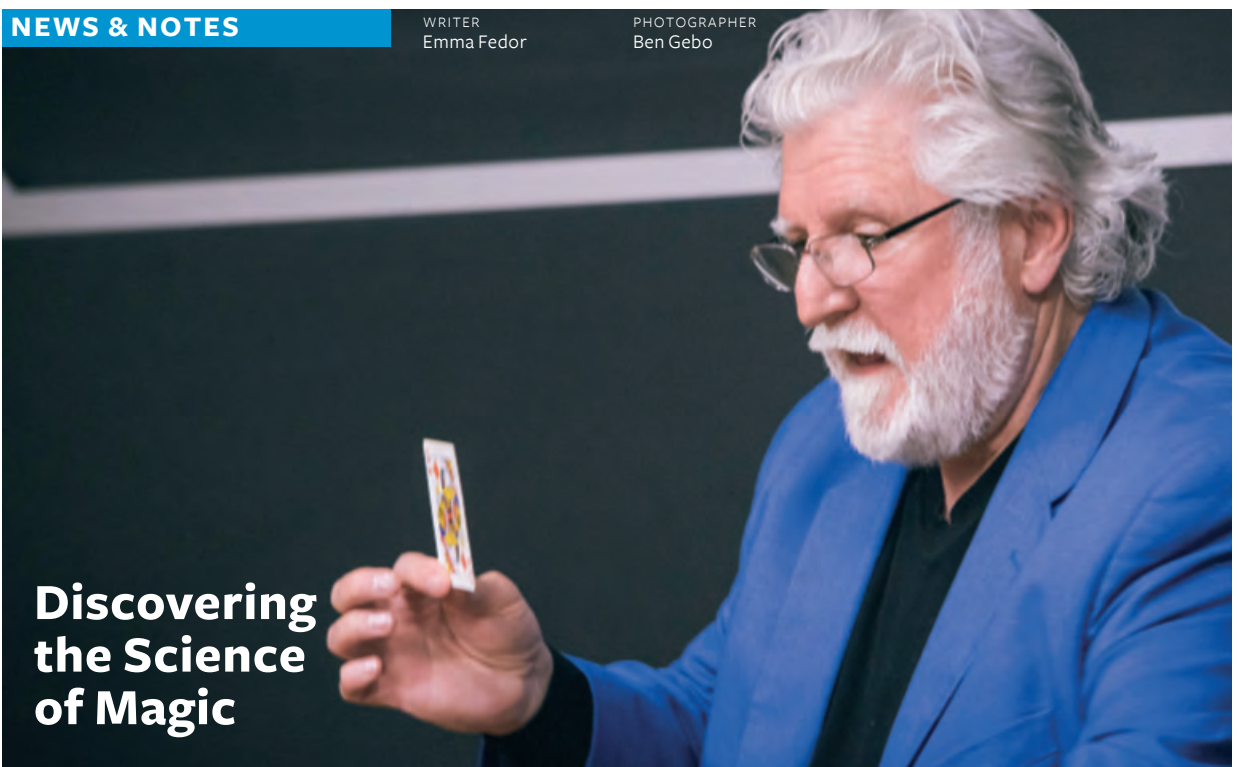
ing and valuable in its own right, but, crucially, molecular understanding of disease underpins our best efforts to discover effective treatments,” he says. “An important next question for us to ask, especially of the newly-discovered and poorly-understood mutations, is ‘How do various constellations of mutations act in concert to transform a normal cell into a cancer?’” Being named to the *Forbes* list as he attempts to shed additional light on this well-studied question is a great honor, but one Hodis knows is shared. “It always feels great to have your work recognized, especially in a public manner,” he says. “Being selected is recognition not only of my own efforts, but of the efforts of all of my colleagues and of the mentorship of my advisors.”

Though only 21, this is not **Sabrina Gonzalez Pasterski**’s first 30 under 30 award. As an MIT sophomore in 2012, she was named to *Scientific American*’s 30 under 30 list for her reputation as an up-and-coming physicist. Pasterski studies high energy theoretical physics, believing that it holds the potential to transform multidisciplinary fields. “I see no limit to what we can achieve and view the word ‘impossible’ as a challenge,” she says. “This kind of physics will create undreamed of advances that transform the way we live and the world we live in.”

Pasterski took her first flying lessons at age 9 and, a few years later, decided to build her own airplane, which she flew solo the summer she turned 16. Asked what it felt like to be named to the *Forbes* list, she said, “It feels awesome! Like sticking the landing on my first solo flight.”

Recently, Pasterski coauthored a paper with Andrew Strominger, the Gwili E. York Professor of Physics and director of Harvard’s Center for the Fundamental Laws of Nature, that proposes a new method for detecting the net effects of gravitational waves. Strominger has since moved Pasterski, as a second year graduate student, into “Mode 2,” where she is given the latitude to work without his direct supervision on any topic of her choosing with anyone she wishes. 🍷





Discovering the Science of Magic

Local magicians put on a show for the January@GSAS course “Con Men, Neuroscience, and Magic.”

Science and magic. The two don’t exactly go hand in hand. You’d be hard-pressed to find a serious scientist who believes that the magician pulling a rabbit out of his hat, for example, is able to do so through inexplicable, extraordinary forces. Scientists look for patterns, clues, and distinctions that can help demystify how and why specific processes occur. Science spoils the myth of magic. And yet it also allows for it.

“Good magicians never claim to do real magic,” says organismic and evolutionary biology scholar Ada Kaliszewska. “They claim to entertain.” And they are able to entertain—that is—to excite, mystify, and deceive—by taking advantage of scientific laws and techniques. It’s a relationship Kaliszewska, a practicing magician herself, explored in a January@GSAS mini-course she designed and taught called, “Con Men, Neuroscience, and Magic: How the World of Illusion Can Inform Our Understanding of Human Perception.”

Organized around discussion topics like “cognitive principles underlying magic,” and “camouflage, mimicry, and alarm signals in the real world and in magic,” the course highlighted the overlap between magic and science by engaging participants in mind-bending tricks and illusions and challenging them to determine how these gimmicks work. In short: How and why do we fall for it?

In many cases, the magician takes

advantage of a concept known as inattention blindness, the mind’s tendency to focus in on specific stimuli, making it blind to others in the same environment. The human brain is constantly barraged with innumerable stimuli—pictures, sounds, scents, etc. Networks of neurons process these stimuli and work with the brain to prioritize them, designating some as more important than others. Once the brain decides what to focus on, it then fills in the background in accordance with what we expect to see, and not necessarily with what’s actually there.

Kaliszewska demonstrated this concept by showing the class a video of a magician performing a card trick on a busy NYC sidewalk, challenging them to figure out how the card trick was done. Meanwhile, behind the magician in the video, were figures in silly animal suits, walking in and out of frame. But few, if any students, even noticed this, because they were so intent on understanding the card trick they’d been instructed to focus on. “It’s not that we don’t see these things,” says Kaliszewska, “we just fail to store it in our brain. And that’s how magicians can pull things over on you. They make you pay attention to something here in front of you, essentially blinding you to what’s happening in the background.”

Magicians may take advantage of the weaknesses in the brain as a means

of tricking or duping the audience, but most do so for the sake of fun and entertainment—to reinforce a childlike belief in magic. In contrast, when such tactics are utilized in nature it’s a matter of survival of the fittest. Creatures seize on the faults of one another in order to get ahead. Kaliszewska studies caterpillars, for example, that are able to manipulate their chemical scent and appearance so as to fool adult ants into thinking they are ant brood. Once in the ant nests, the freeloading caterpillars are fed by adult ants who think they are feeding their babies. It isn’t magic—the caterpillars aren’t spontaneously turning into baby ants—they are merely capitalizing off the ant’s flawed method of recognizing one of its own. But from the ant’s perspective, it might as well be magic.

“There’s so much that we can learn about science from magic, and magic from science,” says Kaliszewska. “The way you think about problems when you’re determining a magic trick or illusion, for example, is very much like the process of setting up a science experiment.” By the end of the course the message was clear: though seemingly disparate, science and magic simply couldn’t exist without each other. Whether it’s sending a man into outer space, curing disease, making cards disappear, or pulling a rabbit out of a hat, it is science that makes magic possible, and magic that inspires us to continue discovering. ♣

teaching success

The English Language Program helps non-native speaking students master communication

As the most international school at Harvard, GSAS enrolls students from all over the world. They arrive in Cambridge with varying levels of English language skills, all with the goal of settling into the American culture and reaching their maximum potential as scholars. Some may be prepared to interact in the American classroom, while others are invited to participate in pre-term programming designed to level the playing field by the first day of class.

To this end, GSAS and the Derek Bok Center for Teaching and Learning partner to offer the English Language Program (ELP), designed not just to help new students improve their English, but to also provide an intensive immersion into the ways of the American classroom, Harvard University, and the eccentricities of US idiom and culture. In return for four-weeks of class and discussion time, students gain lasting benefits: a more confident grasp of English; scholarly tools and resources; an understanding of GSAS, Harvard, and the US; and—perhaps most important—friendships that last through graduate school and beyond.

Since its inception in 2000, hundreds of students have benefited from the program. One such success story is Raymond Ko, who participated in ELP in 2009. “I had intermediate English skills, as the language education I received in Hong Kong emphasized reading rather than oral and communication skills,” he shares. “I had little difficulty in understanding text, but I found it challenging to follow conversations with my American friends that contained slang and the names of people and places I did not know.” Through ELP, Ko was able to practice English conversation with native speakers and fellow international students, while also fine tuning the reading comprehension skills he learned back home. Ko and his ELP cohort also received training in educational methodologies such as brain mapping and speed writing. They attended talks by senior Harvard professors and learned about the importance of class participation. “We were encouraged to speak out, express opinions, and acknowledge others, which are essential in an American classroom,” says Ko.

After ELP ended and Ko began his graduate studies in earnest, he realized that he could benefit from more training in advance of serving as a teaching fellow. Bok Center



Raymond Ko and his Bok Center mentor Pamela Pollock, after Ko received a Certificate of Excellence and Distinction in Teaching.

programming aimed at international students seemed a logical next step. “The Bok Center provides lots of practical courses, assistance, and materials on teaching,” he says. “The teaching fellow class I joined was specifically designed for foreigners and provided one-on-one tailored coaching.” Working with Pamela Pollock, associate director for professional and scholarly development, who runs the Professional Communication Program for International Teachers and Scholars, Ko received direct feedback on his pronunciation, tone, and gestures. He also enrolled in other Bok Center courses, including one on organizing discussions, to sharpen his teaching skills. “Feedback is critical for improvement, which is impossible if I’m not aware of my problems,” he says. “It was really hard to get helpful criticism from my friends since they are not professionally trained and they wanted to be nice.”

In return for four-weeks of class and discussion time, students gain lasting benefits: a more confident grasp of English; scholarly tools and resources; an understanding of GSAS, Harvard, and the US; and—perhaps most important—friendships that last through graduate school and beyond.

Ko’s hard work paid off when he won a Certificate of Excellence and Distinction in Teaching for the class “Modeling and Differential Equations for the Life Sciences” in the Department of Mathematics. “Being recognized by my students was hugely satisfying, given my dedication to the class and my continuous effort in improving myself as an international student,” Ko says. “As a teacher, I am pleased to read in teaching evaluations that my students learned productively and enjoyed the process, and that I contributed in a positive way to their college experience.” 🏆

To learn about the donors who generously support GSAS’s English Language Program, see inside back cover.

Q + A

Fiona Hill

As a Brookings Institution fellow and an expert on Vladimir Putin, Fiona Hill keeps her eye on Russia and the surrounding region.

Fiona Hill's journey toward becoming an expert on Russian and Eurasian affairs began while working as an intern for the *NBC Nightly News with Tom Brokaw* during the 1988 Reagan and Gorbachev Summit, where a chance conversation with an American professor helped solidify her decision to pursue graduate studies. Now director of the Center on the United States and Europe and a senior fellow in the Foreign Policy program at the Brookings Institution, Hill is regularly called on to comment on the region and its leaders, particularly Russian President Vladimir Putin. She has published extensively on issues related to Russia, the Caucasus, Central Asia, regional conflicts, energy, and strategic issues. Her books include *The Siberian Curse: How Communist Planners Left Russia Out in the Cold*, with Clifford Gaddy, and *Energy Empire: Oil, Gas and Russia's Revival*. The second edition of *Mr. Putin: Operative in the Kremlin*, also co-written with Gaddy, was published by Brookings Institution Press in February 2015.

Hill earned a master's in Soviet studies and a doctorate in history from GSAS where she was a Frank Knox Fellow. She also holds a master's in Russian and modern history from St. Andrews University in Scotland and has pursued studies at Moscow's Maurice Thorez Institute of Foreign Languages. Hill credits the Harvard scholars Richard Pipes, Akira Iriye, Roman Szporluk, Adam Ulam, Tim Colton, Lubomyr Hajda, and many others with playing key roles in her success.



Q+A ID

NAME:
Fiona Hill, PhD '98

FIELD OF STUDY:
History

TODAY:
**Director,
Center on the
United States
and Europe,
The Brookings
Institution**

A serendipitous encounter in Moscow during the 1980s set you down the path toward a PhD and scholarly work on issues related to Russia and the surrounding region. Had you always been interested in a research career?

A research career seemed well out of my reach until I ended up at Harvard. When I first started learning Russian and then had the opportunity to study in Moscow in 1987–1988, I contemplated a number of different potential careers, from being a translator to a journalist, or perhaps even joining the (UK) Foreign Service. It was when I got to Harvard and was hired by Graham Allison at Harvard Kennedy School, just after I finished my AM in Soviet studies, to help out with translations for the “Grand Bargain” initiative that I realized there were other options. It was through work-

ing at what became the Belfer Center for Science and International Affairs and simultaneously pursuing a PhD in history that I discovered you could combine research and policy analysis in different ways.

Why does the region interest you enough to dedicate your career to it?

Timing is everything. I was finishing up the British equivalent of high school in 1983–1984, which was the height of the 1980s war scare with the Soviet Union. The USSR and the threat of nuclear war were at the top of the news, and in every conversation about international affairs. I had an elderly relative who had been part of the Atlantic Arctic maritime convoys to the USSR forty years before, during World War II, when the UK, the US, and the Soviet Union were all allies, and we

"Then along came Mikhail Gorbachev, and at every key juncture in my studies and career, something unexpected and interesting would happen—the fall of the Berlin Wall, the collapse of the USSR. I was continually hooked."

were sending supplies to help the Soviet army fend off the Nazi occupation. He talked about that experience all the time and could not understand how we had moved from cooperation to confrontation. I thought that perhaps trying to learn Russian and applying to study history at university would help me to understand how we had got there. Then along came Mikhail Gorbachev, and at every key juncture in my studies and career, something unexpected and interesting would happen—the fall of the Berlin Wall, the collapse of the USSR. I was continually hooked.

What is it like to work at the Brookings Institution? How did your work as a GSAS graduate student prepare you to succeed there?

My graduate work was great preparation for my position at the Brookings Institution. I have applied all of my research and experience from Harvard and have also drawn upon the contacts and networks I made and developed there. Harvard GSAS and also my work at Harvard Kennedy School were the essential stepping stones to my current position at Brookings.

In 2013, you co-wrote *Mr. Putin: Operative in the Kremlin* with Brookings colleague Clifford Gaddy—you expanded and republished the book in February. Why did you feel it was important to update the book so soon?

The first edition of the book described the political evolution of Vladimir Putin and the development of the domestic political system he created centered on the Russian presidency and the Kremlin. I had embarked on a follow-up project extending the analysis into the foreign policy arena after

the book came out; and Clifford Gaddy was working on a separate project on Russia's military reform and doctrine. When it became clear that Russia was heading on a collision course with the EU and the West over Ukraine, we decided that we should use this new material to expand the original book rather than produce separate monographs. The analysis in the first edition and the follow-on research helped explain why and how the confrontation developed. The events of March 2013 and the annexation of Crimea became the frame for the new edition, which is now in two parts. The second part is the new material essentially describing Mr. Putin as "the operative abroad."

"Putin sees himself as defending Russia's position and interests in his neighborhood. He is less interested in re-establishing formal political control over the territory of the former USSR, and more interested in ensuring that Russia has a veto over any security, political, economic, and even cultural decision that is made in Russia's old sphere of influence."

Do you think Vladimir Putin aims to re-establish the Soviet Union or do you believe he has something else in mind?

Putin sees himself as defending Russia's position and interests in his neighborhood. He is less interested in re-establishing formal political control over the territory of the former USSR, and more interested in ensuring that Russia has a veto over any security, political, economic, and even cultural decision that is made in Russia's old sphere of influence, and which impinges on Moscow's priorities. In many

respects he is trying to push the West into accepting the kind of arrangement we had 70 years ago at the end of WWII under the Yalta agreement, where we essentially deferred to Russia's authority in countries and lands that were also formally part of the Russian Empire (like Finland), not just part of the post-war Soviet bloc. He sees the countries of his neighborhood as weak satellite states, not as fully-independent or sovereign countries that can choose and defend their own political course. This, of course, is not a perspective shared in the West.

Mentoring played an important role during your time as a graduate student. How important is it to you to support students just beginning their careers?

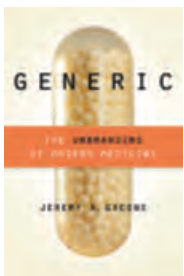
Mentoring was hugely important to me and at all the critical junctures in my career. I am extremely grateful to my Harvard professors, GSAS Administra-

tive Dean Margot Gill, Graham Allison and other colleagues at Harvard Kennedy School, and to people like Jurij and Emanuela Striedter, the former Masters of Cabot House, where I was a resident tutor. Every time I needed assistance or advice they were there to help, and their own life experience and careers were a great source of inspiration. Acknowledging how essential this was one of the factors that led me to be a resident tutor in the undergraduate dorms, and I continue to try to find ways to reach out at Brookings as well as to support GSAS funds. 🇺🇸

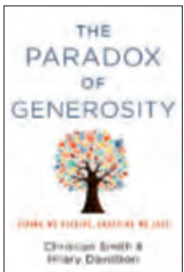
Shelf Life



WILLIAM VAN DER KLOOT (PhD '52, molecular biology) sees World War I as the root of today's collaboration of science and military defense. *Great Scientists Wage the Great War* (Fonthill, 2014) dissects the networks of wartime researchers by working outward from six scientists—among them, Otto Hahn, part of Germany's poison gas program, and British father-and-son researchers William H. Bragg and William L. Bragg, who developed acoustic systems to locate submarines and artillery emplacements. Many wartime scientists became Nobel Laureates—a reminder of how small (and European) the world of science then was. Also surprising: how few qualms they had (especially regarding gas, which we view today as morally abhorrent).



What we take for granted today could once have been fraught with conflict—and risk. Thus, a title like *Generic: The Unbranding of Modern Medicine* (Johns Hopkins University Press, 2014) might not seem particularly dramatic. Guess again. **JEREMY GREENE** (AM '04, anthropology; PhD '05, history of science) makes clear that winning acceptance for generic medicines involved sharp struggle. Greene recounts the histrionics unleashed (and research findings marshaled and misused) in a fight that arrayed pharmaceutical companies, pharmacists, and doctors (and their lobbying groups and industrial or professional mouthpieces) against consumer advocates, such as the Consumers Union, and liberal politicians like Estes Kefauver.



In *The Paradox of Generosity: Giving We Receive, Grasping We Lose* (Oxford University Press, 2014), **CHRISTIAN SMITH** (PhD '90, sociology) and Hilary Davidson explore altruism in the US. They draw on survey results involving



almost 2,000 Americans and follow-up interviews with 62 individuals representing 40 households. In addition, Smith and Davidson marshal research on neurotransmitters and words of wisdom from various world religions. They find that generous Americans tend to be happier and healthier, “live with greater purpose, suffer less depression, and enjoy more personal growth” than their less-charitable counterparts. But the personal benefits require engagement (even sacrifice) that goes beyond signing an organ-donor card or including a charitable bequest in a will.

JUDITH HUGHES (PhD '70, history) combines her expertise as a historian and psychoanalyst in *The Holocaust and the Revival of Psychological History* (Cambridge University Press, 2015). Rather than discuss so-called “psychohistory,” she reviews Holocaust-related scholarship from Hugh Trevor-Roper's *The Last Days of Hitler* (1947) to Daniel Jonah Goldhagen's *Hitler's Willing Executioners* (2007), stressing the need to wrest psychic complexity from often-reluctant subjects. Thus Hughes criticizes Goldhagen (for portraying German anti-Semitism as uniformly seething and atavistic), and Arendt (for her two-dimensional depiction of Adolf Eichmann and his “lack of imagination” and “extraordinary shallowness”). But she commends Gitta Sereny's *The Healing Wound* (2001) for communicating the inner complexity of former Treblinka death camp commandant Franz Stangl.

Six months after the 9/11 attacks, the US Citizenship and Immigration Services approved visas for two of the dead hijackers. Student visas. So they could attend flight school. This incident underscores what can happen when govern-

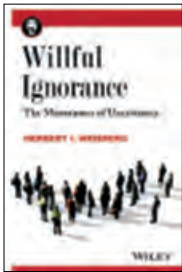
ment agencies fail to share information. *Traversing Digital Babel: Information, E-Government, and Exchange* (MIT Press, 2014) by **ALON PELED** (PhD '94, government) seeks to remedy this crippling situation. Peled describes pervasive barriers to governmental information-sharing (software incompatibilities, counterproductive presidential or congressional interventions, etc.). After dissecting earlier, flawed responses (characterized as coercive, consensual, or coaxing-based), he recommends a business-oriented incentives approach, one that would view information as a commodity and systematize data-sharing through internal Public Sector Information Exchanges.

Probability theory sprang from seventeenth-century European aristocrats' penchant for gambling. **HERBERT WEISBERG** (PhD '70, statistics) writes. However, he quickly shifts from the *bon vivants* to the thinkers responsible for probability-based analysis, including Blaise Pascal, Jacob Bernoulli, Charles S. Peirce, and John Maynard Keynes. Weisberg recognizes that probability theory has been immensely beneficial and important, but—as his title, *Willful Ignorance: The Mismeasure of Uncertainty* (Wiley, 2014), clearly suggests—he also underscores its shortcomings. Probabilistic analysis ignores countless particulars in constructing stripped-down, testable models. But there are dangers to such an approach. Randomized clinical trials, for example, may not serve a clinician's needs and concerns in treating an individual patient (who isn't randomized but unique).

Once an industrial colossus, the United States still rules in one sector of exports—popular culture. *Making*



Alumni authors: Would you like your book (general interest, published within the past year) considered for inclusion? Send it to *Colloquy*, Harvard Graduate School of Arts and Sciences, Suite 350, 1350 Massachusetts Avenue, Cambridge, MA 02138. Questions? E-mail gsaa@fas.harvard.edu.



Cinelandia: American Films and Mexican Film Culture before the Golden Age (Duke University Press, 2014) studies Mexico's response—in the 1910s and 1920s—to the flood of American films. **LAURA ISABEL SERNA** (PhD '06, history of American civilization) portrays the cinema as a locus for aspirations personal and national. It was an immersive introduction to consumer culture and new roles for women; for audiences, the movie theater itself was something of a social leveler. The government saw the cinema as an exemplar of modernity, but the anti-Mexican stereotypes in American films both challenged and reinforced Mexican nationalism.



Of the social sciences, history has been firmly grounded in storytelling. But since the 1970s, historians have privileged analysis over narrative. **KATHERINE GRANDJEAN** (PhD '08, history) makes a strong case for rethinking this approach. **American Passage: The Communications Frontier in Early New England** (Harvard University Press, 2015) balances cultural complexity, environmental context, and ripping good stories. With a narrative voice that is lively and strikingly assured, she depicts early New England as an archipelago of British enclaves in a roily sea of Pequots, Narragansetts, Dutch, and French. Survival depended on communication, yet the ablest message-bearers were Native Americans. In such a setting, the establishment of post roads and postal service was profoundly important.



In **Savage Preservation: The Ethnographic Origins of Modern Media Technology** (University of Minnesota Press, 2014), **BRIAN HOCHMAN** (PhD '11, history of American civilization) critiques the ethnocentrism of late 19th- and early 20th-century anthropology. Early anthropologists and ethnologists believed that European-American industrial culture would “inevitably” steamroller “primitive” societies. So they sought to save what could be saved. In so doing, they also took advantage of new data-recording and communications technologies. For example, Hochman discusses Eadward



Muybridge and his synchronized camera arrays, Jesse Walter Fewkes' phonographic recordings of Passamaquoddy language and song, the use of the Lumière brothers' autochrome color photographic process, and motion pictures, particularly the proto-documentary films *Nanook of the North* (1922) and *Moana* (1926).

ROBERT SCHULTZ (PhD '71, philosophy) offers a dark and timely update of what Aldo Leopold, in his classic *Sand County Almanac*, termed a “land ethic.” Like Leopold, Schultz critiques the human tendency to set ourselves above or outside the natural world. But **Technology versus Ecology: Human Superiority and the Ongoing Conflict with Nature** (IGI Global, 2014) goes further, asking whether science and technology are compatible with the planet's survival (and our own, as a species). He isn't optimistic. Science understands by abstracting and simplifying, but ecological interrelationships are multifold and complex. And unhappy outcomes are near certain when technology is harnessed to short-term, profit-driven economic goals—like a steam engine without a safety valve.

Foreign and Domestic Investment in Argentina: The Politics of Privatized Infrastructure (Cambridge University Press, 2014) examines investment in developing-world infrastructure. Wary of potential instability in the developing world, multinational corporations generally demand bilateral treaties that guarantee, for example, international arbitration of project-related disputes. They also specialize on a single type of project across multiple nations. Ironically, **ALISON POST** (PhD '09, government) discovered less-specialized local firms that lack treaty-based legal protections actually fare better. Contracts held by such firms have proven “more viable politically and financially” than those awarded to multinationals. Why? Domestic firms are politically wired in. They also invest broadly across the local economy, making them more flexible in negotiating on any single project. 🇺🇸



We may dream of epiphanies, lightbulbs piercing the thought-clouds above our heads, but we're hardwired for narrative. **History and Popular Memory: The Power of Story in Moments of Crisis** (Columbia University Press, 2014) studies how our collectively remembered past colors our understanding of later crises, drawing examples from Serbia, China, France, and Israel, among others. For example, **PAUL COHEN** (AM '57, regional studies East Asia; PhD '61, East Asian languages and civilizations) highlights how the Serbs repeatedly interpreted events in their history in terms of the Battle of Kosovo (1389), a defeat at the hands of Ottoman Empire. Clearly, such narratives have legs. They're also flexible: Thus during WWII, Joan of Arc (ca. 1412–31) inspired both the Resistance and—more surprisingly—Vichy collaborators.

Changing circumstances can undermine once-ubiquitous stories. Through the late 1980s, Israelis often invoked Masada and its Jewish rebels choosing death over surrender (ca. 73–74 CE). But social and political change lessened the story's salience. Indeed, subsequent retellings have recognized its ambivalence: The rebels were violent extremists who also massacred 700 fellow Jews in the neighboring town of Ein-Gedi. Besides choosing death for themselves, they also murdered their wives and children. (One wonders what say the latter had in that decision.) Cohen makes clear that relying on shared memories of long-past events is a risky path—as is any political decision driven by analogy rather than empirical evidence.



$$\psi_n(x) = \sqrt{\frac{2}{a}} \sin\left(\frac{n\pi x}{a}\right)$$

HAVE THE OPPORTUNITY TO:



$$P(x)dx = \frac{1}{5} |\psi_n(x)|^2 dx$$



e

By planet earth

V Vanadium	Cr Chromium	Mn Manganese	Fe Iron
Nb Niobium	Mo Molybdenum	Tc Technetium	Ru Ruthenium
Ta Tantalum	W Tungsten	Re Rhenium	Os Osmium



ACCESS TO ACADEMIA

HOW GSAS PROGRAMS HELP LEVEL THE PLAYING FIELD IN GRADUATE STUDIES, ACADEMIA, AND BEYOND

BY ANN HALL | ILLUSTRATION BY DANTE TERZIGNI

ZIP codes do more than define a mail delivery area. They are also powerful indicators of privilege. Depending on your ZIP code, your education may have included programs designed to give you a better academic start in life—or not. “Many of us have had opportunities we may not recognize that gave us access to a quality education from day one,” says Sheila Thomas, assistant dean for diversity and minority affairs at GSAS and an assistant professor of medicine at Harvard Medical School. “Some people start from behind, no matter how capable and smart they are.” In certain instances that means that individuals living in poorer areas—many of them minorities—look far less competitive in their quest for undergraduate and graduate success, and often attend colleges that are less familiar to faculty based in the Ivy League. And that ultimately affects who is seen as competitive in the search for a career in academia.

Thomas heads up GSAS's Office of Diversity and Minority Affairs, working with Stephanie Parsons, the assistant director of diversity and minority affairs, to cultivate an environment of inclusivity by recruiting and mentoring a community of scholars that reflects the ethnic and cultural diversity of society. The office also runs several programs that enable undergraduates from minorities underrepresented in graduate study and academia to gain research experience and build fruitful connections with Harvard professors. These programs also expand the perspectives of faculty who may not have recognized the students' home institutions but who now have a greater awareness for the talent that can be found at schools less familiar to them.

The Summer Honors Undergraduate Research Program (SHURP) is a ten-week summer internship primarily for college students belonging to groups that are underrepresented in the sciences. Since its establishment by Jocelyn Spragg in the 1990s, nearly 500 students from colleges across the country have participated, with more than 90 percent going on to further education and careers in the sciences. SHURP places students in Harvard professors' labs, where they often work with graduate student or postdoc mentors on research projects. Another initiative established by Harvard's Office of the Provost in 2003, Summer Research Opportunities at Harvard (SROH), connects talented undergraduates from across the country who are considering pursuing a PhD in the humanities, social sciences, or the sciences with

Harvard mentors. Both programs, while focused on improving students' research abilities, provide targeted training in presentation skills and career development. GSAS recently launched a post-baccalaureate program designed to help college graduates improve their research resumes in advance of applying to graduate schools. Those who participate in all three of these programs may have come believing that they would not be competitive—or welcome—at Harvard, but they leave knowing that they are capable of success here and at comparable institutions. In the process, Harvard's faculty learns that the best students may come from institutions they aren't accustomed to.

“THE OFFICE ALSO RUNS SEVERAL PROGRAMS THAT ENABLE UNDERGRADUATES FROM MINORITIES UNDERREPRESENTED IN GRADUATE STUDY AND ACADEMIA TO GAIN RESEARCH EXPERIENCE AND BUILD FRUITFUL CONNECTIONS WITH HARVARD PROFESSORS.”

TONY RINALDO



Sheila Thomas and Rosio Fernandez speak before Fernandez's SHURP presentation.

A UNIQUE POINT OF VIEW

Rosio Fernandez thinks viruses are like teenagers. “It intrigues me that people always look at viruses as though they are a negative thing,” she says. “Yes, they have their negative points but so do teenagers. Many things in life have a good and a bad side, but we always focus on the bad with viruses.” Fernandez believes that, like teenagers, a virus’s behavior can be changed—with the right motivation. “Viruses can be used for good, for example in the medical field to transfer material into a body.”

As a kid growing up in Manhattan’s Washington Heights, the daughter of Dominican immigrants, Fernandez wasn’t thinking about viruses. “I was determined to study painting and design,” she says. “I first thought I wanted to be a fashion designer.” Fernandez always looked at things from a different perspective than many people she knew. As she moved from high school to Brooklyn College, she began to wonder whether her unique way of looking at the world would be better served in a medical career. And that’s when she really found her passion for science.

“As I became involved in research, I began reading more about viruses,” Fernandez says. “I wanted to know how viruses interact with cells in order to have a positive effect. What are the mechanisms that drive that process?” She wanted to understand how research could address medical disorders, such as Ehlers-Danlos syndrome, which affected a friend’s ability to produce collagen in her body. “I thought, wouldn’t it be cool if we had a virus that could transport a mutation to provide a more functional protein for collagen in every cell of your body?” she says. “Because that’s what viruses can do. They can infect almost every cell in your body.”

“THE BEST PART OF SHURP IS BEING IN THE LAB AND I AM VERY FORTUNATE TO WORK WITH A MENTOR WHO PUSHES ME, WHO GETS ME TO THINK MORE ABOUT THE PROCESS. I FEEL LIKE SHE IS HELPING ME TO BECOME A BETTER SCIENTIST.”

It was another friend who introduced Fernandez to Harvard’s SHURP program. “My friend participated in the program after her sophomore year and told me it was the best experience,” she says. “Her mentor recommended that I apply.” Based in the lab of HMS professor Donald Coen, Fernandez investigated how viruses exit the nucleus. “The best part of SHURP is being in the lab and I am very fortu-

nate to work with a mentor who pushes me, who gets me to think more about the process,” Fernandez says. “I feel like she is helping me to become a better scientist.” She intends to head back to Brooklyn College energized to develop her own projects with her professors. She also plans to apply to graduate schools and continue enhancing her research experience. “My career plans have definitely shifted from fashion designer to virologist,” she laughs, but notes that there are similarities. “As a fashion designer, you have to be creative and think of new ideas all the time. It’s the same in science, except now I’m using my creativity to develop the perfect virus and cure disease.”

BROADENED HORIZONS

In 1964, President Lyndon Johnson traveled to Martin County, Kentucky, to launch the War on Poverty, and the location soon became synonymous with poverty. By the time Seth Henderson was growing up 100 miles away in Harlan County, Kentucky, not much had changed. “Harlan has a lot of poverty and very little opportunity to grow mentally and expand one’s view of the great diversity of this nation, which is very important to me,” Henderson says. “My early education was one of very little diversity and few opportunities to see the world beyond the mountains of Harlan.”

Despite these barriers, Henderson persevered and went on to study criminal justice at Eastern Kentucky University. After his sophomore year, he served as an intern in his local Congressman’s office; he enjoyed the experience so much that he decided to double major in criminal justice and political science. Looking to find a summer research opportunity in 2013, he stumbled across the SROH program. Henderson was thrilled at the chance to gain experience that would prepare him for graduate-level work.

SROH partnered Henderson with Jennifer Hochschild, the Henry LaBarre Jayne Professor of Government and Professor of African and African American Studies in the Department of Government. Together, they conducted research at the intersection of American politics and political philosophy in the areas of race, ethnicity, and immigration around DNA collection in the judicial system. For Henderson, this experience transformed his educational experience and opened doors that might have remained closed to him.

“The SROH program allowed me to broaden my horizons and instill in me a deeper belief that my destiny will go beyond Kentucky,” he shares. “I was able to network with professors and other professionals, which has helped me in other career endeavors.” While at Harvard, Henderson decided he wanted to become a White House intern and he credits his success with that goal to Hochschild’s mentorship. “I likely would never have thought that I could become an intern at the White House if SROH had not helped me realize my potential,” he says.



Seth Henderson’s experience in SROH enabled him to realize his potential.



Carolina Salguero developed a strong relationship with FAS professor Victoria D'Souza.

FEELING REPRESENTED

As a ten-year-old growing up in Colombia, Carolina Salguero knew she wanted to study chemistry. “My father read the paper at the breakfast table every morning, and he would pass sections on to me,” she remembers. “I saw an article about the sequencing of the human genome and thought it was the most interesting thing I’d heard in my life.” The idea of participating in the genome project energized Salguero to learn as much science as she could, in the process discovering the important role chemistry plays in the field. “I realized that everything in life has chemistry in it,” she says, “so I knew that whatever I wanted to do, I would need to learn chemistry first.”

Following her sister to the United States, Salguero eventually became a scholar of the Maximizing Access to Research Career (MARC) program at Hunter College, from which she earned a degree in biochemistry and economics in 2011. It was while she was a MARC scholar that she learned about SROH. While attending the Annual Biomedical Research Conference for Minority Students (ABRCMS), she met Victoria D’Souza, an associate professor of molecular and cellular biology at Harvard. “After I heard Victoria’s research talk, I knew that I wanted to work with her, so I approached her and asked if she would give me a chance to intern in her lab.” D’Souza told her about a summer internship program in molecular and cellular biology that was a precursor to SROH and encouraged her to apply.

“I was one of the first to come to Harvard under the SROH program,” Salguero says. “The results I obtained that summer allowed me to gain authorship of an article published in *Nature*, which was a huge achievement for me.” She also developed a strong mentoring relationship with D’Souza that lasted beyond the summer. “Victoria continued to mentor me and helped me through the gradu-

ate application process. When I was accepted to GSAS, she encouraged me to come to Harvard and work in her lab.”

But it wasn’t just D’Souza’s counsel that helped Salguero envision herself as a researcher. “Not only was she a terrific mentor, but she is a very successful woman scientist, who is also from an underrepresented background,” she explains. “I felt that she understood where I was coming from and that’s something important for me and for most students like me; we want to feel that we belong wherever we go.”

ENTHUSIASM FOR SCIENCE

Jason Sello, PhD ’02, always knew what he wanted to be when he grew up. “When I was in high school, I decided that I wanted to be a professor in part because I read a career guide that said professors had among the highest rates of job satisfaction,” he remembers. “So, I said well, being satisfied with your job seems to be pretty important, that seems like a good thing.”

Sello studied at Morehouse College with this specific aim in mind, ultimately deciding to major in biology. “I had conversations with some of the faculty, asking what it takes to become a professor,” he remembers. “And they said, well, you’ve got to get started with research.” However, since Morehouse’s primary mission is teaching, Sello didn’t have access to the intense research activity that takes place at larger institutions. He did, however, find a mentor determined to help him succeed.

“I FELT THAT SHE UNDERSTOOD WHERE I WAS COMING FROM AND THAT’S SOMETHING IMPORTANT FOR ME AND FOR MOST STUDENTS LIKE ME; WE WANT TO FEEL THAT WE BELONG WHEREVER WE GO.”

“I started my research career with a member of the faculty named Joseph McCray, a Morehouse alumnus who earned his PhD at Purdue,” says Sello. “Interestingly, Dr. McCray’s ultimate goal was to populate research universities with African American scientists via training and mentoring students at Morehouse.” Sello worked with McCray during his entire time at Morehouse. He was also encouraged to seek out opportunities at research universities during the summers that would bolster his research experience. His first experience away from Morehouse was at Purdue during the summer between his sophomore and junior years. There, he worked in a laboratory that was using methods from structural biology to understand how viruses are neutralized by antibodies.

In addition to research, McCray encouraged Sello to attend scientific conferences that would expand his horizons. In one instance, Sello flew to New York City for a conference at the Rockefeller University that brought together world-class scientists to commemorate the death of Louis Pasteur. It was there that he had an auspicious encounter with Stuart Schreiber, the Morris Loeb Professor of Chemistry and Chemical Biology, who strongly encouraged him to consider graduate study at Harvard.

The next year, in an effort to gain more research experience in structural biology, he reached out to James Hogle, the Edward S. Harkness Professor of Biological Chemistry and Molecular Pharmacology at Harvard. “Jim is one of the world’s experts on the structures of viruses, which I had studied at Morehouse and Purdue,” Sello says. Hogle connected him with Jocelyn Spragg, who ran SHURP.

“SHURP, from my perspective, is a great talent identification program,” Sello says. “It’s really an opportunity for Harvard to demonstrate how welcoming and open it can be to students who are underrepresented in the academy.” When it came time to apply to graduate schools, Sello remembered his experience working in the Hogle lab and his conversation with Schreiber. “Part of the reason that I was attracted to Harvard was because my interactions with faculty had been so positive,” he says. He was admitted to the graduate program in biophysics and ultimately pursued doctoral work with Schreiber. During his graduate studies, Sello became very interested in the origins, structures, and biological activities of natural products—small molecules that are used by organisms for chemical defense and often have utility in medicine. This interest led him to postdoctoral research in biochemistry at Harvard Medical School with Professor Christopher Walsh and in bacterial genetics at the John Innes Centre in Norwich, England.

After his postdoctoral work, Sello joined the chemistry faculty at Brown University in 2006, earning tenure in 2012. He and members of his research group are working on drug discovery, antimicrobial resistance, natural product biosynthesis, and bioenergy. “There’s no question that my experiences as an undergraduate and graduate student at Harvard helped prepare me for the tenure-track,” he says. “Many of the students who participate in programs like SHURP are incredibly talented, highly motivated, and I think it’s important for Harvard to tap into that energy and enthusiasm.”



Jason Sello, a tenured member of the Brown faculty.

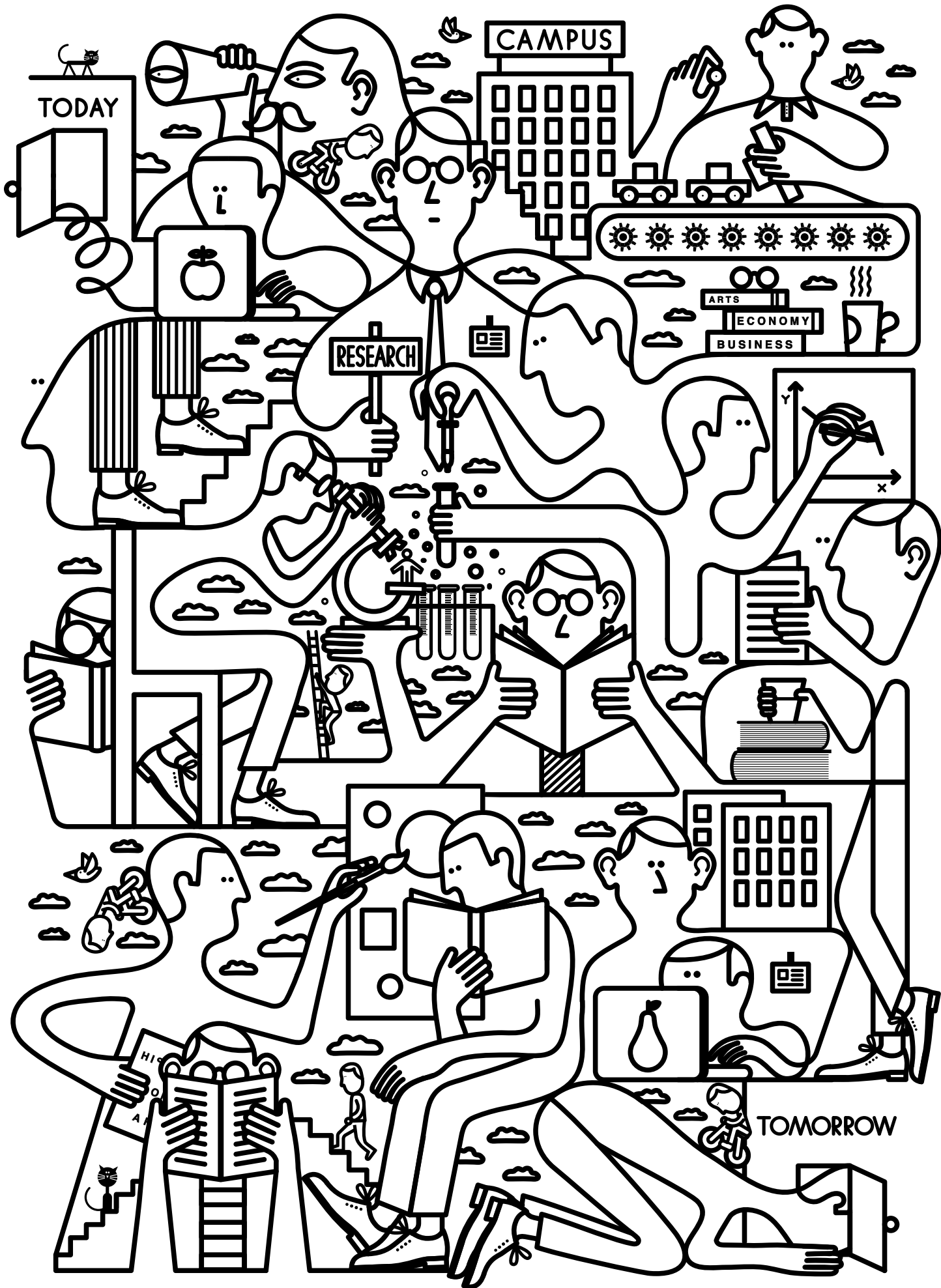
That enthusiasm, Sello believes, helps a student from any background get on track for academia. “I often tell the undergraduates and graduate students, never let anyone compromise your enthusiasm for science because once that’s gone, then a career in science is nearly untenable.”

“THERE’S NO QUESTION THAT MY EXPERIENCES AS AN UNDERGRADUATE AND GRADUATE STUDENT AT HARVARD HELPED PREPARE ME FOR THE TENURE-TRACK. MANY OF THE STUDENTS WHO PARTICIPATE IN PROGRAMS LIKE SHURP ARE INCREDIBLY TALENTED, HIGHLY MOTIVATED, AND I THINK IT’S IMPORTANT FOR HARVARD TO TAP INTO THAT ENERGY AND ENTHUSIASM.”

A COMPETITIVE EDGE

The most powerful experience for students participating in SHURP, SROH, and the new post-baccalaureate program is the opportunity to understand and partake in the work conducted at a research university and to interact directly with Harvard faculty—whose own perspectives are changed by the experience. Students leave with experience to add to their resumes and recommendations from Harvard professors—they leave more competitive, more likely to be accepted to graduate programs, more likely to earn their PhDs, and more likely to join academia and succeed on the tenure track.

And that is the ultimate aim of these programs: to encourage minorities traditionally underrepresented in the academy to seek an academic career. “The United States is a diverse country, but that diversity is not always represented in the academy,” Thomas says. “These programs are important if you want diversity of experience reflected in the research that comes out of institutions of higher learning—breakthroughs that influence technology and policy.” But it isn’t just about what happens within the academy: it’s also about addressing the ZIP code problem. “At GSAS, we are doing what we can to provide students that are clearly smart, intelligent, and driven the resources they need to come to Harvard in pursuit of their goals.”



what's the alter- native?

How recent PhDs are reaching beyond the academy

Written By
ANDREA L. VOLPE

Illustration by
JONATHAN CALUGI

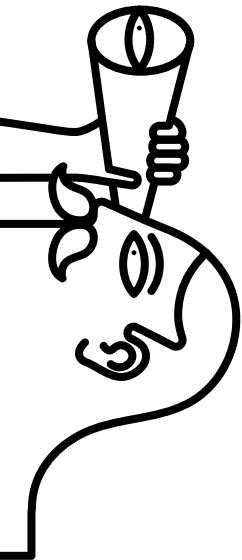
In 1900, when Harvard's twenty-first president, Charles William Eliot, met with the presidents of the University of California, the University of Chicago, Columbia University, and the Johns Hopkins University, American doctoral education was still a protean concept. Eliot had founded Harvard's Graduate Department in 1872; the University conferred its first PhD in 1873. But graduate training across the United States was remarkably uneven, particularly in contrast to the gold standard of German research universities. Eliot and his colleagues were about to change that.

Soon after, Harvard's Graduate School was renamed the Graduate School of Arts and Sciences as part of Eliot's efforts to transform Harvard into a modern research university. For Eliot, increasing the rigor of graduate training, including a research-based dissertation, would strengthen the professoriate, which in turn would improve undergraduate teaching, at Harvard, and across the nation. This is where the modern conception of a graduate school, and the notion that a doctorate equals research and teaching, starts.

As a result, the number of doctoral degrees awarded in the US nearly doubled every decade from 1870 to 1970. In the 1960s, in the wake of Sputnik, degrees almost tripled, peaking in the early 1970s and again in the late 1990s. Given the institution-building focus of 20th-century graduate education, it's not surprising that the path after the PhD seems predictable.

What are the alternatives? Well, as it turns out, there are many.

what's the alternative?



beyond the academy

By the early 1990s, American PhDs had started branching out beyond the academy. About half took positions in higher education, with the balance headed into industry, secondary education, government, and nonprofits. These proportions have remained largely consistent over the last 20 years.

Even still, not too long ago the term “alt-ac,” shorthand for “alternative academic,” was embraced enthusiastically by humanities PhDs, particularly those working in the burgeoning field of digital humanities.

“Alt-ac” caught on as a simpler way of describing complex career trajectories of many PhDs going into higher education in one way or another, but not taking traditional paths into tenure-track academic positions,” explains William Pannacker, PhD ’99, history of American civilization, and professor of English at Hope College in Michigan.

Pannacker, known for his frank accounts of the realities of the humanities job market published in *The Chronicle of Higher Education*, admits wryly that he’s shifted from “being a provocateur” toward “different ways of thinking about graduate and undergraduate education.” In 2009, he founded, and now directs, Hope’s Andrew W. Mellon Foundation Scholars Program in the Arts and Humanities. The program focuses on “rebooting” the liberal arts by integrating traditional liberal arts methods with digital, experiential education and collaborative research. He also directs the Great Lakes College Association’s Digital Liberal Arts Initiative, helping faculty in nonquantitative fields across the 13-college association integrate digital approaches in their teaching and research, as well as fostering student-faculty research collaborations. Pannacker’s own trajectory exemplifies his broader view that career paths after the PhD can be “serendipitous,” shaped as much as by a scholar’s own temperament as by larger economic and social forces.

idea-driven work

So what is—or is not—different about being a PhD outside the academy?

“Museum work is not an alternative to academic work, it’s just another form of academic work,” is the way

Sarah Anne Carter, PhD ’10, history of American civilization, answers that question. Carter spoke last fall on an alumni panel convened by the Program in American Studies about interdisciplinary career paths.

Carter’s work at Harvard bridged the academy and the museum. Alongside one of her thesis advisors, historian and 300th Anniversary University Professor Laurel Thatcher Ulrich, she co-taught the popular general education course, “Tangible Things: Harvard Collections in World History.” Carter also served as the project manager of the multi-site Harvard museum exhibition of the same name, and co-authored the related book, *Tangible Things: Making History through Objects* (2015) with Ulrich, Ivan Gaskell, and Sara Schechner, PhD ’88, history of science. Carter’s dissertation, *Object Lessons in American Culture*, explores the 19th-century practice of teaching abstract concepts and ideas through the study of objects. It will soon be published as a book by Oxford University Press.

“We want Harvard-trained PhDs to be working in many fields—to be advising the government on policy or to be serving on the boards of companies. That’s good for society.”

Carter started out applying for traditional academic jobs. Her path to the Chipstone Foundation in Milwaukee, a museum focused on material culture and the decorative arts, where she is now curator and director of research, was, well, serendipitous, and the product of a strong professional network. It was a natural fit, one that has allowed her to keep one foot in the academy, teaching in the art history department at the University of Wisconsin–Madison.

Parsing the line between what’s “alternative” and what’s “academic” may obscure more than it illuminates.

Says Carter, “The folks I work with are all driven by ideas and they’re driven by questions. And if you find communities like that, it’s really not that different from being in a university community.”

The nomenclature distinguishes where a PhD works—inside, outside, or adjacent to the academy—but not how doctoral training prepares students to tackle complex problems in any field. What’s alternative about using high-level analytical skills, both qualitative and quantitative, in an idea-driven world? The distinction is increasingly obsolete. As David Cardozo, director of graduate studies and associate dean for graduate studies in the Division of Medical Sciences (DMS), puts it “the word alternative doesn’t even come up anymore” when students are considering where to land after the PhD.

new possibilities

In that sense, the vision Eliot and his colleagues had of rigorous graduate training as the foundation for advancing original research in the US has come to fruition. At the same time, the opportunities for PhDs to put their training to work outside the academy are expanding, in part due to broader changes in how knowledge is generated, shared, and applied across the disciplines. Many fields—particularly the sciences—depend on close collaborations between the academy and industry, demonstrating the tremendous potential of increasingly porous boundaries between the two.

According to Allen Aloise, PhD ’04, chemistry, director of graduate studies for FAS science and director of laboratories in the Department of Chemistry and Chemical Biology, “over the last twenty years the sciences have been transformed by investments from the National Institutes of Health, so that many different disciplines within science have shifted their focus to biology. In industry, corporations have consolidated, but many small start-ups have arisen as well. This presents students with new opportunities beyond traditional faculty or corporate paths, leading to more science PhDs working in law, medicine, communications, biotech, start-ups, policy, and consulting.”

Laura Stark, director of career advising and programming for master’s and PhD students in the FAS Office of Career Services (OCS), agrees. A

neurobiologist herself, Stark attributes the changing way PhDs consider their career opportunities to “the big data explosion, which is reshaping careers in the sciences.” But it’s not just the sciences that are changing, says Stark. “Data science has also opened up new possibilities in cultural institutions, corporations, and nonprofits for PhDs in the humanities and the social sciences with exceptional analytical skills.”

Stark, who advises graduate students, partners with GSAS departments on discipline-specific career advising, and designs OCS programs for graduate students, sees these wider changes reflected in how students think about their careers: “students assume that they are going to be exploring a variety of careers in pursuit of the best fit and the best way to contribute to the world.”

finding the right fit

That’s what **Knatokie Ford**, PhD ’11, biological and biomedical sciences, did. She sought out advice from mentors and career advisors, whose insights helped her figure out how to best “use my scientific training to advance science and serve society.” Ford’s path, following a postdoc at Boston’s Beth Israel Deaconess Medical Center, led to a fellowship from the American Association for the Advancement of Science in science and technology policy. Her experience as a staffer for the President’s Council of Advisors on Science and Technology in the White House Office of Science and Technology Policy inspired her to think equally boldly to leverage her policy experience into STEM consulting focused on “using media to bring a different face to science, train scientists, and change the way science is presented.”

GSAS students often tap into the resources of the University in creative ways. For example, neurobiologist Carlos Loya, PhD ’11, biomedical and medical sciences, was curious about “how we take ideas and put them into the clinic or the market.” That question landed him in what was then a new course at Harvard Business School, “Commercializing Science,” taught by Vicki L. Sato, PhD ’72, biology, professor of the practice in the Department of Molecular and Cell Biology and professor of management practice at HBS.

Loya was on a team with PhDs and MBAs that created a business plan based on cutting-edge cancer genetics research from the Dana Farber Cancer Institute labs of Lynda Chin and Ronald A. DePinho. Loya’s team decided to take their business plan on the road and pitch it to local venture capital firms, “as an academic exercise and to improve the project.” For Loya it was a “formative and transformational experience,” leading to two internships, first at Siemens Venture Capital, and later, after he finished his dissertation, at Third Rock Ventures. While at Third Rock Ventures, he helped incubate Sage Therapeutics, and after the new company launched, Loya worked on the science and management side, helping develop new treatments for central nervous system diseases.

He calls his current position, managing corporate development projects for biopharmaceutical and biotech companies for the consulting firm Campbell Alliance, his “third postdoc” because it reflects the same spirit of learning by doing that happens in a traditional postdoc. Loya traces everything back to the PhD. “You have to love the science and succeed at it. Then figure out what you’re passionate about, and that will help you figure out your next step.”

supporting student initiatives

In many cases, supporting students’ explorations means putting the institutional stamp on their initiatives, or making students aware of the many GSAS programs that help them connect their intellectual interests with professional opportunities. “We’ve quickly learned that the best ideas come from students and the key to success is providing the support and freedom for them to unleash their creativity and enthusiasm,” explains Cardozo. Since 2008, the Paths Program at DMS has done just that by supporting student-directed initiatives and clubs, with resources from OCS and faculty advisors to help students investigate career paths in biotechnology, consulting, law, education, policy and nonprofits, and science writing.

Mentoring plays a key role in helping students understand their options, and faculty advisors are just one avenue for advice. “Our alumni have been extraor-

dinary about giving back and mentoring our current students,” Cardozo said. Students at DMS also have the option of taking for-credit courses, such as “Drug Development from Concept to Commercialization,” which uses the HBS case-study method to trace how a successful drug goes from the lab to the market, and the other, on health care consulting innovation, which provides students with a “business toolkit” in life sciences entrepreneurship. As director of graduate studies, Cardozo is setting his sights on further development of elective curricula for the Paths Program with hopes for greater cross-school collaboration that will strengthen students’ professional preparation as they work toward their degrees.

Across GSAS, students have access to a wide range of institutional opportunities and student-run programs that help them identify the right fit. The Harvard Integrated Life Sciences Program, for example, allows GSAS science students to work with advisors and in labs in the Division of Medical Sciences and at Harvard Medical School. Having the option to pursue a secondary field as part of their coursework can help doctoral candidates in all the disciplines enhance the professional reach of their disciplinary expertise. The Harvard Interdisciplinary Graduate Consortia enables students to investigate topics such as human rights, global health, and climate change through multidisciplinary seminars and reading groups. And many GSAS student organizations sponsor speaker series, publish journals, and provide valuable pre-professional experience organizing conferences and events.

training leaders

An individualized approach to advising and mentorship is also essential to helping students find their post-PhD path. “We want to attract and recruit the best, most promising graduate students in the world, and when they are here, we want them to achieve their highest potential. Then, we want to give them all the tools necessary to embark on and succeed in the career of their choosing,” says Aloise. “We want Harvard-trained PhDs to be working in many fields—to be advising the government on policy or to be serving on the boards of companies. That’s good for society.”



William Pannapacker



Sarah Anne Carter



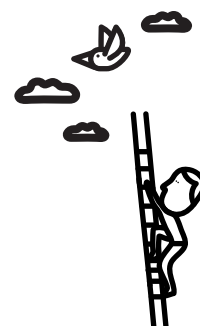
Alan Aloise



Laura Stark



Knatokie Ford





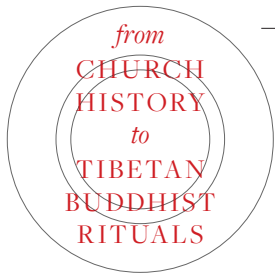
from
CHURCH
HISTORY

A HISTORY OF THE COMMITTEE ON THE STUDY OF RELIGION

to
TIBETAN
BUDDHIST
RITUALS

BY ANN HALL | PHOTOGRAPH BY KRIS SNIBBE

Harvard owes its existence to the study of religion. In 1636, endeavoring to assure that the next generation of ministers in the fledging American colonies were properly educated, the “Great and General Court of the Governor and Company of the Massachusetts Bay in New England” approved the establishment of a college that would soon be known as Harvard. Though its initial mandate was to train ministers, over time the institution’s purpose broadened and secularized, though the study of religion—in practice and in theory—continued.



Two hundred years later, in 1816, Harvard Divinity School was established to continue the study of Christianity, but it wasn't the only part of Harvard that considered such matters. In the late 1800s and early 1900s, the study of religion thrived in the Department of Philosophy, spearheaded by luminaries such as William James and George Santayana who considered problems of morality and the psychology of religion. Though the latter focus would fade away, the comparative study and history of religion continued to draw students eager to think about the subject in a more academic and less practical way.

Nock ensured a broad base of religions—from Greek and Roman to Jewish, Celtic, and Indian—would be taught, most notably by working with the Harvard Yenching Institute to ensure the inclusion of Japanese and Chinese belief systems.

Who Will Teach?

A concern similar to the one that established Harvard in the first place began to take shape within the Faculty of Arts and Sciences: if Harvard didn't train scholars of religion, who would be qualified to teach the subject?



Arthur Darby Nock spearheaded the creation of a PhD in the history and philosophy of religion.

Enter Arthur Darby Nock, a Cambridge, England-educated scholar who became Harvard's Frothingham Professor of the History of Religion at the young age of 28. Four years later, he spearheaded an effort to create a new doctoral degree within the FAS that would "permit the training in Harvard of men to fill positions in the Departments of Religion which exist in so many Arts Colleges." In October 1934, the Faculty approved the creation of a new degree in the History and Philosophy of Religion, a unique inter-faculty initiative that brought together the FAS Division of Philosophy and Department of History with the Divinity School. Nock ensured a broad base of religions—from Greek and Roman to Jewish, Celtic, and Indian—would be taught, most notably by working with the Harvard Yenching Institute to ensure the inclusion of Japanese and Chinese belief systems.

Though he was one member of a committee that succeeded in creating this new doctorate, Nock steered all aspects of its development and implementation, believing that religion was influential beyond the practice of faith. "The term religion must be regarded as embracing all thought and language and action which man directs towards the unknown forces around him," he said. "It includes those proceedings and attitudes which can technically be classified as magical as well as religious; it includes much which later ripens into philosophy and science."

In the beginning, a bachelor's degree in sacred theology (STB) was required, mostly because the Divinity School administration feared that the focus on teaching would negatively impact its training of ministers. Students studied three common core subjects—the Bible, a religion other than Christianity or Judaism, and philosophy or the history of thought—with optional studies available in the history of religion, philosophy of religion, and church history. In the first 20 years, 53 candidates received PhDs in

well-known subjects such as Old and New Testament history and the history of Christian thought, but also in lesser known areas that included Amerindian religion, Islam, and Chinese thought. From the very beginning, women studied for degrees in the History and Philosophy of Religion as Radcliffe College graduate students, predominantly for master's degrees. Radcliffe records show that the first to earn a PhD was Susan Taubes, whose dissertation on the philosopher, activist, and Christian mystic Simone Weil was accepted in 1956.

Renewed Focus

By the 1950s, the program had become so successful that some voiced concerns about graduate placement, and leadership instituted a review process. Over the next 10 years, several reforms were enacted to address the expertise expected of graduates and the Judeo-Christian focus. This review ultimately led to the development of comparative studies of the major religions of the world, an aspect of the program that would become so popular, it would eclipse study of church history, ethics, and religion and society.

The lengthy review and implementation of new ideas also raised the issue of the program's name. In 1963, after two years of debate, the History and Philosophy of Religion became the Committee on Higher Degrees in the Study of Religion.

After Nock's retirement in the 1960s, the leadership of the Committee passed to Wilfred Cantwell Smith, a comparative religion scholar who served as the director of the Center for World Religions at Harvard Divinity School. "Smith really made the doctoral program, particularly in compara-



Wilfred Cantwell Smith led the Committee on Higher Degrees in the Study of Religion.



William Graham received a PhD from the Committee on the Study of Religion and eventually guided the undergraduate concentration.

country had been implementing.” The religion departments that had evolved from Bible study were expanding beyond American Christianity and New Testament studies to incorporate specialists in Talmudic studies and non-Western religions. “These people had always been there, but they had been in East Asian, South Asian,

tive religion, his focus,” remembers William Graham, PhD ’73, the Murray A. Albertson Professor of Middle Eastern Studies and former dean of Harvard Divinity School, who came to Harvard in the 1960s. “His efforts reflected what colleges and universities across the

and Jewish studies departments,” says Graham.

During this time, women also made strides at Harvard and in academic year 1962–1963, the first year women were officially admitted to the Graduate School of Arts and Sciences, Jane Dempsey Douglass received a PhD for her research on “The doctrine of justification in the preaching of Doctor John Geiler of Keisersberg,” a Swiss-born priest and preacher.

Smith was also responsible for developing an undergraduate concentration in the study of religion, which would ultimately pull the Committee more fully into the Yard. “When I was a student, the PhD office was over at the Divinity School, even though it was an arts and sciences degree,” says Graham. But when the concentration was created in 1974, Graham along with Diana Eck, who was hired two years later, became the first two faculty members focused on religion in the Yard. “It’s really the undergraduate

concentration that broke the ground for bringing the doctoral program into a single unit.”

Constant Evolution

The story of the study of religion at Harvard is one of transformation. From ministerial training to philosophical thought to focus on the religions of non-Western cultures, the field has shifted and expanded to incorporate often radical changes in thinking. The first PhD was given in 1942 to Elwyn Allen Smith, whose dissertation concerned “The realization of Calvin’s state-church theory in Geneva.” Last year, while one graduate considered Calvin’s legacy for her dissertation, five others students graduated with research in Tibetan Buddhist rituals, Sanskrit ethics, and the interaction between Arabic, Sanskrit, and Persian intellectual cultures in Mughal South Asia.

As the American religious scene has altered dramatically in the last 50 years, so has its scholarly focus. “There’s been a change that mirrors societal change, and a maturing of thinking about religion in an eclectic and international way,” says Graham. “For example, back in the 1960s, Native American religion wouldn’t have been part of religious history, it would have been exotica or anthropology. Now American religious history can include that, and Buddhism or Islam in America.”

The one thing that has not changed is the Committee’s cross-disciplinary focus. “People want to be involved with thinking about religion more broadly,” says Graham, who is a member of the Department of Near Eastern Languages and Civilizations. “We have about 30 faculty members who focus on religion, but they are based in history, or English, or philosophy. They serve the Committee as they always have, from within the Yard.” It is this cross-disciplinary focus, coupled with its inclusion of faith traditions throughout the world, that makes the Committee on the Study of Religion a place of constant evolution. 🏛️

“For many years we have been unable to enroll in the School men wishing to prepare themselves for teaching in the field of religion on college faculties, and desiring for this purpose the PhD degree. Men in the Divinity School have not been considered eligible for candidacy for the PhD. Nor has there been in our Faculty of Arts and Sciences consistent provision for a higher degree in this field. The available PhD degrees in history, classics, philosophy, and the like, have required much material irrelevant for the needs of men seeking college posts in the field of religion. The result has been that despite all the Harvard resources in the religious area, graduate students of the type in question have gone elsewhere and have been lost to Harvard.”

Willard L. Sperry, dean of Harvard Divinity School, announcing the creation of a new doctorate in the combined field of History and Philosophy of Religion, 1936.

1636

Harvard established to train ministers



1816

Harvard Divinity School established



1934

Creation of new doctorate in the History and Philosophy of Religion



1942

First PhD given to Elwyn Allen Smith



1956

Susan Taubes is the first woman to earn a PhD in History and Philosophy of Religion



1963

History and Philosophy of Religion becomes the Committee on Higher Degrees in the Study of Religion



1974

Undergraduate concentration developed

Noted

BIOLOGY

The Society for Neuroscience presented its 2014 Award for Education in Neuroscience to **Richard Olivo, PhD '69**. The award recognizes his organization of teaching workshops for the Society's annual meeting, and his leadership in creating a web portal for the Society that lists and reviews high-quality resources for higher education. Olivo is professor of biological sciences and neuroscience at Smith College and from 1996 to 2009, served as an associate director of the Derek Bok Center for Teaching and Learning at Harvard.

BIOPHYSICS

Bruce Alberts, PhD '66, won the 2014 Philip Hauge Abelson Prize, awarded annually by the American Association for the Advancement of Science (AAAS). Widely recognized both for his research on DNA replication and his dedication to improving science education, Alberts is president emeritus of the National Academy of Sciences and was formerly editor-in-chief of *Science*. He is based at the University of California, San Francisco, where he serves as Chancellor's Leadership

Chair in Biochemistry and Biophysics for Science and Education. In 2014, President Barack Obama awarded Alberts the National Medal of Science. He is also a recipient of the GSAS Centennial Medal, the Graduate School's highest honor.

GEOLOGY

University of North Carolina Wilmington (UNCW) geology professor **Patricia Kelley, PhD '79**, was recently named US Professor of the Year alongside three other winners. Sponsored by the Carnegie Foundation of the Advancement of Teaching and administered by the Council for Advancement and Support of Education (CASE), the award is one of the nation's highest undergraduate teaching honors given to professors for excellence in teaching and mentoring. Kelley is also a recipient of UNC's 2014 Board of Governors Award for Excellence in Teaching, the Association for Women Geoscientists Outstanding Educator Award, and UNCW's Chancellor's Teaching Excellence and Distinguished Faculty Scholar Awards.

GOVERNMENT

Evan Schnidman, PhD '13, is co-founder and CEO of Prattle Analytics, a data solutions business that utilizes textual analysis techniques to interpret central bank statements. The company's mainstay is its Fed

Playbook, which analyzes the central bank's word choices and computes a numerical score meant to steer the decisions of fund managers. Schnidman's research has been featured in *Bloomberg News*, *Seeking Alpha*, *Yahoo News*, and *Nasdaq*, and is the foundation of his forthcoming book, *How The Fed Moves Markets*.

Due for release in June 2015, *Ghost Fleet: A Novel of the Next World War* (Houghton Mifflin Harcourt, 2015) by **Peter Singer, PhD '01**, explores what could happen if the brewing cold war between the US, China, and Russia ever turned hot. The book is in part based on interviews conducted with US Navy destroyer captains, F-22 pilots, Chinese generals, and Anonymous hackers, and contains over 500 footnote references to everything from Chinese drone prototypes, to Aurora cyber-attacks, to which real-world pizza place the SEAL teams eat at. Singer is a strategist for the New America Foundation policy think tank.

HISTORY

Judith M. Hughes, PhD '70, has published *The Holocaust and the Revival of Psychological History* (Cambridge University Press, 2014). In it she asks: Why did men—and women—in one of the best educated countries in the western world set out to get rid of Jews? In the book, Hughes focuses on how historians' efforts to grapple anew



GOVERNMENT

Political theorist **Danielle S. Allen, PhD '01**, has been appointed professor in the Department of Government and director of the Edmond J. Safra Center for Ethics at Harvard. Allen comes to Harvard from the School of Social Science at the Institute for Advanced Study, where she serves as UPS Foundation Professor. Prior to the Institute, Allen was professor of classics and political science and dean of the Division of Humanities at the University of Chicago. She is a former MacArthur Fellow (2002–2006) and has been honored with accolades that include grants from the Spencer and Ford Foundations, and the Quantrell Award for Excellence in Undergraduate Teaching at the University of Chicago. Allen will officially begin her Harvard posts in July.

with matters of actors' meaning, intentions, and purposes has prompted a return to psychoanalytically-informed ways of thinking. Hughes is professor of history at the University of California San Diego.

HISTORY OF SCIENCE & HISTORY OF AMERICAN CIVILIZATION

Co-authored by **Sarah Anne Carter, PhD '10**, history of American civilization; Ivan Gaskell; **Sara Schechner, PhD '88**, history of science; Laurel Ulrich, 300th Anniversary University Professor; and Samantha van Gerbig, *Tangible Things: Making History through Objects* (Oxford University Press, 2015), considers the value in the ordinary objects we encounter in our daily lives and all they reveal about humanity. Artifacts studied include a pencil manufactured by Henry David Thoreau and a bracelet made from iridescent beetles, both of which were discovered in storage at Harvard among hundreds of other fascinating finds. The work blurs the lines between history, anthropology, science, and the arts, and encourages readers of all interests to re-visit the seemingly mundane with a fresh perspective.

PHYSICS

For his contributions to the study of General Relativity, **Stanley Deser, PhD '53**, will be awarded the prestigious Einstein Medal by the Albert Einstein Society in Bern, Switzerland. Along with the medal comes membership to the Einstein Club and access to the Einstein House in Bern where the famous physicist began his career. Deser is professor emeritus of physics at Brandeis, where he served upwards of 50 years. He is credited with developing the ADM formalism, a formulation of general relativity that has since paved the way for computational research into phenomena such as black holes, gravitational waves, and neutron stars.

Jonathan Ruel, PhD '13, has published *The Hardboiled Astronomer and the Secret Gospel of James* (Jonathan Ruel, 2014), a novel about time, space, memory, and the stories we tell to and about ourselves. Its narrator is a graduate student at Harvard, and his story is deeply rooted in Ruel's own experience at the Graduate School, Dudley House, and Cambridge. This is Ruel's first novel.

ROMANCE LANGUAGES AND LITERATURES

The Boston office of Pierce Atwood LLP has welcomed **Mary-Laura Greely, AM '86**, as a partner in its Business Practice Group. Greely joins Pierce Atwood with 20 years of experience representing companies on mergers and acquisitions, debt and equity financings, strategic investments, equity structures, corporate governance and succession planning, employment, intellectual property protection, and licensing arrangements. Deals spearheaded by Greely earned the Tech Dealmaker Award from Mass High Tech and the Association for Corporate Growth Boston, and the 2013 M&A Advisor Deal of the Year Award.

STATISTICS

Harvard has appointed **Stephen Blyth, PhD '92**, president and chief executive officer of Harvard Management Company (HMC), the organization responsible for managing the University's endowment and associated financial assets. Blyth joined HMC in 2006 as managing director and head of public markets. He has also served as a professor in the Department of Statistics in the Faculty of Arts and Sciences. In 2013, he was honored by Harvard's Phi Beta Kappa chapter with the Alpha Iota Prize for Excellence in Teaching. He is the author of several academic papers on statistics and finance, and the book, *An Introduction to Quantitative Finance* (Oxford University Press, 2013). 

Six alumni named to Forbes 30 under 30 lists

GSAS congratulates its six alumni featured in *Forbes* magazine's prestigious 30 under 30 lists for 2015. Recognizing the talents and achievements of individuals under age 30, the list spans 20 different categories. GSAS alumni were recognized in four of those twenty, with three named to the list for healthcare, two for science, and one for manufacturing and industry. From Alison Hill's research into the potential effectiveness of HIV cures to Nikhil Agarwal's overhaul of the medical residency match system, the accomplishments of these alumni are as diverse as they are impressive. Recent graduate Alexander Bick uses computational analyses to study data published in science journals; Patrick Hsu of the Broad Institute uses the Cas9 protein to transform the human genome; Purdue University's Rebecca Kramer leads the school's Fabrication Laboratory and develops soft manufacturing materials; and inventor Tony Pan of *Science* has over 50 patents and patents pending in the fields of energy, nanotechnology, and the biomedical sciences.



Nikhil Agarwal, PhD '14,
biochemistry

Assistant Professor of Economics, MIT
Healthcare



Alexander Bick, PhD '14, genetics

Researcher, Harvard Medical School
Healthcare



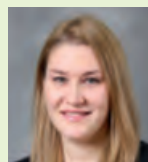
Alison Hill, PhD '13, biophysics

Research Fellow, Harvard University
Healthcare



Patrick Hsu, PhD '14, biochemistry

Postdoctoral Fellow, Broad Institute
Science



Rebecca Kramer, PhD '12,
engineering sciences

Assistant Professor of Mechanical
Engineering, Purdue University
Manufacturing and Industry



Tony Pan, PhD '13, physics

Principal Scientist, Invention Science Fund
Science



Watch Flour Bakery's Joanne Chang demonstrate the science of sweets in the HarvardX course "Science and Cooking."

Curious?

The Harvard Alumni Association has curated a selection of online courses that reflect the breadth of intellectual content the University has to offer, providing alumni with an opportunity to continuously engage in lifelong, self-directed learning. Take advantage of popular Harvard classes such as "Science and Cooking" or "Justice," or improve your understanding of China or neuroscience. New content will be added throughout the year, so there will always be something new to learn.

Harvard Alumni Online Learning offers HarvardX courses featuring Faculty of Arts and Sciences professors, for-credit programs from Harvard's Division of Continuing Education, and a selection of offerings from across Harvard's professional schools, from business to public health. For more information, visit online-learning.harvard.edu/alumni.

HARVARD HORIZONS SYMPOSIUM HIGHLIGHTS EIGHT SCHOLARS

Join us for the third annual Harvard Horizons Symposium on May 6, 2015, at 4:15 p.m. in Sanders Theatre. This year, Harvard Horizons Scholars will deliver presentations on engineering with soft materials, the microcosm of pitcher plants, the philosophical ideas that embody resistance, and more! For more information, visit gsas.harvard.edu/horizons.



2014 Harvard Horizons Scholar Tom Norman delivers his symposium talk.

Call for Nominations

Nominations for members to serve on the Graduate School Alumni Association Council, the governing body of the Harvard Graduate School Alumni Association, are accepted year-round. The Council meets at Harvard each fall and spring to represent and advance the interests of the students and alumni/alumnae of the Graduate School of Arts and Sciences. Typically, members will have achieved success or distinction in their career, and they may also have made significant contributions through community service. Council members share a strong commitment to Harvard and to graduate education.

Nominations for Council membership should be accompanied by a cover letter stating your reasons for selecting the candidate and mailed to:

Harvard University
GSAA Council Nominations
Smith Campus Center 350
1350 Massachusetts Avenue
Cambridge, MA 02138
e-mail: gsaa@fas.harvard.edu

All submissions will be forwarded to the Nominations Committee of the Graduate School Alumni Association Council.

Help GSAS recognize distinguished alumni of the Graduate School of Arts and Sciences by nominating a colleague for the Centennial Medal. Awarded each May, the Centennial Medal is the highest honor bestowed by GSAS; it celebrates contributions to society that emerged from one's graduate study at Harvard. Nominations, accompanied by a cover letter stating your reasons for selecting the candidate along with the candidate's CV or resume, can be e-mailed to gsaa@fas.harvard.edu or mailed to:

Harvard University Graduate School Alumni Association
Centennial Medal Nominations
Richard A. and Susan F. Smith Campus Center 350
1350 Massachusetts Avenue
Cambridge, MA 02138

The 2015 Centennial Medalists will be announced on May 27.
Visit gsas.harvard.edu/alumni/gsas_centennial_medalists.php for a list of past winners.



Preparing for a Life at Harvard



John Fan PhD '72 came to Harvard because "it is a great place to learn," but admits that it was easy to feel a little lost when he first arrived from the West Coast via Berkeley. "When I was a graduate student, there was no Dudley House, no orientation, and no formal training on how to write or present," says Fan, who was raised in Hong Kong.

Things have changed at the Graduate School of Arts and Sciences (GSAS) and he and his wife, Stephanie, are delighted to support that change with a gift for the English Language Program (ELP).

Now in its 15th year, ELP offers four weeks of intensive reading, writing, speaking, and comprehension instruction for international students before they begin their graduate work. The program was started through a generous gift of Ken Froewiss AB '67, PhD '77. ELP helps prepare students for a life at Harvard and develop the competencies they will need for future roles as teaching fellows, tutors, and laboratory assistants. Not only does ELP help to eliminate any potential language barriers for incoming students, it also helps to attract top graduate students from across the globe.

"This program is more than just about the language—it's helping students understand the culture of Boston and of Harvard," says Fan. Stephanie, who at one time managed the English as a Second Language Program in Boston Public Schools, agrees about ELP's importance.

For Fan, who earned a doctorate in applied physics, Harvard was a time to explore where he was going to apply his talents. "One of the things that the GSAS taught me was to dream and keep dreaming," he

says. "Harvard encouraged me to think about what I can do to change the world and how to make the world a better place."

He is founder, chair, and CEO of Kopin Corporation, a global company perhaps best known for its vertically grown power transistors, now used in almost every smartphone worldwide and for its tiny liquid crystal displays, used in consumer cameras and camcorders, as well as in defense industries. He is a prodigious entrepreneur and authority in his field, having written 200 publications, edited three books, and held over 50 issued patents. The company is now venturing into wearable computer technology.

"We have another chance to redefine how we interact with technology," says Fan. "This new wearable drive has so many twists and turns. It is very exciting and keeps me young."

Harvard has remained an integral part of Fan's life. In addition to staying in regular touch with his Harvard peers for advice on wearable technology, and serving on the GSAS Alumni Council for over eight years, Fan is the proud father of GSAS graduate Melina C. M. Fan PhD '04.

He's particularly energized to think about the impact of his multiyear gift on future GSAS students. "Harvard should be commended for the program," he says. "I really want to support them as they enhance the program and offer it to more students." —*Leigh Carlisle*



John Fan, PhD '72

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Graduate School Fund
alumni.harvard.edu/ways-to-give/gsas-giving



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After a long New
England winter,
spring returns to
Harvard Yard.
Photograph by
Melanie Rieders