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MAGAZINE



## SPEAK, MEMORIES

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Oral History Project at Columbia



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Gone Mad

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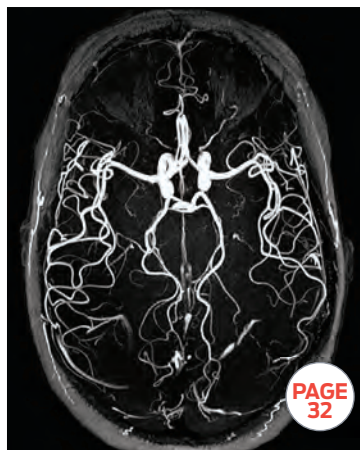
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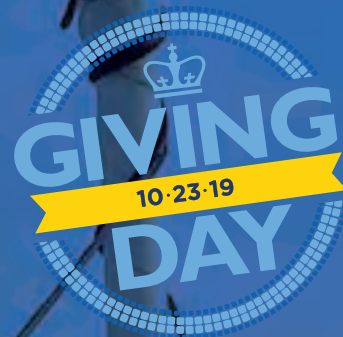
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Photo courtesy of Agustina Besada '15SPS, who works for cleaner oceans.

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## DROWNING IN PLASTIC

Your article on plastic waste (“Plastic, Plastic Everywhere,” Summer 2019) presented a complex issue in a concise, engaging manner. While highlighting how ubiquitous and terrible plastic usage has become across the globe, the article also showed how important it is to our economy and daily lives — an importance that can easily get lost in social-media posts that rely on shocking headlines to grab readers. The article’s description of plastic as “the most useful material ever invented” challenged me to think about the full scope of the plastic problem and how vital it is to start reducing usage across industries ASAP.

**Emily Dreibelbis ’14CC**  
Seattle, WA

After reading your article on plastic waste in our oceans, I am taking up legislation as vice mayor of North Bay Village to ban all single-use plastics in our city. As a coastal city we are acutely aware of the dangers of plas-

tic and are taking steps to do our small part to help address the issue. Thank you for bringing additional coverage to the subject.

**Marvin Wilmoth ’09GSAPP**  
North Bay Village, FL

I appreciate the way your article engaged with Agustina Besada’s transatlantic adventure while also addressing some of the most urgent issues to our modern lifestyle. My hometown of Shanghai has just started a compulsory recycling program, which I think is much needed for this big city where the younger generation heavily depends on convenient food delivery and consumes an unnecessarily large amount of plastic.

**Jessica Jiang ’16SEAS**  
Shanghai, China

As the organizer and moderator of the panel on microplastics in clothing mentioned in your article, I recall well Joaquim Goes’s call for action and was pleased to learn that the fashion industry has aided his research by providing fabric samples. However, with

an estimated 35 percent of the microplastics in the ocean coming from fashion, to truly heed his call they must use his team’s findings to improve their manufacturing practices.

**Jennifer L. Costley ’83GSAS**  
Olivebridge, NY

Our addiction to single-use plastics is disgusting and frightening, particularly given the size of our population. That said, most of the solutions proposed in your article wouldn’t do much to address the plastic catastrophe now plaguing our oceans. The famous Great Pacific Garbage Patch isn’t really caused by coffee pods, shopping bags, bottles, utensils, or other plastic consumer goods. Almost all of it seems to come from industrial seafood production.

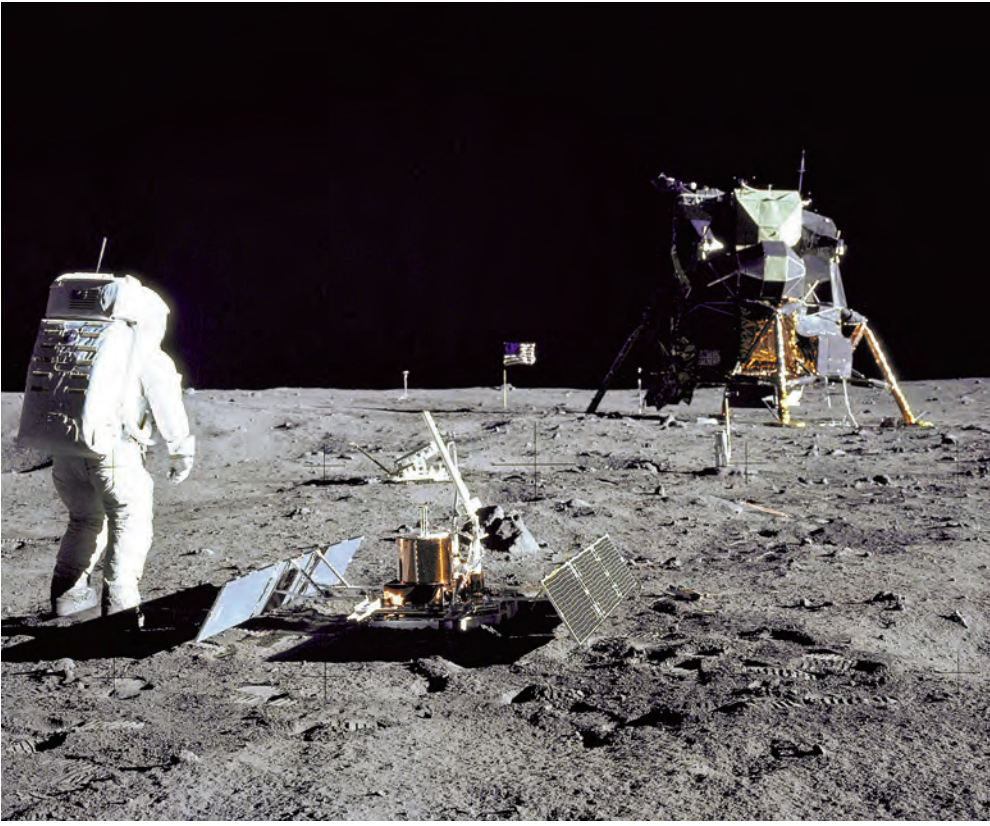
In a 2018 paper published in *Scientific Reports*, scientists estimated that 46 percent of the plastic in the Pacific came from fishing nets and the rest of it mostly from miscellaneous discarded fishing gear. Commercial fishing is really the place we need to focus our

# FEEDBACK

## FROM THE ARCHIVES



Our first cover story on Barack Obama ’83CC, from Winter 2008-09, looked at the new president’s attempts to strike a note of national conciliation in a hostile political climate. You can find that article, “Politics for Grown-Ups,” in our archives at [magazine.columbia.edu](http://magazine.columbia.edu).



Astronaut Edwin “Buzz” Aldrin stands beside the Passive Seismic Experiment Package, a system of four solar-powered seismometers developed by Columbia geophysicist Gary Latham ’65GSAS.

energy if we’re going to make a difference here.

**Daniel Luzer ’08JRN**  
Brooklyn, NY

The subtitle of your article said, “So what are we going to do about it?” Well, for one thing you could stop sending copies of the magazine encased in conventional plastic wrappers. Some publications in the UK have got the message and are now mailing out issues in compostable envelopes.

**Charles Raab ’59CC**  
Edinburgh, Scotland

*We hear you. Unfortunately, postal regulations require that we send international mailings in protective wrapping. Rest assured,*

*85 percent of our issues are sent domestically and do not come in packaging. We’re looking into more eco-friendly alternatives for the future. In the meantime, we encourage readers to recycle the plastic wrap, which is made from low-density polyethylene (LDPE) film. — Ed.*

MOON MEMORIES

Your article “Blue Moon” (Summer 2019), about the Columbia scientists who developed lunar experiments for Project Apollo, brought back memories.

In the summer of 1967, as a high-school sophomore, I worked at Lamont-Doherty

for the geologist Paul Gast, preparing the clean rooms for the first moon-rock samples that would be brought back by the Apollo 11 astronauts. It was my job to help determine the contamination levels in the room by examining the dust particles and affixing them to a filament. Then Gast would use his atomic-absorption mass spectrophotometer (we called it the Wayback Machine) to determine how contaminated the dust in the room was.

As an impressionable high-school kid and already a space nut, I was walking on air that whole summer. Gast was a brilliant and fascinating person, a wonderful man, and a good friend and neighbor. He was pretty much the absent-minded professor — when it rained I’d have to walk all over the Lamont campus and gather his raincoat, hat, galoshes, and umbrella that he’d left behind at various buildings. His passing in 1973 at age forty-three was truly tragic.

When I was last up at Lamont, several years ago, it was to help the oceanographer Pierre Biscaye, another friend who had worked in the geochemistry building in

KEY TO ABBREVIATIONS			
CODE	SCHOOL	CODE	SCHOOL
BC	Barnard College	NRS	School of Nursing
BUS	Graduate School of Business	OPT	School of Optometry
CC	Columbia College	PH	Mailman School of Public Health
DM	College of Dental Medicine	PHRM	School of Pharmaceutical Sciences
GS	School of General Studies	PS	Vagelos College of Physicians and Surgeons
GSAPP	Graduate School of Architecture, Planning, and Preservation	SEAS	Fu Foundation School of Engineering and Applied Science
GSAS	Graduate School of Arts and Sciences	SIPA	School of International and Public Affairs
HON	(Honorary degree)	SOA	School of the Arts
JRN	Graduate School of Journalism	SPS	School of Professional Studies
JTS	Jewish Theological Seminary	SW	School of Social Work
KC	King's College	TC	Teachers College
LAW	School of Law	UTS	Union Theological Seminary
LS	School of Library Service		

those years, to clean out his office in advance of his retirement. Pierre took me aside and said, "Greg, Dr. Gast was the one who picked the early lunar-landing sites." The idea was to find the places that had the oldest rocks, and Gast had been estimating where they might be. There are books that mention other people along with Gast who were in on that decision, but Pierre said to me, "Trust me: Paul made that determination."

**Greg Miller**  
Ringwood, NJ

My claim to fame is being part of the team that invented the space toilet. We worked at Fairchild Republic Aviation as subcontractors

to NASA. We were doing research on metabolism, and the program needed a means of collecting body-waste samples to measure calcium loss in zero gravity on Skylab. The actual hardware was designed by Republic's aerospace engineers. My job was to ensure that the system would give the data that was needed. It worked perfectly and ultimately evolved into the toilet now in use on the space station (which no longer collects samples).

**Hugo Freudenthal**  
'55PHRM  
Dunedin, FL

Your article was of very special interest to me. In it I learned more about a fellow

Columbian, Donald Beattie, with whom I worked closely in the 1970s at the newly created US Energy Research and Development Administration. There Beattie directed research that led to early energy-conservation efforts and prefigured today's renewable-energy technologies. Beattie's contributions to the field have never been fully appreciated.

**David M. Richman**  
'53CC, '56SEAS  
North Bethesda, MD

I was fortunate to be a doctoral student and later a postdoc under Lamont's Orson Anderson, whose area of research included lunar geophysics. As part of

my work, I investigated two research problems that are mentioned in your article: (1) understanding the seismic noise generated by the abrupt thermal shock of sunrise and sunset — a lunar-surface temperature swing of over five hundred degrees Fahrenheit — and (2) interpreting near-surface structure from seismic signals.

Research into the first problem began with generating thermal effects in different materials in the lab. The first step was demonstrating the audible cracking of an ice cube dropped into a glass of water or gin.

Also at this time, and literally just down the hallway, the theory and testing of

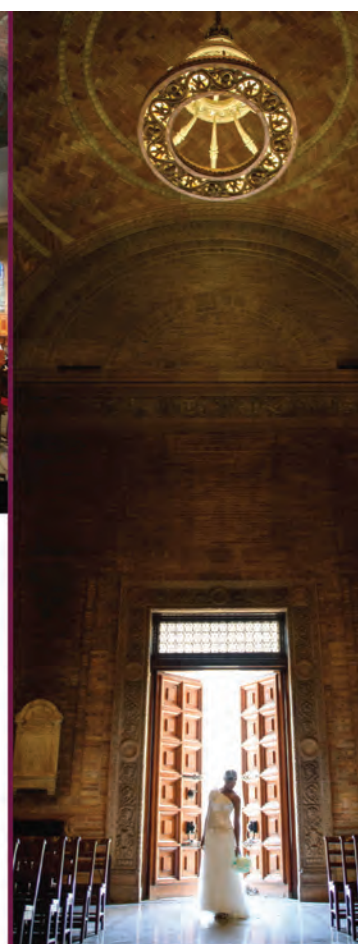


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## FEEDBACK

what is now known as plate tectonics was going on. In our graduate-level seminars, we could be assigned to read engineering papers on bending beams and apply our understanding to proposed tectonic plates. This research was great fun and has stayed with me even as life has gone in different directions. I am most grateful to have been part of those heady times.

**Nik Warren '71GSAS**  
Berkeley, CA

On July 20, 1969, after another day spent documenting German industrial architecture in Stuttgart as a GSAPP Kinne Fellow, I naturally headed to a beer hall. I was evidently the only American among the jubilant crowd witnessing the US's hard-to-believe landing on the moon. The faint but sure television images only heightened the drama and import of the event. "*Prost! Prost! Prost!*" I tried to keep up with the many toasts to our country — and to me as its sole local ambassador. I was never more proud, never more drunk.

Some months later I heard of the first presentation of Apollo swag at Lamont — precious lunar rocks and soil. Assuming that everything Columbian was rightfully mine, I took a bus to Palisades, New York. The driver knew the Lamont gate. Happily, there was a car waiting for me — well, actually for a geoscientist from MIT who was very late and assumed to be me. My chauffeur and I lamented the erratic Amtrak schedules.

At the mansion's door, Lamont's director, Maurice Ewing, greeted me. A microscope was presented for my inspection. "Looks like basaltic material to me," I ad-libbed. "Yes, yes, yes!" a small chorus responded. Beautiful luminous, glassine spherules were easily identified on the drab gray-brown particulate background. Next I was handed a petri dish containing a sample of rock cut into a small, exact cube for mechanical testing. "What a surprising morphology this rock displays!" I said, to more amused

response. Ewing graciously showed me around the house and grounds. Great good cheer prevailed.

I was happy, and MIT would have been happy knowing that their reputation had been given a needed boost. *Prost, prost*, and hip, hip, hooray to LDEO, NASA, and the USA for this global gift of a lifetime.

**William Taylor '70GSAPP**  
Christiansted, US Virgin Islands

## GIVING TREE

What a happy surprise to see your article about the magnificent tree looming over the walkway in front of the Mathematics Building — the oldest tree on the Morningside campus ("Made in the Shade," College Walk, Summer 2019).

This tree would not be standing today if not for the insistent intervention of unsung hero Edgar R. ("Ray") Lorch '28CC, '33GSAS, the onetime chair of the mathematics department. When the tree was diseased and dying and the University was getting ready to cut it down, Ray donated his own funds to doctor and heal it. And so each spring, when I'd look out the window and wait to see if the tree would have the strength to bring forth its luxurious foliage one more year, I'd think of Ray.

**Francine Brown '65LS**  
New York, NY

*The writer was administrator of the math department from 1975 to 2001.*



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William Cornell Casey

## ALMA PATER

After reading the eulogy for University Professor Donald Keene in your Summer 2019 issue ("Found in Translation," College Walk), I would like to pay tribute to another truly great Columbia professor who was entirely devoted to his students.

William Cornell Casey (1891–1978), who taught sociology at Columbia from 1931 to 1959, was an incomparable and revered teacher whose courses were regularly viewed as the best at Columbia by nearly three decades of graduates. His classes were always a thrilling intellectual adventure, drawing together events, persons, and theories in order to demonstrate how the false

use of language can lead us astray in our attempts to identify real solutions to social problems.

For those who wanted more of his astounding erudition and lucidity, he was always available for lengthy discussions in his inviting book-lined office in Fayerweather Hall, and after graduation some of us spent among the best evenings of our lives dining with him at Butler Hall and then conversing about every subject under the sun in his comfortable apartment. For me, Casey was a beloved mentor who set me on my career path in sociology and, above all, taught me to think clearly and act justly. I was fortunate to be one of

his "ten thousand sons," as he proudly referred to us, and I am forever grateful to Columbia that he was there for us for so long.

**Bob Ratner '59CC**  
Vancouver, British Columbia

## THE HACKER NEXT DOOR

Your interview with SIPA senior research scholar Jason Healey couldn't be more timely and spot-on ("The Age of Cyberwarfare," Summer 2019). At a moment when the rift between America and Iran continues to widen, the US government has more options than ever in its arsenal for attacking another nation. This was evident in President Trump's decision to call off a physical offensive in June and replace it with a cyber one against Iran's missile systems.

However, the article would have been more interesting if it had explored cyberattacks coming from domestic threats rather than just from abroad. I can't imagine the type of collateral damage we would sustain if a domestic bad actor could use a cyberattack to take down major infrastructure or even launch weapons systems. This sort of domestic attack would be far more difficult to detect and intercept than a foreign one. Congress would have to allow more mass surveillance of US citizens if it wanted to build up our defenses domestically, which would be a major blow to our privacy rights.

**Cho-Nan Michael Tsai**  
'01SEAS  
Alhambra, CA

## Jason Healey responds:

*An attack from inside the United States, such as by a government contractor with a security clearance, could cause significant disruption. But when it comes to cyberattacks, outsiders can, without straining themselves too much, gain the same access and knowledge as insiders. And since the outsiders — think Russian military intelligence or the Chinese cyber command — have significant resources, they can pose at least as big a threat as all but the worst imaginable domestic actors.*

## PRAISING MOSES

Your review of Robert A. Caro's new book *Working* (Summer 2019) revives and rehashes Caro's very negative opinion of Robert Moses, best known from his 1974 book *The Power Broker*. Tell the thousands of sweating families living in the New York metropolitan area on a hot summer day that it was a man named Robert Moses who built Jones Beach, a score of other beaches on Long Island, Orchard Beach in the Bronx, and the highways and parkways that bring them there, and they will only sing his praises.

Robert Moses was motivated by this same commitment to providing for the public need when, in the late 1960s, he enthusiastically endorsed the proposal by then New York governor Nelson A. Rockefeller to replace abandoned, rotting piers in the Hudson River off Lower Manhattan with a mixed residential housing

and towering commercial community. All the high-rise structures that would compose this new community would be built on a ninety-two-acre, mile-long site that would be created by barging thousands of tons of sand from lower New York Harbor.

Executing such a physically and financially daunting undertaking in the politically charged, money-starved municipality that was New York City in the 1970s and 1980s would not be easy, but throughout the planning and development, the Battery Park City Authority's efforts were publicly supported and encouraged by Robert Moses. As a result of that perseverance, Battery Park City contains 7.2 million square feet of housing, with another adjacent ten million square feet of commercial space and four public schools to accommodate the children of its 13,500 residents.

**Avrum Hyman '54JRN**  
Bronx, NY

*The writer was New York State deputy commissioner of housing and community renewal and director of public information during the formation and first ten years of the Battery Park City Authority.*

## VERBAL DISPUTE

I was amazed by the glaring insult to intelligence on the cover of the Summer 2019 issue: "About 8 million tons of plastic *ends up* in the ocean every year." "Tons" is a plural subject that takes the plural verb "end up."

Are you a native English speaker? From California? Are you intent on sabotaging Columbia or unqualified and irresponsible? The headline of your cover story is illiterate and embarrassing for all at Columbia.

**Judith Fried Ducray '69GS**  
Saint-Cyr-sous-Dourdan,  
France

I am sure that you have heard from a good number of Columbians about the amazing error in grammar that (dis)graced your cover. As a Columbia graduate and former teacher in the English department, I thought I must have misread that sentence. I wish I had.

**Robert Hollander '62GSAS**  
Hopewell, NJ

*While it is certainly true that "end up" is the standard plural form, a singular verb is often used instead when the subject of a sentence is a phrase that can be viewed as a single unit. This is particularly common when the subject is an expression of quantity or measure, as in "eight million tons."*

*From George O. Curme's Syntax (1931): "If a single plural subject or several singular or plural subjects are felt as forming the idea of a firm mass or fixed amount, the verb is in the singular: 'Nearly thirty shillings was paid for a pound of tea in 1710.' 'Oh, there's bushels of fun in that!' (Eugene Field, Poems of Childhood, 'The Drum')."*

*From Rodney Huddleston and Geoffrey K. Pullum's The Cambridge Grammar of the English Language (2002):*

*"Twenty dollars seems a ridiculous amount to pay to go to the movies. Five miles is rather more than I want to walk this afternoon. Three eggs is plenty."*

*And from the great Theodore Bernstein '24CC, '25JRN, in his Miss Thistlebottom's Hobgoblins: The Careful Writer's Guide to the Taboos, Bugbears, and Outmoded Rules of English Usage (1971): "Some people are very literal-minded about the question of grammatical number; they tend to concentrate on the exact word that they take to be the subject of the sentence, when sometimes they should be looking at the thought that the word or words represent ..."*

*Mention should be made here of the question of numbers that are to be considered not as expressions of individual units but rather as expressions of an integral quantity. You would not write, 'Three inches of snow have fallen,' because you are not thinking of individual inches; you are thinking of a quantity of snow that accumulates to that depth. Likewise you would not write, 'About \$10,000 were added to the cost of the project,' because again you are thinking of a sum of money, not of individual dollars."*

*A casual search shows that we're in good company. From the New York Times: "Of the plastic that is simply trashed, an estimated seven million tons ends up in the sea each year." From the Washington Post: "Every year, 1.4 billion tons of food — a third of global production — ends up in landfills." — Ed.*

## CARRY-ON

Departing home for a trip to Hawaii with my wife, I checked the mailbox as we pulled out of the driveway. The summer issue of *Columbia Magazine* was waiting to be picked up, so I put it in my carry-on and we hit the road. I started out interested in the Project Apollo and cybersecurity articles, but I ended up reading the magazine cover to cover. I was impressed by the quality of the work and also the breadth of topics and schools included. I look forward to the fall issue!

**David Walsh '06SEAS**  
Bloomington, IN

## LAST NOTE

Your "Rare Finds" article about Béla Bartók on the back page of the summer issue reminded me of my first days at Columbia Journalism School in September 1946, when my first news assignment was to cover Bartók's funeral. I have always felt closer to Bartók after being a part of his finale.

**Eileen Martinson Lavine '46JRN**  
Bethesda, MD

## QUESTIONS? COMMENTS?

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—MARCELLA STAPOR '59GS,  
1754 SOCIETY MEMBER



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# COLLEGE WALK

NOTES  
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## EAT, DRINK, INVEST

The Columbia Startup Lab knows how to party

**T**he smell of success is in the air at the five-year-anniversary bash for the Columbia Startup Lab in SoHo. Success and ... sesame oil.

It's a warm Wednesday evening, and as another working day comes to an end, the lab — an office space and business incubator for alumni entrepreneurs — closes and a celebration begins. Behind the lab's oversize garage-style doors, venture capitalists in suits and open shirt collars mingle with twentysomethings in jeans and hip sneakers. All food and drinks are provided by Columbia-connected businesses, many of which got their start at the lab. In one corner, Bryan Cowan '16BUS and a team from his company Wisefish Poké fill cardboard cones with brown rice, ahi tuna, and sesame-laden shoyu dressing — the source of the warm, nutty scent perfuming the air.

At the next table are brisket sliders from the Texas-style barbecue chain Hill Country, owned by Marc Glosserman '06BUS, and Beijing-style wraps from Mr. Bing, brainchild of Brian Goldberg '02GSAS. Upstairs in the mezzanine, which overlooks the collaboration-friendly office space, partygoers crack open ice-cold cans of rosé from the Drop, founded by Alexis Beechen '15BUS, and sample Japanese

munchies from Bokksu, a snack subscription service from Danny Taing '14SEAS.

It's clear that the Startup Lab knows how to have fun, but it also has a serious lineup of speakers — Columbia President Lee C. Bollinger; Merit Janow '88LAW, dean of the School of International and Public Affairs; and Richard Witten '75CC, special adviser to the president and Columbia Entrepreneurship founder. And as they take the mic, a bigger picture of what the lab has done for both the Columbia community and the city emerges.

"We live in a time when modern research universities must throw off the constraints of traditional academic silos to develop new and productive responses to society's problems," Bollinger says. "The Columbia Startup Lab is a quintessential example of the new academic ecosystem."

In its first five years, the Columbia Startup Lab has launched over 250 companies, in fields from financial tech to fashion to social entrepreneurship to food. In total, these early-stage ventures have raised more than \$55 million in funding. And while most startups take nearly a decade to mature from founding to acquisition, the lab has already seen four companies acquired in major deals

— including two businesses from the lab's first year: the design-software company Frustum and the prenatal-nutrition company Bundle Organics.

Liz Wilkes '13BUS, a member of the inaugural group, says that being a part of the lab was integral to the success of her company, Exubrancy, which provides on-site wellness programming like massages and yoga classes to more than five hundred corporations across the country.

"I was constantly meeting with people — investors, wellness professionals, potential corporate clients," she says. "Having a real space where I could conduct those meetings made it feel like a real company, even in the earliest days. It made a difference when we were presenting ourselves to the world."

But, Wilkes says, the lab was far more than just a workspace and a place to bring clients. For her, it was a community that gave her the support she needed.

"Starting a business can be very lonely, which is hard both personally and professionally," she says.

"Because of the Columbia Startup Lab, I was surrounded by people going through similar challenges. Five years later, my company has outgrown the office space. But when I'm trying to work out a problem with the business, people from my cohort are always my first call."

As the night winds down, guests take their last bites of flaky baklava from Eat Offbeat, a catering company that employs refugee chefs, cofounded by Manal Kahi '15SIPA and Wissam Kahi '04BUS, and down "boozy pudding shots" from Spoonable Spirits, a liquor-friendly dessert company from Kelli Lipson '19BUS.

But in the actual office space, no one is turning out the lights just yet. Instead, people migrate back to their desks, reopen their laptops, and jot down notes on the whiteboards hanging on nearly every wall. A new cohort has just started at the lab. And they have work to do.

— Rebecca Shapiro

## THE SHORT LIST

**ROAR** Cheer on the Columbia Lions and celebrate 150 years of college football at **Homecoming Weekend 2019**. The family-friendly festivities include a carnival and a football game against Ivy League rival Penn. October 18-19 at the Baker Athletics Complex.

**LISTEN** Catch the world premiere of *Desire*, a chamber opera from award-winning composer **Hannah Lash**, at Miller Theatre. The score of this deeply personal production, which is about overcoming

self-doubt, will be performed by the JACK Quartet. October 16.  
[millertheatre.com/events/desire-oct-16](http://millertheatre.com/events/desire-oct-16)

**SEE** An upcoming exhibition at the Wallach Gallery showcases contemporary art from Algeria and its diaspora. The show, titled **Waiting for Omar Gatlatto**, references the 1977 film *Omar Gatlatto* and offers a critical look at Algerian identity and society. Curated by art-history PhD student Natasha Marie Llorens. October 26-March 25.  
[wallach.columbia.edu/exhibitions](http://wallach.columbia.edu/exhibitions)

**SIP** Hooray for the red, white, and rosé! Support Columbia vintners by visiting the Alumni Wine Industry Network's **Virtual Wine Cellar**, a global directory of wine-makers and distributors. [alumni.columbia.edu/content/caa-wine-industry-network](http://alumni.columbia.edu/content/caa-wine-industry-network)

**LEARN** **Renzo Piano '14HON**, the world-renowned architect behind the Manhattanville campus, returns to Columbia to give a talk at the Forum (which he designed) about the role of architecture in creating more open, inclusive neighborhoods. Hosted by Columbia World Projects. October 15.  
[worldprojects.columbia.edu](http://worldprojects.columbia.edu)



**WATERLICHT**, an Immersive Light Installation at the Lenfest Center for the Arts, runs October 22 to 24 and helps kick off the Year of Water, a multidisciplinary initiative that highlights the environmental, economic, and social issues surrounding Earth's most precious resource. Find out more at [yearofwater.columbia.edu](http://yearofwater.columbia.edu).



Mixing pigments  
at the Sato  
Sakura Gallery.



## Try Burnt Oysters

A 500-year-old manuscript of artisanal “recipes” yields its secrets

Some time around 1500, a French artisan living near Toulouse decided to record his methods for making all sorts of useful things — pigments, castings, varnishes, and the like. He’d learned his craft as an apprentice and honed it through trial and error. And because he was literate in a society where literacy was just starting to spread — and perhaps anticipating publishing opportunities in the nascent “how-to” genre — he wrote down his hard-won techniques with the aid of those other useful inventions, pen and paper.

The artisan’s name is lost, but fortunately, 171 folios of his instructions and observations now reside in the Bibliothèque nationale de France, in Paris. Later this year, the Making and Knowing Project, a research

initiative based in Columbia’s Center for Science and Society and led by history professor Pamela Smith, will publish a translated, annotated digital edition of this highly informative text.

Known as Ms. Fr. 640, the document reveals its author as a tireless experimenter and improviser (“try burnt oysters,” he suggests, as an alternative mold for metal castings). He was part of that class of makers who, as Smith says, “knew the behavior of natural materials and were, in fact, the scientists of their day.”

As clever as he was, though, he could hardly have supposed that five hundred years later, in a city across the sea, his recipes would be resurrected. But on a Saturday afternoon in 2019, Smith, a scholar of early-modern Europe with a keen interest in crafts and craftspeople, entered

the Sato Sakura Gallery in Chelsea with a team of Columbia postdocs. The scholars would speak to the fifty people gathered there about the unknown artisan’s practical wisdom and would reconstruct some of his more colorful formulas.

Tianna Uchacz, a postdoc in art history, showed slides of the handwritten recipes and reflected on the questions they raised. What is the essence of artisanal knowledge? How does the sensory relationship with materials influence an artist? What is the connection between craft-making and scientific knowing? Then, to provide some tactile context — some *making* — Naomi Rosenkranz ’15BC, assistant director for the Making and Knowing Project, led a demonstration, suitable to the gallery setting, of how to combine pigments and binders to make paint.

Rosenkranz named the pigment sources available to the ordinary sixteenth-century artisan: plants (roots, flowers, resins, berries, stalks, bark, leaves) and animals (shellfish, insects); iron-oxide minerals (ochre, umber, sienna) and earth (clays, dirt). She spoke of particles and molecules (her background is in physics), stability and instability (grass is an *unstable* pigment, since its stains fade), and techniques for refining substances so that they can mix with binding agents like egg-yolk tempera, rabbit-skin glue, or linseed oil.

Audience members lined up at a table to see the pigments. One pigment, a fine pink-purple powder as vivid as crushed candy hearts, was made of dried, ground cochineal, a bug native to Mexico, from which the red dye carmine is still made. Our anonymous craftsman might have been amused to watch twenty-first-century novices heeding his directives as they hunched over glass palettes, mixing powders and oils together with a glass pestle, then dipping their paintbrushes and applying them to white paper, leaving bold strokes of mulberry blush.

As they mixed and dabbed, participants were briefly transported from the mechanized world to the artisanal workshops of the French Renaissance. The exercise served as a reminder of the simple pleasures of hands-on invention — and of the adage that there is no learning like doing.

— Paul Hond

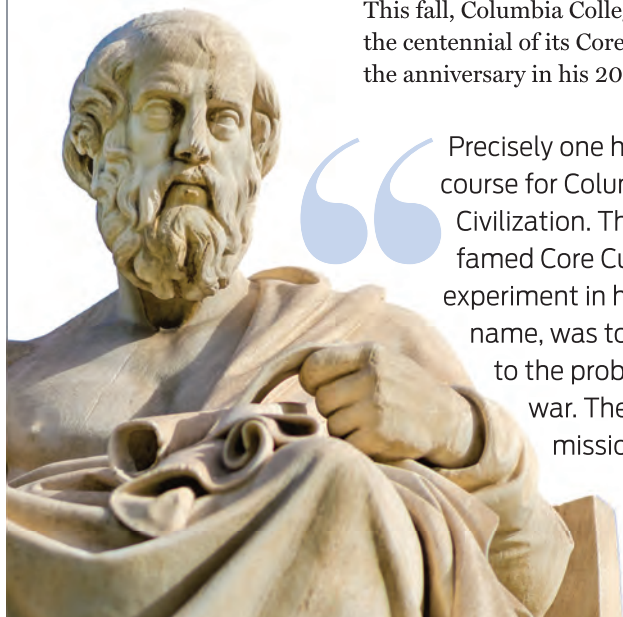


## WILD CARDS

Albert Field '38CC was Salvador Dalí's personal "archivist," hired to distinguish real Dalís from thousands of fakes. He was also a playing-card collector. Field, who died in 2003, left his collection of 6,400 decks to Columbia. An exhibit of cards spanning four hundred years and four continents will be on display at the Rare Book and Manuscript Library starting September 23.

## CORE PRINCIPLES

This fall, Columbia College kicks off a series of festivities to celebrate the centennial of its Core Curriculum. President Lee C. Bollinger noted the anniversary in his 2019 Commencement address.



Precisely one hundred years ago, in 1919, ... a new yearlong required course for Columbia freshmen was launched called Contemporary Civilization. Though today we know CC as the genesis of the famed Core Curriculum, then it was nothing more than a bold experiment in higher education. The objective, reflected in the course name, was to apply learning and reason derived from classic texts to the problems facing society in the aftermath of a cataclysmic war. The idea was to double down on the academic mission, and it has made a difference, as generation after generation has attested to its value in creating an open mind and intellect.

## MELVILLE AT 200

How Columbia scholars rescued the author of *Moby-Dick* from the waters of oblivion

1919 was a big year for literary centenaries. James Russell Lowell, poet, critic, and diplomat, was feted at Columbia University and the Ritz-Carlton, and Walt Whitman was toasted by two hundred at the Hotel Brevoort, near Washington Square. Both

a book, *Moby-Dick*, which involved a crazed sea captain hell-bent on destroying the whale that tore off his leg. The book sold poorly. After two more failed novels, Melville, a father of four, ditched prose for poetry, grew ever more melancholic and insolvent, and became a

long before Stein or Joyce; he acknowledged America's predatory power as well as its great promise; he defied convention in writing about sex; and perhaps most shocking of all, he took seriously the possibility of a godless universe. In his time, there was a limited market for these insights and innovations."

But in 1919, one American critic knew of the buried treasure. Carl Van Doren 1911GSAS, a professor of English at Columbia and literary editor of the *Nation*, wanted to mark Melville's centenary in the magazine. He had a writer in mind: an English instructor named Raymond Weaver 1917GSAS, whose mastery of Shakespeare was a good prerequisite for tackling the American writer who in language and spiritual turbulence most closely approached the Bard. At Van Doren's urging, Weaver dusted off Melville's works and was hooked.

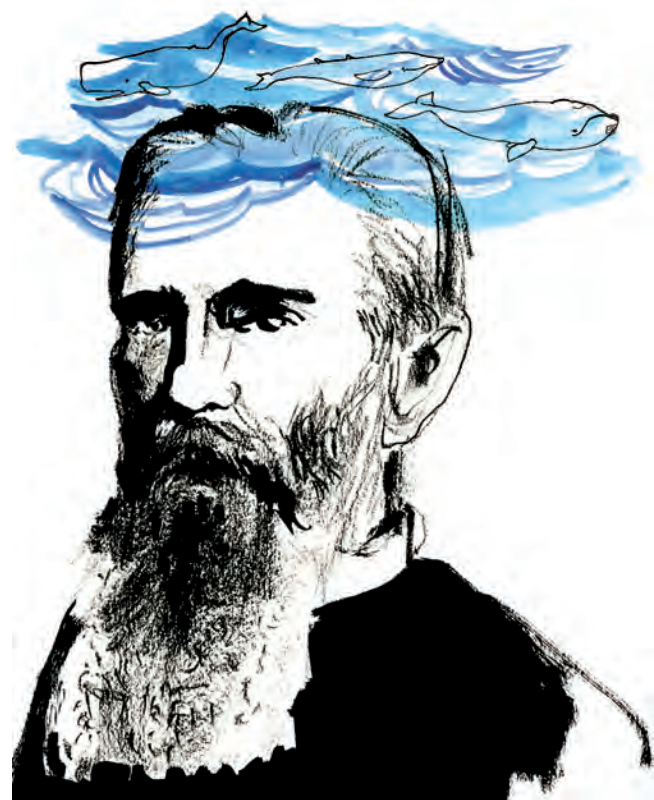
"Essentially he was a mystic, a treasure-seeker, a mystery-monger, a delver after hidden things spiritual and material," Weaver wrote in the August 2, 1919, *Nation*. "It was Melville's abiding craving to achieve some total and undivined possession of the very heart of reality."

Weaver embarked on a biography, *Herman Melville: Mariner and Mystic*, that would be published in 1921. The same year, Van Doren published *The American Novel* — essays on Hawthorne, Twain, James,

and also Melville, whose seventy-year-old whaling masterpiece Van Doren and Weaver were now raising like a lost ship. Van Doren wrote of "the extraordinary mixture in *Moby Dick* of vivid adventures, minute details, cloudy symbolisms, thrilling pictures of the sea in every mood, sly mirth and cosmic ironies, real and incredible characters, wit, speculation, humor, color."

After this, *Moby-Dick* became a celebrated mainstay of the American canon. Robert Wallace '72GSAS, '67SIPA, a professor at Northern Kentucky University who has taught *Moby-Dick* for half a century, calls it "an encyclopedia of world knowledge at the time" and says students today draw lessons that the previous generation didn't. "They are thrilled that Ishmael, in telling this story of the brutality of whaling, finds ways to express the beauty of whales and how they represent the natural world that we're in the process of destroying."

Though *Moby-Dick* looms over all American literature, Melville produced other pearls, and Weaver uncovered one of them. While researching his biography, Weaver visited Melville's granddaughter Eleanor Melville Metcalf at her home in New Jersey. Metcalf showed Weaver a trunk of Melville's papers, which included a manuscript in Melville's inscrutable hand. The writer had been working on a short



writers had been born in 1819, and both had been dead for thirty years.

So had Herman Melville. The difference was, Melville had sunk from view. His first two books, *Typee* and *Omoo*, based on his voyages to the South Pacific, made a splash in the late 1840s. Then, in 1851, Melville calved an enormous spouting beast of

customs inspector on the New York docks, a job he held for nineteen years. His death in 1891 went virtually unnoticed.

"Melville was a nineteenth-century author writing for a twentieth-century audience," explains Columbia professor Andrew Delbanco, author of the 2005 biography *Melville: His World and Work*. "He used stream of consciousness

novel before his death. It was never published.

Weaver edited the manuscript and included it in a sixteen-volume edition of Melville's works published in 1924. The novel, *Billy Budd*, concerns a handsome, innocent sailor who is recruited onto a British warship, where the wicked master-at-arms Claggart mercilessly goads him until Billy finally erupts: he strikes Claggart, accidentally killing him — and must face, under maritime justice, the supreme penalty. Weaver called the novel “unmatched among Melville's works in lucidity and inward peace” and found in the tragedy an unsuspected grace: “The powers of evil and horror must be granted their fullest scope; it is only thus we can triumph over them.”

Weaver, who worked at Columbia for thirty-two years, was a passionate teacher whose interests included mask-making and astrology. Lionel Trilling '25CC, '38GSAS called Weaver's death in 1948 an “irreparable loss,” but today, Weaver's legacy is stronger than ever. This year, Herman Melville's bicentennial was honored worldwide. None of this could have been predicted in 1919, but in his *Nation* essay, Weaver, the amateur astrologist, took a stab at divining Melville's future.

“The versatility and power of his genius was extraordinary,” Weaver wrote. “If he does not eventually rank as a writer of overshadowing accomplishment, it will be owing not to any lack of genius, but to the perversity of his rare and lofty gifts.”

— Paul Hond



# A VINE GROWS IN BROOKLYN

Students get a fresh look at the issue of food justice

“Whenever the subway passes, we yell, ‘Use your farm voice,’” Anita Chan shouts as an elevated train rumbles over a half acre of greenery in Brooklyn.

Here at the end of the number 3 line, on New Lots Avenue, sunflowers peek out through the wire fence that encloses the community garden of East New York Farms! (ENYF!). On this plot, local residents grow dozens of varieties of produce — Swiss chard, bitter melon, cherry tomatoes, to name a few — and learn about organic farming.

When the train noise subsides, Chan, an ENYF! staff member, picks tomatoes off a vine and hands them to the five college students clustered around her. These students are in a six-week, six-credit Columbia course called SEE-U NYC — Summer Ecosystem Experiences for Undergraduates — led by conservation ecologist Amanda Caudill '03SEAS. The program, organized by the Earth Institute Center for Environmental Sustainability (EICES), brings the farm-to-table journey to life with lectures, labs, and weekly field trips to urban and rural farms around the tri-state area.

Interns from local middle schools push blue wheelbarrows filled with soil as the college students ask Chan questions.

“How many kids help harvest vegetables?”

“What's the soil composition?”

Last week, students explored a greenhouse perched on the roof of a Whole Foods in Gowanus. Next week, they will head upstate to a Buddhist monastery that grows its own organic food. The week after, they'll visit Rise and Root Farm, a cooperative in Chester, New York, run by urban-farming activist Karen Washington. Washington's talk on “food apartheid” has made three students cry, says EICES assistant director Kelsey Wooddell '18SIPA. According to the US

government, twenty-three million Americans, including 6.5 million children, live in so-called “food deserts,” where fresh produce is scarce. Washington prefers the term “food apartheid,” Wooddell says, “because a desert is naturally occurring and apartheid is not.”

“We want students to get their hands dirty,” Caudill says. “We want them to see the many ways to farm sustainably and talk to the people who are doing this work.”

Caudill believes agroecology — agriculture that works in harmony with the ecosystem to improve both — has implications for everyone.

“We all eat. We all make decisions about food every day, and those decisions influence our food systems. And food systems influence our decisions,” says Caudill.

At the garden, students measure the temperature of the soil and the surrounding sidewalk. Cities are often hotter than rural areas, because asphalt absorbs heat. But green spaces can help cool cities down, an effect students are tracking in their lab.

Alongside the lab work, each student develops an individual research project. Shaul Armony, a junior at the School of General Studies, is focusing on access to nutritious food. He was a cook before coming to Columbia and now majors in sustainable development.

“If you're at a grocery store, it's hard to understand where your food comes from,” says Armony. “That tomato we just ate was so great because it was right off the vine. So if a kid goes home and asks his parents for more tomatoes like that — fresh from a farm, in season — then change can start to happen.”

For Wooddell, change can also start with programs like this one.

“Maybe these undergraduates will be our future activists, researchers, or policy-makers helping with sustainability and food inequality,” says Wooddell. “You can't improve things without education. You just can't.”

— Rebecca Kelliher '13BC

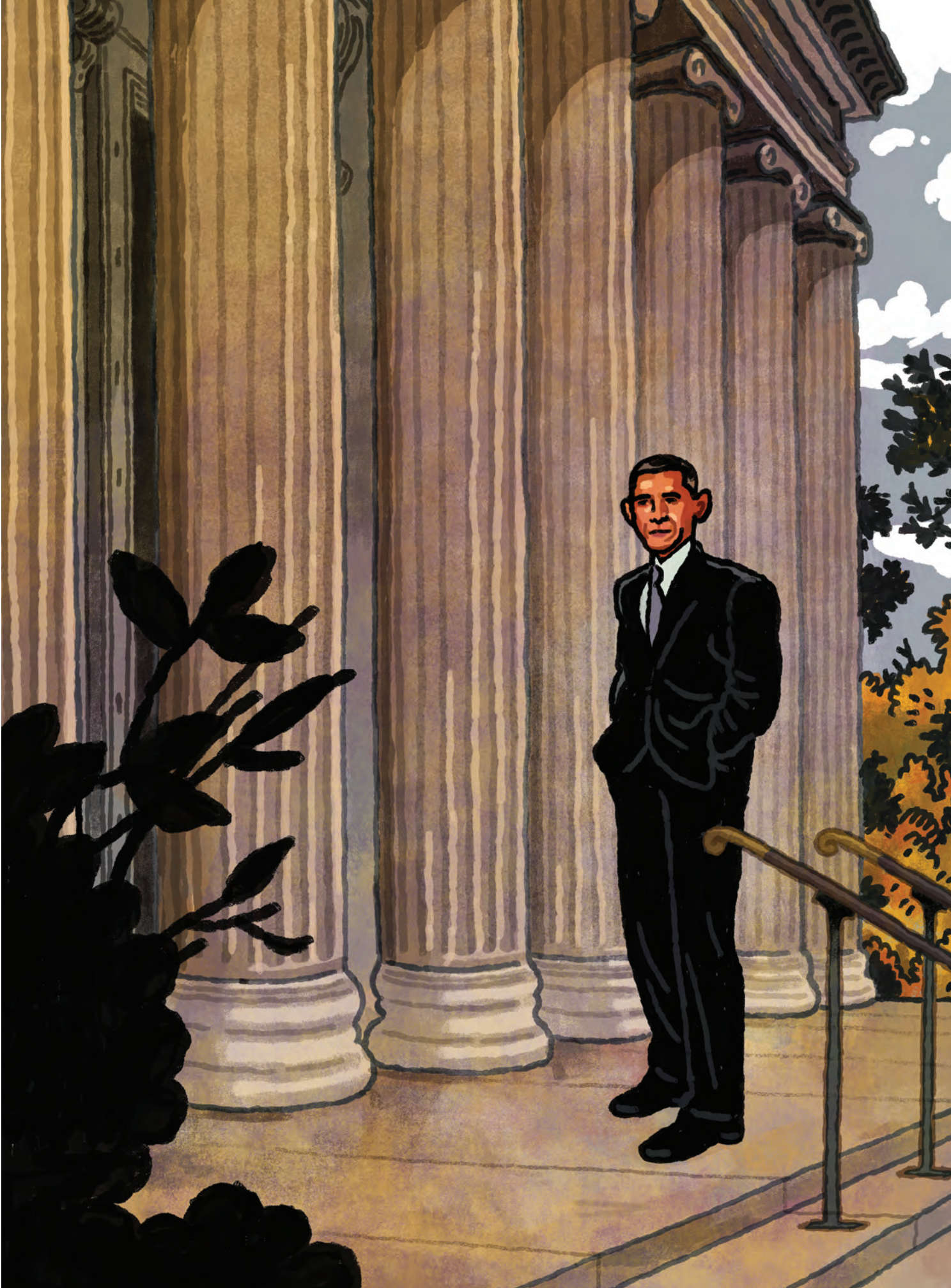
# Lift Every Voice



Columbia's oral history of the  
Obama presidency sets out  
to capture the legacy of  
Barack Obama '83CC — and  
the spirit of the country he led

BY PAUL HOND

ILLUSTRATION BY RICHIE POPE



# President Barack Obama '83CC stood on the Edmund Pettus Bridge in Selma, Alabama, and defined his vision for America.

He had sung the melody before, but on this day, March 7, 2015, fifty years after police attacked a peaceful civil-rights march at the site, Obama embellished on the theme and made it opera. Quoting Baldwin, Emerson, and Whitman, evoking Sojourner Truth and Martin Luther King Jr., Abraham Lincoln and Franklin Delano Roosevelt, the president paid tribute to the “ordinary Americans” who were willing to face “the chastening rod” and “the trampling hoof” to ensure that America lived up to its promise.

“What could more profoundly vindicate the idea of America,” Obama said, “than plain and humble people ... coming together to shape their country’s course?”

Obama’s words touched the vault of American ideals and dug deep down to

grassroots. “The single most powerful word in our democracy is the word ‘we.’ *We the people. We shall overcome. Yes we can.* It is owned by no one. It belongs to everyone. Oh, what a glorious task we are given to continually try to improve this great nation of ours.”

For David Simas, this speech holds the key to understanding the Obama presidency. Simas, the CEO of the Obama Foundation, a nonpartisan nonprofit that sponsors civic leadership programs and is overseeing the creation of the Obama Presidential Center, says the philosophy of the forty-fourth president — his belief in the possibilities of democracy — can be detected in every stage of his political career. In his post-Columbia years, when he worked as a community organizer

in poor neighborhoods of Chicago and would sit for hours in people’s homes, asking them about their lives; in his remarks in Athens in the last year of his presidency venerating the idea of *demokratia* (“*Kratos* — the power, the right to rule — comes from *demos* — the people”); in his postpresidential investment in the Obama Foundation Scholars Program at Columbia, which develops the problem-solving skills of young leaders from around the world, Obama has always encouraged people to use their power as citizens to make government work for them. So when it came time for the foundation to produce an official oral history of the administration — something that has been done for every president starting with Herbert Hoover — it seemed essen-



The Obama family joins Georgia congressman John Lewis '97HON (center) in a walk across the Edmund Pettus Bridge in Selma, Alabama, on March 7, 2015.

LAWRENCE JACKSON / WHITE HOUSE

tial to go beyond the standard recollections of cabinet members and legislators. “It’s important to reach into the lives of people who were touched in one way or another by the Obama presidency,” says Simas. “Only by getting the full expanse — from senior officials to midlevel and low-level staffers to ordinary people — can you truly tell this story.”

In May, the Obama Foundation announced that it had selected the Columbia Center for Oral History Research (CCOHR) to tell that story. The match seems propitious: Obama is an alumnus with a keen interest in storytelling, and Columbia is the birthplace of the field of oral history. But what most attracted the Obama team was the Columbia program’s breadth, covering corporate leaders and organizations as well as activist movements and citizens. “We were impressed by Columbia’s experience at capturing this diversity, which we thought would be critical to the project,” says Simas.

The Obama Presidency Oral History Project is led by sociology professor Peter Bearman, director of the Interdisciplinary Center for Innovative Theory and Empirics (INCITE), which houses CCOHR. He will work with Mary Marshall Clark, director of CCOHR, and Kimberly Springer, curator of the oral-history collection at Columbia’s Rare Book and Manuscript Library. Expected to take five years to complete, the project will include hundreds of audio and video interviews as well as a profile of First Lady Michelle Obama and interviews collected by the University of Hawaii and the University of Chicago on the early lives of the Obamas. Transcripts will be posted online, and audio and visual files and paper transcripts will be publicly available in Columbia’s Rare Book and Manuscript Library.

Of the four hundred people to be interviewed, about a quarter will be everyday Americans. The project will feature the principal actors around the president

and also bring out the individual voices of the chorus. It will be a portrait not just of a president but also of a country.

Oral historians are explorers of the unmapped spaces in the historical record. Collectors of stories and interpreters of memory, they are both discoverers of the past and messengers to the future. Clark



President Obama in the Oval Office in 2016.

and Bearman came to the discipline through different paths. Clark studied liberation theology at Union Theological Seminary. In 1990 she joined Columbia’s Oral History Research Office (as it was known then), and in June of 2001 she became director. Bearman taught sociology and became known for his analysis of adolescent behavior and social networks. The two first collaborated on the September 11, 2001, Oral History Project. In the immediate aftermath of the attacks in Lower Manhattan, Clark wanted to go out into the field but needed help to quickly organize such a big project. She called on Bearman, and together they trained thirty interviewers, who then fanned out over the city, speaking with eyewitnesses, first responders, Muslims, artists, survivors, and other New Yorkers, getting their stories before official narratives took hold.

In 2016, Clark and Bearman began thinking about a new, large-scale oral history, one that would embrace a broad cross section of American life. Inspired

by the Depression-era Federal Writers’ Project, which hired unemployed writers to collect the narratives of ex-slaves and others whose voices were underrepresented in the National Archives, they wrote a grant proposal and sent it to the Obama Foundation, hoping for funding. “We had a series of interesting conversations with them,” says Bearman. “Then the election happened.” The conversa-

tions stopped, and that project was shelved. But in 2018, as the foundation was thinking about a presidential oral history, the talks resumed. “The foundation had been on its own journey, trying to figure out how to do a real oral history that was different from past ones,” Bearman says. “So we thought, ‘Oh, wow, somehow these roads have intersected.’”

Along with Bearman, Clark, and Springer, the Columbia team includes Michael Falco ’13SIPA, associate director of INCITE, and Terrell Frazier, a

doctoral student in sociology and the project’s lead interviewer. The team will consult with a sixteen-member advisory board of prominent historians, sociologists, literary scholars, and journalists chaired by University President Lee C. Bollinger.

“It’s a very interesting and carefully curated board, with a rich distribution of life experiences and academic disciplines,” says Bearman. “Their job is to help us see things that we don’t see. This is a really big and complicated project. Nobody’s ever tried to do anything on this scale.”

The practice of oral history — interviewing people to preserve, as Clark says, “memory, experience, and shifting values” — was established as an organized discipline in 1948, when journalist and historian Allan Nevins ’60HON founded the Oral History Research Office at Columbia. Nevins, who subscribed to the great-man theory — the idea that exceptional leaders drive history — lamented that telephone conversations were replacing personal letters, diaries, and

memos. Without these contemporaneous records of leaders' unvarnished opinions, historians would no longer be able to tell the inside story of events as they happened. And so he interviewed policymakers, business leaders, publishing moguls, and philanthropists, eliciting information that he felt might be of value to posterity. Though his history-department colleagues cast a skeptical eye, seeing oral history as factually unreliable, Nevins's archive grew, and so did the field.

In the 1960s and '70s, Columbia's oral-history office, in partnership with the Eisenhower Presidential Library, conducted the oral history of the Dwight D. Eisenhower administration. (Eisenhower, as president of Columbia from 1948 to 1953, had green-lighted Nevins's oral-history center.) The Eisenhower project was not the first of its kind. The presidential oral-history genre began in 1960, under the auspices of the Harry S. Truman Library. (Though Hoover and FDR preceded Truman as president, their oral histories were done after Truman's.)

The standard presidential oral history consists of hundreds of hours of audio recordings and thousands of pages of transcriptions. By documenting a presidency through the recollections of cabinet secretaries and labor leaders, senators and speechwriters, attorneys general and ambassadors, the presidential oral history provides elaborate details and rich insider anecdote. The interviews can corroborate, contradict, or contextualize other records, illuminate a president's character, and reveal how decisions are made at the highest levels.

In the John F. Kennedy oral history, George Ball, undersecretary of state, comments on the late president's grasp of international economic policy ("He was very quick. But on a great number of things, I must say, I didn't think he was ever terribly profound"); in Lyndon B. Johnson's, Secretary of the Interior Stewart Udall sheds light on presidential

decision-making ("Mrs. Johnson had a great deal of influence with her husband"); and in Bill Clinton's, Secretary of State Madeleine Albright '68SIPA, '76GSAS, '95HON reflects on the mystique of the office ("There truly is such power in the office of the presidency that in many ways you imbue the person who

and won. He inherited two wars and the worst economic collapse since the Great Depression and presided over a litany of pivotal events: marriage equality ("justice that arrives like a thunderbolt," Obama called it) and the auto-industry bailout; mass shootings at an African Methodist Episcopal church in Charleston, a gay

nightclub in Orlando, and two first-grade classrooms in Newtown, Connecticut (what Obama later described as the worst day of his presidency); the Paris climate accord and the Iran nuclear deal; police violence against African-Americans and the administration's response. There is, as Columbia journalism professor Jelani Cobb says, "so much that we would want to know more about."

Cobb, author of *The Substance of Hope*, an incisive study of Obama's 2008 campaign and the nuances

of generational Black politics, is on the Obama project's advisory board. When asked what topics he'd like the oral history to explore, Cobb reels them off: "What were the strategic considerations of the health-care fight? What were the internal discussions about the mission that killed Osama bin Laden? What was the evolution of America's foreign policy toward Russia? There's a lot on Obama's foreign policy that we haven't discussed in great detail. An interesting area would be his relationship with Africa and the policy priorities there. And his relationship with the Congressional Black Caucus — people pushing him on matters where they felt he was too moderate."

Cobb expects that the Obama presidency, under the analysis of oral history, will be clarified in ways we can't predict.

"We're looking at this extraordinary event, this presidency, from a distance," he says. "We're anchored just offshore, and we see the coastline. But we have no idea what happens once we get inland. There's a whole other landscape. We don't even know what we don't know. Someone may casually mention some-



The Obama national-security team monitors the mission against Osama bin Laden.

## "Someone may casually mention something in an interview that totally changes our understanding."

JELANI COBB

is the president with all kinds of things that may or may not be true of that particular personality").

Of course, a two-term, history-making presidency like Obama's, which lasted from January 2009 to January 2017, offers countless avenues of inquiry, starting with its improbability. In 2004, Obama became just the third Black senator since Reconstruction. In US history there had been only four Black governors, but Barack Hussein Obama, a name that did not portend electoral success, ran for president of all fifty states

thing in an interview that totally changes our understanding of what happened.”

Early in his presidency, Obama invited nine distinguished presidential historians to dinner. The new president wanted to hear from experts about the institution he now personified. One of the historians was Robert Dallek ’64GSAS, a Bancroft Prize-winning historian and the author of biographies on FDR, JFK, and LBJ.

“President Obama was very interested in learning,” says Dallek, who also sits on the Obama project’s advisory board. “He wanted to hear from us going back as far as Woodrow Wilson and FDR. We ended up meeting eight times. I don’t know how much we taught him — I think he already knew an awful lot.”

“For President and Mrs. Obama,” says Simas, “those dinners were not just an exercise in having historians come in and say what happened. It was, ‘What were people thinking, what were the tensions, what were the hopes, the fears, the power dynamics, the alliances? How did people think through their decisions?’”

The multifaceted, 360-degree, reflective nature of oral history has found a kindred subject in Obama. “Whenever we’d deal with an issue, President Obama would always ask us to take the long view,” says Simas, who worked as an assistant on political strategy and outreach in the Obama White House and was privy to many discussions. “If we were talking about health care, he would say, ‘As you’re thinking about the solution, don’t just give me a range of options that envision what this looks like in a year or two years but what this looks like in thirty, forty, or fifty years.’ That was the perspective he would force us to take. He would then say, ‘Let’s also understand that we’re not the first people to go through this. So let’s have a deep understanding of people who have tackled this in the past. What did they learn? What were the dynamics they confronted?’

“This is the strength of history from the Obamas’ standpoint. It allows you to take the longer view.”

Oral history takes the long view — oral historians are mindful of obtaining information that they imagine will be of interest in fifty years — but it also drills down deep into its subject. Before interviewers go out in the field, they do “extensive, expansive, in-depth research,” says Clark. They must have a grasp of the cultural, social, and historical milieus of the people they’re interviewing and, in many cases, a command of specialized knowledge. The research takes months. “We learn as much as possible so that we can have a conversation that will sustain people’s interest and cause them to ask themselves questions they’ve never asked before,” Clark says. “The goal of oral history is to find something new — to evoke a fresh thought or realization. That is a thrill.”



Michelle Obama “made you feel you had access,” says Farah Jasmine Griffin.

The interviews themselves are a deftly controlled pas de deux between interviewer and “narrator,” as oral historians call an interviewee. Interviewers must have a lively curiosity and an ability to listen and be sensitive to any signs that flicker across a narrator’s face, voice, or body. “Observation is key,” says Clark. “I try to accommodate people when they seem like they’re shutting down or don’t want as much closeness. It’s a deep encounter. It’s also respectful. We’re not invasive or intrusive, but we do ask hard questions. As interviewers, we must have

the ability to identify with that other person, but we must also refrain from complete identification so we can ask the critical questions.”

Terrell Frazier, who joined Clark’s team in 2011 as director of outreach and education, will be heading up a core group of interviewers that can be supplemented as needed through Columbia’s nationwide network of oral historians. The Obama Foundation will then help Frazier connect with Obama White House alumni as well as people outside government who have interacted with the president.

“We’ll want to speak with people who wrote the president letters, people he encountered in his travels, people whose lives he touched in a tangible way — someone who got treated for a preexisting condition under the Affordable Care Act or someone whose sentence he commuted,” says Frazier, who, like the young

Obama, worked after college as a community activist and listened to people’s stories. Frazier believes that stories connect people by offering windows into different life experiences. “We’ll ask the narrators about who they are and look at the ways that their narratives came to intersect with the president’s. We want to know the impact that those experiences had on them and on people around them.”

The Columbia team will use a one- or two-person crew and go wherever narrators are most comfortable, which

usually means their living rooms. Putting the narrator at ease is job one, and Clark stresses that crew members’ interpersonal skills are as important as their technical ones. “I often take people out to lunch with the crew before a shoot, to bring in a sense of warmth and intimacy,” says Clark. “That’s the oral-history way. We won’t get a good interview if the narrator isn’t comfortable. So we’ll do everything we can.”

Once the recording equipment is set up, the interviewer and the narrator will sit facing each other. Interviews take

between one and a half and two hours, with additional sessions held for narrators with longer tenure in the administration. “In oral-history interviews, you’re asked about where you grew up and how your experiences shaped you and led you to where you are,” says Frazier. “If you’re a policymaker, that can be jarring, but in a good way — you thought you were going to talk about a piece of legislation or an interaction you had with the president, and now you’re removed from what you’d prepared in your head and you start thinking about your interactions differently.”

Ronald Grele, who directed Columbia’s oral-history program from 1982 to 2001, was an interviewer for the John F. Kennedy presidential oral history, which began a few months after the president’s death in 1963. By the late sixties, oral historians had shifted their interest from “great men” to the dispossessed, and from facts to the more subjective

elements of people’s testimony: not just what people did, but how they interpreted what they did. But as Grele points out, the presidential oral history kept its tie on and avoided introspection.

“Those old oral histories start out with, ‘When did you first meet John Kennedy?’” Grele says. “As if these people had no life prior to meeting John Kennedy. ‘What did you do in the State Department?’ It was like an exit interview.

“With the traditional model, you don’t find out who people *are*. Clark and Bearman will find out who people are.”

**T**he Obama Presidency Oral History Project is also groundbreaking for its inclusion of Michelle Obama, who redefined the office of First Lady and in many ways set the tone for the Obama presidency.

“As First Lady, you never felt she was an untouchable queen,” says advisory-

board member Farah Jasmine Griffin, a professor of English and comparative literature and chair of the African American and African Diaspora Studies Department at Columbia. “We’ve had brilliant First Ladies, but Michelle Obama made you feel you had access: *Let’s open up this White House and bring people in. Let’s have this garden. Let’s visit schools.* It was a model of a way of being in the world in which one could have fun but still be committed to hard work. It showed girls that they could be glamorous *and* funny, athletic *and* smart, that they could know popular culture *and* high culture. The collapsing of those binaries was something for all children and young people to aspire to.”

Cobb notes that while the symbolic importance of Michelle Obama can hardly be overestimated, her role in Obama’s election was also crucial. “I saw this firsthand in South Carolina in 2008,



The Obama Presidency Oral History Project team, from left: Michael Falco, Peter Bearman, Kimberly Springer, Mary Marshall Clark, Terrell Frazier.

JULIE B. THOMPSON

during the primaries,” Cobb says. “Early on, I talked with a guy who was canvassing, and he said that they encountered a problem, which was that Black voters had never heard of Barack Obama. Then, over time, they began to hear about Barack Obama, but they didn’t know he was Black. So the campaign started putting out his picture. Then, seeing he was Black, people said, ‘What kind of name is Barack Obama? Who is this guy?’ The campaign responded by putting Michelle on the images with him.

“Obama’s background — biracial, growing up in Hawaii and Indonesia — was particularly exotic and not very legible to voters. What *was* legible to voters was Michelle Robinson. She is identifiably African-American, South Side of Chicago — everyone knew someone like her growing up. As Obama tried to make his political inroads — certainly with Black Americans and possibly with other constituencies — Michelle Obama was really a passport.”

**I**n the open-minded, dissenting spirit of its namesake, the Obama Presidency Oral History Project will be many things, but it will not be hagiography. “We’ll definitely interview critics,” says Clark. “Because in the end, we’re researchers. We want to know how people think.”

Griffin agrees — “I think a good legacy, a strong legacy, can withstand the voices of critics” — but adds that she’d also love for there to be some sense of the pure joy that many citizens felt the night of the first election. Griffin won’t ever forget November 4, 2008. That evening, she took her mother, who was in her early eighties, to an election watch party at the Schomburg Center for Research in Black Culture in Harlem. She recalls the roller coaster of feelings as the returns came in. “Everyone in that audience had given something to the campaign or volunteered, everyone was invested, and I think we were all prepared for it not to happen. Then when Ohio came through, we were like, *‘Really?’*”

“Later I saw a photograph of the audience inside the Schomburg. It must have

been taken when they declared Obama the winner — there was this look of disbelief on people’s faces. Utter disbelief that this had happened. I remember that week so clearly because there was dancing in the streets, and even the next day everyone seemed giddy in New York. People were friendlier to each other. People you never spoke to actually stopped and said hello. I’m so glad my mother lived to see it.”

## Of the four hundred people to be interviewed, about a quarter will be everyday Americans.

As the interviews for the Obama Presidency Oral History Project are completed, they will be transcribed and edited, and narrators will have an opportunity to make any clarifications or deletions. Oral-history collection curator Kimberly Springer and archivist David Olson will receive the finished materials, catalog them, and make them available to researchers. “Our priority has always been patron access and preservation,” says Springer — good news for the next generation of historical researchers, and for future ones.

“Imagine thirty or forty years from now,” says Simas. “Imagine a president sitting in that office behind that desk, thinking about a choice she or he has to make; then imagine young organizers on the South Side of Chicago, or in rural Kentucky, thinking about how to make their communities better. Isn’t it possible that by giving them insight into the way President Obama and the people around him and the people in the nation at that time confronted things, how they thought about them, and the choices they made — isn’t it possible that they can learn from that and make better-informed choices themselves? Wouldn’t it be an

amazing thing for generations of leaders, whether they’re government leaders or business leaders or ordinary citizens, to have instantaneous access to the archive, the record, the story?”

“Just as President and Mrs. Obama looked to history to give them that sense of why people made the decisions they made,” says Simas, “so this oral history will be not just a chronicle of the past but a road map for change in the future.”

The Obama oral history will be one of the crown jewels of Columbia’s oral-history collection, which already contains more than eleven thousand recorded interviews and twenty-five thousand hours’ worth of transcripts. The fruit of seven decades of research and acquisitions, the collection covers a panoply of subjects: radio pioneers, Republican China, the psychoanalytic movement, Black journalists, the Apollo Theater, student movements, Guantánamo Bay and human-rights law, the artist Robert Rauschenberg. There is even an interview with Georgia congressman John Lewis ’97HON. Lewis was at the front of the six-hundred-strong voting-rights march that winter day in Selma in 1965. As the young chairman of the Student Nonviolent Coordinating Committee, he had stood motionless as a phalanx of Alabama troopers approached. With news cameras rolling, the police attacked the marchers with truncheons, whips, and tear gas, and Lewis suffered a fractured skull. Fifty years later, Representative Lewis stood at the bridge with the president of the United States, who sang of America and the power of ‘we.’

For Mary Marshall Clark, the Obama Presidency Oral History Project is important not only as presidential history but as a document of American life.

“Obama created a unique public memory,” Clark says. “I think that memory should be substantiated through this project. We should bring back and make public that memory — what it was like for so many people. That memory belongs to the American people, and we have a right to keep it.” 📖

A black and white portrait of Rachel Chavkin, a woman with dark hair styled in an updo, looking upwards and to the right with a slight smile. She is wearing a dark, sequined dress. The background is a plain, light color.

# HELL RAISER

RACHEL CHAVKIN '08SOA, THE TONY AWARD-WINNING DIRECTOR OF *HADESTOWN*,  
MAY BE BROADWAY'S MOST FORWARD-THINKING ARTIST **BY STUART MILLER '90JRN**

# MAKING HER WAY

## TO THE STAGE OF RADIO CITY MUSIC HALL

to accept the 2019 Tony Award for best direction of a musical, Rachel Chavkin '08SOA was thinking about time. She had all of ninety seconds to get to the microphone and deliver her speech, which was written on a much-creased piece of paper folded in her hands. Seven months pregnant, Chavkin, thirty-eight, was not about to sprint. As she told *Columbia Magazine* days later, "I warned my husband: if they call my name, I won't have time to hug you!"

*Hadestown*, an enthralling, profoundly moving retelling of the myth of Orpheus and Eurydice, would, by night's end, capture eight awards, including best original score and best musical. The accolades were not only hard won — Chavkin, a leading light of experimental theater, and Anaïs Mitchell, a singer-songwriter from Vermont, shaped and refined *Hadestown* for seven years — but also, some might say, overdue. In seventy-three years of the Tony Awards (named after Antoinette Perry, an actress, director, and theater advocate), Chavkin became just the fourth woman to win for best direction of a musical, joining Julie Taymor (*The Lion King*), Susan Stroman (*The Producers*), and Diane Paulus '97SOA (*Pippin*). And in 2019, out of twelve new musicals on Broadway, *Hadestown* was the only one directed by a woman.

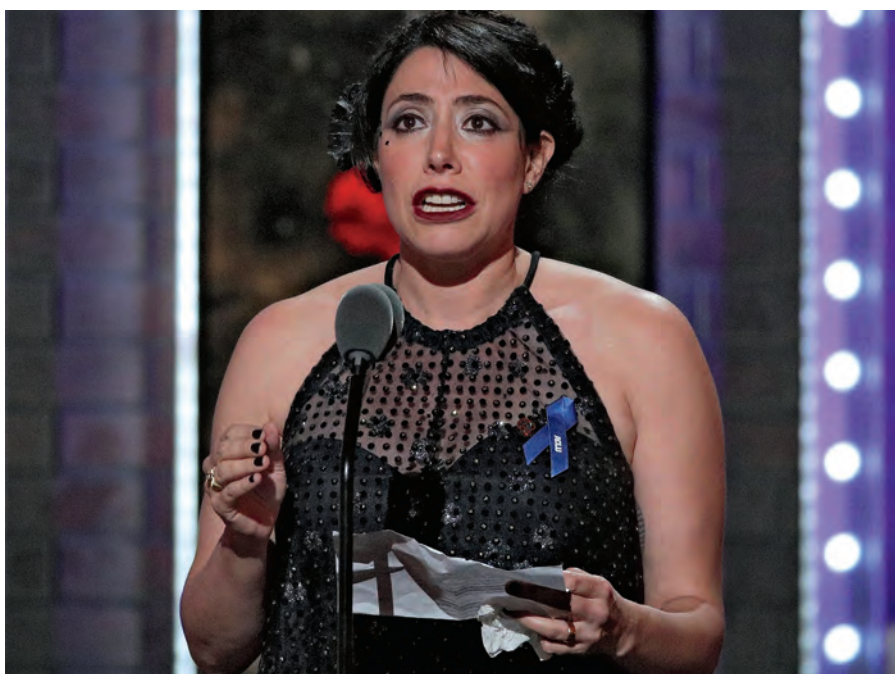
The show, playing at the Walter Kerr Theatre on West 48th Street, is set mostly in a New Orleans-style barrelhouse at a time of economic and environmental decay. In the opening number, the narrator, Hermes (André De Shields, Tony winner for best featured actor in a musical), hints at the cyclical power of storytelling and the catharsis to come: "It's a sad song / It's a sad tale, it's a tragedy / It's a sad song / But we sing it anyway." The messenger of the gods has little use for spoiler alerts.

Driven by Mitchell's expressive, bluesy, Americana-soaked songs, *Hadestown* tells the story of angel-voiced Orpheus (Reeve Carney), a musician who falls for the penniless drifter Eurydice (Eva Noblezada). They are deeply in love, but money is scarce, and so Eurydice, hungry and desperate, journeys to Hadestown, an industrial netherworld ruled by the powerful Hades (Patrick Page). Hadestown's indentured laborers, a chiseled crew who could have stepped off a WPA mural, are engaged in the endless task of building a wall to keep out the poor. (Any resemblance to current events is unintended: the song "Why We Build the Wall" was written in 2006.)

Pining for Eurydice, Orpheus heads to Hadestown, intent on charming Hades with a song to win his lover's release. His passion both moves and infuriates Hades, who has grown apart from his own wife, the forlorn, hard-drinking Persephone (Amber Gray). After Hades grudgingly — and with strict conditions — sets the lovers free, he and Persephone watch them leave. "Think they'll make it?" Persephone asks. To which the king of the underworld somberly replies, "I don't know."

A modern version of an ancient Greek myth might seem an unlikely Broadway blockbuster — and Chavkin, who has never concerned herself with commercial viability, might seem an unlikely Broadway conqueror — but when the Tony nominations were announced in April, *Hadestown* led the pack with fourteen. This gave Chavkin plenty of time to think about a potential acceptance speech and what she might really want to say to the millions of theater lovers who would be watching the ceremony that night.

"Amber [Gray] is one of my best friends, and we both live in Brooklyn, so we'd take the train home late at night after the show and drill each other on our speeches," says Chavkin. "And she told me: 'Cut all the names. You have to be able to get to the second half. *It's really important you get to the second half.*' And I was very happy that I had written it down, because I was so nervous that I'd never have remembered it."



Chavkin gives her acceptance speech at the 2019 Tony Awards.

**"THIS IS NOT A PIPELINE ISSUE. IT IS A FAILURE OF IMAGINATION BY A FIELD WHOSE JOB IS TO IMAGINE THE WAY THE WORLD COULD BE."**

Onstage, Chavkin, poised but anxious, thanked her husband, their families, and Anaïs Mitchell. Then, as the TV cameras rolled, she got to the second half: "My folks raised me with the understanding that life is a team sport. And so is walking out of Hell. That's what's at the heart of this show. It's about whether you can keep faith when you are made to feel alone. And it reminds us that that is how power structures try to maintain control: by making you feel like you're walking alone in the darkness even when your partner is right there at your back. And this is why I wish I wasn't the only woman directing a musical on Broadway this season."

Cheers broke out. Chavkin had passed the ninety-second limit, but no one was counting anymore. Her right hand

accompanied her careful enunciations with a conductor's thrust and bounce. "There are so many women who are ready to go," she told the audience, her voice full of feeling. "There are so many artists of color who are ready to go. And we need to see that racial diversity and gender diversity reflected in our critical establishment, too."

"This is not a pipeline issue. It is a failure of imagination by a field whose job is to imagine the way the world could be." Over the swelling applause, Chavkin sealed her words with a director's command: "So let's do it."

The road to *Hadestown*, and to Chavkin's speech, began in 2012, in a red-curtained, portrait-lined nineteenth-century Moscow supper club. This was the set for *Natasha, Pierre &*

*the Great Comet of 1812*, adapted by composer Dave Malloy from a seventy-page slice of Tolstoy's *War and Peace*. Playing at the Ars Nova theater on West 54th Street, this "electro-pop opera," under Chavkin's direction, was getting serious buzz.

One evening, Anaïs Mitchell dropped by to see it. Mitchell had been trying to get her 2010 folk-opera album *Hadestown* to the stage for two years, and she recalls the shock of seeing *Great Comet*. "I was just completely bowled over," she says.

Chavkin used immersive staging, putting the actors and musicians in the audience and seating several audience

album, Chavkin loved it instantly, and the two artists got together. They talked about the holes in the story where new songs might be needed and the possibility of adding a libretto to connect the songs. "A few hours into the conversation," recalls Chavkin, "Anaïs said, 'I've been working on this a long time, and it's hard for me to imagine opening up this stuff and going back in.' And I said, 'If we're doing this, you're going to have to get over your sense of fatigue.'"

"And she did. Anaïs is one of the most rigorous people I've ever met: not only did she dive back in, she also drove me to work harder."

to her while she was listening to the heartrending lover's anthem "Wait for Me." Chavkin envisioned long-stemmed lights suspended from above, swinging in the underworld's darkness. This idea would become one of the show's most arresting images, evoking the lonesome, searching beams of miners' headlamps.

"Rachel is especially good with music, creating visual partnership with music from moment to moment," says Mitchell. "And for me, coming from the music world and having a steep learning curve for figuring out how to tell a satisfying story through music, this was exactly the partnership I needed. Rachel has pushed



Eva Noblezada, André De Shields, and Reeve Carney in *Hadestown*.

members at café tables on the stage. Troupe members served free pierogies and vodka throughout the show, and the action of the play regularly wound through the orchestra and mezzanine.

"I loved the moment-to-moment visual delight," Mitchell says. "Rachel is just so good at crafting these delicious visuals — there was an unpredictable, infectious joy in that piece." When Mitchell approached Chavkin with her *Hadestown*

Chavkin began her visual research, which she typically does both online and at the main research branch of the New York Public Library in Midtown. Chavkin is known for her visual inventiveness, but she still recalls the awe she felt at seeing Julie Taymor's "breathtakingly beautiful" work and confesses that she worries about being "visually boring."

Those fears seem to be unfounded. The first image she had for *Hadestown* came

me to go further with the writing than I ever would have considered. She's a tough, smart, loving, relentless dramaturgical partner."

"I've always been drawn to group effort — it's inextricable from the worldview I was raised with," says Chavkin, who grew up in Silver Spring, Maryland, the only child of two lawyers. Chavkin's mother focused on Medicaid policy, her father on civil-rights issues. Their house was full of

novels and plays, as well as books on history and politics. Belief in workers' rights and universal health care was an article of faith around the kitchen table.

From the age of four through high school, Chavkin played on a soccer team. Her father was the coach. "We weren't very good," Chavkin says, laughing. "There were a couple of chicks who were incredible, but I was never a particularly good player. What I loved, and thrived on, was the idea of a shared fate."

Her father often took her to the theater, and at eleven, Chavkin began attending Stagedoor Manor, a summer theater camp in Loch Sheldrake, New York, where she reveled in "the fellowship, the people, the team aspect of a cast." But the rapture really struck her at sixteen, when she saw, at the Studio Theatre in Washington, a "raw, immersive" production of the musical *Hair*, with its anarchic energy and moral clarion call.

Chavkin knew she wanted a life in theater. She enrolled in NYU in 2003 to study acting and directing, and she took advantage of her Lower Manhattan surroundings. "I fell madly, madly in love with the downtown theater world," she says. She saw shows almost nightly, volunteering as an usher or getting free tickets from professors. One show, called *House/Lights*, put on by the influential experimental-theater company the Wooster Group, was especially revelatory, using simulcast video monitors and synthesizers to create a dizzying range of visual and audio effects. "It was very freeing to understand that theater can look like that," Chavkin says.

In her junior year, Chavkin started creating her own work, staging shows in empty classrooms and a bar basement; her favorite was an adaptation of "Howl," by Allen Ginsberg '48CC, with modern dance and bebop. Then, seeking adventure and a bigger audience, Chavkin got together with five classmates and took a show to the Edinburgh Festival Fringe, an arts-and-culture event held annually in Scotland.

Chavkin named the troupe the TEAM, reflecting its collaborative structure, in which members develop material

together without any individual authorship. In Edinburgh, the TEAM, with Chavkin as artistic director, presented an original work called *Give Up! Start Over!*, about a woman who swallowed her television and is the subject of a scientific experiment. The show, which incorporated video and other media, won a coveted Fringe First Award.

After graduating from NYU, Chavkin was hired as a teaching assistant there. "I just loved teaching," she says. "And I knew that if I wanted to teach I needed an MFA. I thought I'd really like to be a theater professor."

She entered Columbia's School of the Arts to get her MFA in theater directing and immediately had second thoughts. While she loved the academic environment, she fretted that school would dis-

spaces, work with your company on projects while you're here, and get it done."

With Bogart's blessing, Chavkin used her classes at Columbia to develop her own shows. Chavkin began to make bold, idiosyncratic works — ambitious, erudite, and overflowing with ideas. "I've seen her work change and develop and become much more poignant over the years — poignant for me personally," says Bogart, who is cofounder of the theater company SITI (Saratoga International Theater Institute) and a prolific and provocative innovator. "Her work went from being very rambunctious and impressive to a place where now I'm actually crushed by what she does."

Chavkin, who calls Bogart "profoundly influential," created two shows with the TEAM while at Columbia. *Particularly in*



Chavkin directs the cast of *Lempicka* during a rehearsal at the Williamstown Theatre Festival.

tract her from her creative work. "I did try to drop out of graduate school several times during my first year," she says.

Fortunately, Anne Bogart, head of SOA's directing concentration, talked her out of it. "Rachel literally followed me down Broadway," Bogart remembers. "She said, 'Tell me, Anne — what's your opinion?' I turned around and said, 'Are you out of your mind? Get your MFA, use Columbia for everything it's worth, use the rehearsal

*the Heartland* (set on a Kansas farm and featuring space aliens, Robert Kennedy, and a businesswoman named Dorothy) and *Architecting*. "I'm obsessed with looking at the past through a contemporary lens, or looking at the present through the lens of the past," Chavkin says. In *Architecting*, set in a New Orleans bar after Hurricane Katrina, characters include historian Henry Adams and *Gone with the Wind* author Margaret

Mitchell, transposed into a present-day dystopia of real-estate development and disaster capitalism.

Chavkin also took classes with theater historian Arnold Aronson (“a wonderful mentor”), an expert on scenography and avant-garde theater. And she calls studying Chekhov with Brian Kulick, a writer and veteran Shakespeare director who today is the chair of SOA’s theater program, “one of the great joys of my intellectual life.” Kulick’s teaching of *Uncle Vanya* through the lens of Martin Heidegger’s writings on boredom was “so far-out and deep that when I directed that show it was wildly inspired by Brian’s teachings, and that remains one of my favorite things I’ve ever directed.”

That’s saying a lot, given the breadth of Chavkin’s work. In 2016, she won an Off-Broadway Theater Award, or Obie, for her direction of a Lincoln Center production of *The Royale*, a stylized drama by playwright Marco Ramirez inspired by African-American boxing champion Jack Johnson, which the *New York Times* praised as “staged with a swift, stark lyricism by the impossibly versatile Rachel Chavkin.” Since then, Chavkin’s directing credits include Caryl Churchill’s *Light Shining in Buckinghamshire* (New York Theatre Workshop), Bess Wohl’s *Small Mouth Sounds* (Ars Nova and a national tour) and *Continuity* (Manhattan Theatre Club), and Arthur Miller’s *The American Clock* (in London at the Old Vic). Then there’s Matt Gould and Carson Kreitzer’s *Lempicka* (Williamstown Theatre Festival), a musical about a Russian woman who flees the 1917 revolution with her husband, becomes a painter in Paris, and falls in love with a prostitute. Chavkin wants to bring *Lempicka* to Broadway.

But her biggest show before *Hadestown* was *Great Comet*, which closed abruptly on Broadway in 2017 under difficult circumstances. Like the creators of the musical *Hamilton*, Chavkin and Malloy are committed to diversity, and much of the cast of *Great Comet* was nonwhite, including the heroine, Natasha, played by Denée Benton. “If a show isn’t about race, then I don’t

think there’s any reason to have an all-white company,” Chavkin says.

But when the show’s lead, pop star Josh Groban, left and was replaced by *Hamilton* alum Okieriete Onaodowan, ticket sales dropped. The producers, desperate to save a slumping box office, sought to replace Onaodowan with Tony and Emmy Award-winning actor Mandy Patinkin. The decision to replace a younger Black

under the leadership of this old, failing white man, Captain Ahab. So there’s a huge subtext of white supremacy and the failure of this egalitarian promise of the *Pequod*.”

Chavkin says she is “pathologically focused” on her craft and that she “is interested in having as eclectic a career as possible,” so it’s not surprising that her life revolves around her work: reading scripts, casting, researching, rehearsing. An avid

## “I’M OBSESSED WITH LOOKING AT THE PAST THROUGH A CONTEMPORARY LENS.”

actor with an older white actor resulted in an angry backlash against the show across social media; Patinkin withdrew, and the show shut down.

“I’m not living in the past with regret,” Chavkin says of the experience. “That situation was complicated. But this time around I’m definitely more alert to the powers of social media and the need to be proactive.”

Chavkin and Malloy are now working on a new production, based on another literary behemoth, this one by Herman Melville. On December 3, the American Repertory Theater in Cambridge will stage the world premiere of *Moby-Dick*, a musical directed by Chavkin, with book, music, and lyrics by Malloy.

Chavkin and Malloy have been pursuing *Moby-Dick* since 2014. Chavkin, noting that Captain Ahab’s ship, the *Pequod*, is “a ship of hunters,” has lately been watching YouTube videos of hunters skinning deer. The show will involve, among other things, puppetry. Says Chavkin: “I think there will be a lot of dismembered puppets.”

She and Malloy are thinking of the *Pequod* as representing the promise of American democracy. “It’s a ship that includes people from all over the globe, gathered together in pursuit of this single goal,” Chavkin says. “But undeniably, in the novel and in this production, they are

consumer of art and entertainment, she sees shows as often as she can, listens to podcasts on the subway, and occasionally watches TV with her husband, Jake Heinrichs, owner of a theatrical-lighting installation company and lighting designer for the TEAM. She prefers work to leisure, though “I’m learning to try to be better about that,” she says.

As *Columbia Magazine* went to press, Chavkin was days from giving birth, having carried the baby for close friends, a gay couple in Texas. Chavkin had wanted the experience of being pregnant, and her friends wanted a child, so she went for it. At this point, she does not plan to have her own children: she loves having a theater “family,” she says, one that comes from working with people she trusts and respects.

For Chavkin, everything goes back to the group, the “shared fate,” and the possibilities of democracy, artistically and societally. She doesn’t ask any more of others than what she willingly — joyfully — asks of herself. For her, the real profits of theater are to be found in a doctrine of openness and inclusion.

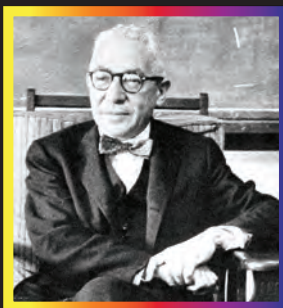
“I’m pretty rigorous about making sure to work with new people,” she says. “They’ll push me in different ways and not let me stay within the limits of my imagination.” 🐾



# The Mind Readers

**At Columbia's Magnetic Resonance Research Center, scientists are unveiling the neural basis of human thoughts, memories, and emotions and preparing to share the promise of cutting-edge brain-scanning technology with the world**

**By Bill Retherford '14JRN**



▲ Columbia physicist Isidor Isaac Rabi discovered nuclear magnetic resonance in the 1930s.

▼ Sixty percent of the human body is water, and hydrogen atoms in that water send a signal to the MRI machine.



◀ A 3-tesla MR image of the brain highlights blood in the vascular system.

Rank your personal pantheon of famous scientists — Copernicus, Curie, Faraday, Fermi, Pauling, Pasteur — and Isidor Isaac Rabi '27GSAS, '68HON likely wouldn't make the top tier. He is amply recognized, however, at Columbia's physics and astronomy building on the Morningside Heights campus. There, in room 809 of Pupin Hall, his office of fifty years has been converted into the Rabi Room, a study lounge that also serves as a shrine to the man. A plaque honoring him is on the wall. So are more than twenty pictures of Rabi, along with his Nobel Prize medal in physics, awarded in 1944. Two students in the lounge, buried in work, readily acknowledge they've never heard of him. "I haven't even looked at the photographs," says one. Then the other, checking out the pictures, pauses to take in the accompanying text reciting Rabi's accomplishments. "Wow, that's crazy," she says. "I should have known that."

Born in what is now Rymanów, Poland, and raised in New York City, Rabi got his PhD at Columbia in 1927.

Three years later, Columbia hired him for \$3,000 a year. His lectures in theoretical physics were singularly awful, his students said — but his research skills were stunning. "I think physicists are the Peter Pans of the human race," he told the *New Yorker* in 1975. "They never grow up, and they keep their curiosity." That trait was encouraged by his mother, decades earlier; upon his return from school, she would say: "Izzy, did you ask a good question today?"

Rabi never stopped asking them, and

after arriving at Columbia, he certainly answered some. Like any physicist of his generation, he was determined to unravel the conundrums of the atom; particularly intriguing were the protons, particles within the

atom's nucleus. Put simply, Rabi learned that protons — if placed in a magnetic field and hit by radio waves — generate an energy signal.

The medical application of that finding was not readily apparent to Rabi. No one imagined this signal might eventually be used to image the insides of the human body and detect heart disease or cancer. But the discovery of NMR — nuclear magnetic resonance — led to the development of MRI, magnetic-resonance imaging. Rabi's insight, undeniably genius, ultimately ignited a multi-billion-dollar technology that may someday save your life. Perhaps it already has.

In the basement of the Jerome L. Greene Science Center on the Manhattanville campus is Tommy Vaughan's "broom closet," a room with little more than a desk, three chairs, and a whiteboard. Though not officially Vaughan's office, the space is his "place to hide," he says, "commandeered to get some work done." As Columbia's director of magnetic-resonance research, he has much to do. The seventy-two studies he supervises at the school's new Magnetic Resonance (MR) Research Center — his brainchild — "are only a beginning," he says.

Vaughan is one of the world's foremost MRI engineers. For thirty-five years, he has designed, built, and retooled MRI systems and applications; he holds more than fifty patents. Manufacturers in biotech and medicine regularly license his inventions. Yet he too seems to be just beginning. Recruited in 2016 from the University of Minnesota, he is preparing to radically accelerate MRI research at Columbia. "We are on the threshold of revolutionizing how we approach science and medicine," he says.

Over the threshold, actually. Staffed primarily by Columbia neurologists and engineers, the MR Research Center is spread over four locations boasting eight MRI machines: three at Manhattanville's Mortimer B. Zuckerman Mind Brain Behavior Institute, three more at Columbia University Irving Medical Center, one at the New York State Psychiatric Institute, and one at the Nathan S. Kline Institute for Psychiatric Research in Orangeburg, about twenty miles north of New York City. Within the next year or so, another MRI will arrive at the Fu Foundation School of Engineering and Applied Science. Eventually, the center will have eighteen MRIs. No research institution in

the world currently has as many. Rather than diagnosing patients, the MRIs will look for clues that may lead to cures for disorders and diseases of the brain: anorexia, alcoholism, Alzheimer's, Parkinson's, Huntington's, schizophrenia, suicide, stroke — the list goes on, as do Vaughan's plans.

"We can build a smaller, cheaper magnet that we can put anywhere," he says. "Even in the middle of Inner Mongolia. Anywhere on the planet."

After Rabi's breakthrough, chemistry labs used NMR to examine organic molecules. "It's how we know what sugars and proteins and DNA look like," says Vaughan. By the time doctors began scanning patients in the early eighties, the name was an issue; public-relations-wise, NMR had an image problem. Patients couldn't get past the N, as in nuclear. Some were convinced the scanner was dousing them with deadly radiation. NMR became MRI, the same concept yet sounding so much more benign. (More recently, some researchers have begun using the term MR.)

MRIs are no longer considered exotic. They have been imaging your organs, tissues, and bones for nearly forty years. They can see skin, muscle, blood vessels, tendons, tumors, joints, and ligaments in astonishing detail. Notwithstanding their scary trappings — the fifteen-ton magnet, those loud bangs, that oppressive and cramped space, the intimidating warnings posted everywhere — MRIs are painless and harmless.

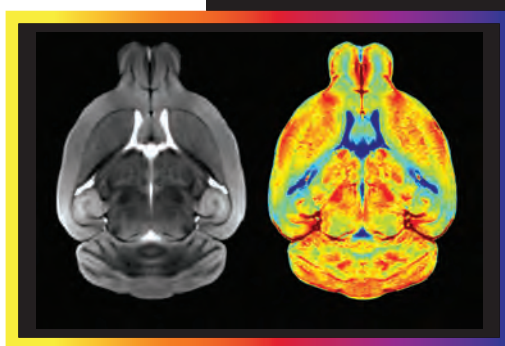
"Magnetic-resonance imaging is completely radiation-free," says Kathleen Durkin of the Zuckerman Institute. "You can get an MRI every single day of your life and be perfectly safe." Conversely, X-ray machines do emit small doses of radiation and can't image everything. They work best on hard tissue, like teeth and bones. "I hate this cliché," says Vaughan, "but MRI is a one-stop shop for diagnostics, and also for science — for trying to understand how the body and mind work. This is the ultimate tool to noninvasively observe a living system."

Of the millions of patients scanned, few know how the machine works. Yet for all their spookiness and sophistication, MRIs rely completely on the most common chemical compound on Earth — water. An MRI is all

about water. And human beings "are walking bags of water," says Durkin. Indeed, 60 percent of you is water. "And that water inside your body," she says, "gives off a signal to the MRI."

Every molecule of water is two atoms of hydrogen linked to one atom of oxygen. But only the protons in the hydrogen atoms send the signal. Walk into the MRI room and enter the machine's magnetic field and trillions of hydrogen protons in your body snap to attention. "You don't feel it," says Durkin. But the procedure has essentially begun. Like iron filings near a toy magnet, the hydrogen protons align with the magnetic field. Once on the MRI bed, the patient is pushed into the cylinder, which houses the magnet. In the MRI scanner is an antenna. It transmits radio waves. Invisible and innocuous, the radio waves ping your hydrogen protons. They absorb the radio waves. They spin in a different direction. Momentarily discombobulated, they need time to right themselves.

"As they realign," says Durkin, "they spit back a signal, a little bit of energy." That signal is a faint ricochet of the radio wave that hit them. A second antenna — a receiver,



▲ Scans of a mouse brain. The one on the right shows cerebral blood volume.



▼ A 3-tesla MR system at the Zuckerman Institute.

TOP: JIA GUO / COLUMBIA UNIVERSITY; BOTTOM: J. THOMAS VAUGHAN / COLUMBIA'S ZUCKERMAN INSTITUTE

hidden in a coil near your head — intercepts the signal. Much the way your television set works, the MRI's processing units unscramble the signal and reduce the noise, all straight-away. "And we get a brain picture out of it," says Durkin. "Or a picture of an abdomen, or an ankle, or anything on the body." From little more than subatomic blips, an MRI can discern a cancerous tumor.

**I**t is difficult to fathom the power of an MRI machine. Wear or hold anything metallic or electronic within its magnetic field — major mistake — and you will find out. Your phone could fly out of your hand and smash into the machine. Pacemakers can become

sion stations would mingle with the MRI and distort the image.

The strength of an MRI magnet is measured in units of T, or teslas, in honor of the scientist Nikola Tesla. Says Durkin: "Have you ever seen one of those big magnets in the junkyard that picks up a car and brings it to get squished into a cube? That's 1-tesla." Two of the MRIs at the Zuckerman Institute (named "June" and "Eve") are 3-tesla, triple that strength.

The stronger the MRI magnet, the higher the resolution, the greater the detail, the more useful the image; most hospitals do fine with a 1.5-tesla. Zuckerman's third MRI, a 9.4-tesla (unnamed) is more than six times that, but



▲ Tommy Vaughan is the director of Columbia's Magnetic Resonance Research Center.

## Walk into the MRI room and enter the machine's magnetic field and trillions of hydrogen protons in your body snap to attention.

erratic. Large objects with metallic parts, like chairs, have been picked up and yanked into the cylinder.

It is also difficult to grasp how sensitive the machines are. For the MRI to work, the magnet must be supercooled to  $-452$  degrees Fahrenheit, the edge of absolute zero. Any warmer than that and the magnet quenches. "That means it's no longer superconducting," says Vaughan. The damage to the machine can be considerable, if not irreversible. Liquid helium, the coolant, is scarce and expensive, and the MRI, with its dozens of kilometers of coiled wire, just chugs it.

Housing MRIs is a challenge. They take up lots of space — along with the machine, there's the adjoining equipment and console rooms. "And the magnet has to be shielded from interference," says Vaughan, which is why the walls of the MRI suites at the Zuckerman Institute are lined with thin sheets of copper. They block incoming radio waves; otherwise, signals from local radio and televi-

with a trade-off. The stronger the magnet, the smaller the bore — the space where the subject lies down. "With a 9.4," says Durkin, "the bore is so small that people can't get in it." Instead, the tiny tray is only large enough to hold mice. Within the next year or two, however, a 7-tesla will arrive at Zuckerman. People can fit in this one. Says Durkin: "The images are spectacular."

Right now, Vaughan is developing a 1.5-tesla MRI that's a "head-only imager," he says. "It looks like the hair dryer your mother sat under in the beauty parlor." It should be ready in three years. Rather than record the brain activity of someone lying motionless inside a tube, Vaughn's head-only MRI lets subjects sit in a chair with arms and hands free. Scientists will capture how the brain interacts with the body while someone weaves a basket, lifts weights, draws a picture, or plays the piano.

Columbia officially chartered the MR Research Center in 2018, and many of the studies are just starting. Although manufacturers like Siemens, GE, and Toshiba sell MRIs off-the-shelf (the cost is roughly \$1 million per tesla), some machines require a

reconfiguration of their hardware to accommodate the research. The modifications can take months. Some of the adaptations have never been done before.

One example: Ray Lee, a senior research scientist at the Zuckerman Institute, wants to see how brains respond as people touch, talk, and smile. So he designed “the world’s first dual-head MRI coil,” a way to put two subjects under one magnet and scan their brains simultaneously. “This is fundamentally different from all previous methodologies,” he says. “It’s a new way to study people interacting with each other.”

## Eventually, advanced machine learning will scrutinize the data in a fraction of the time it would take a researcher.

The old way demanded that researchers display photographs of a subject’s family and friends on a screen inside the bore and ask the subject to react to them. Real interactions — caressing a partner’s face, holding hands, and sharing quiet conversations — are obviously precluded. Lee expects “dramatic differences” with his invention. “When two people look at each other, there’s a real emotional exchange,” he says. “There’s much more brain activity than someone just looking at a picture.”

**Y**uval Neria, a professor of medical psychology at CUIMC, is trying to find out why some brains rekindle long-ago traumas rather than extinguishing them. Earlier research shows that symptoms of posttraumatic stress disorder — including anxiety, agitation, depression, flashbacks, and nightmares — may fade after a horrific event, only to reappear decades later, when the victim is in late middle age or older. “Aging is a big promoter of late-onset PTSD,” says Neria. “It can be very disabling.” Usually the trigger is “a new stressor,” like the loss of a spouse or a

health problem. Such relapses are not uncommon in war veterans. For two or three decades after combat, many do fine; then a sudden loss changes everything.

The MRI can see those changes in three brain regions: the hippocampus, where memory is stored; the prefrontal cortex, where decisions are made; and the amygdala, the alarm center. If connections between them are muddled and the amygdala is malfunctioning, the brain “can’t discriminate between what’s dangerous and what’s safe,” Neria says. Everyday events can trigger flashbacks.

But solutions exist. With a grant from the National Institute of Mental Health, Neria compared MRI scans of patients before and after ten weeks of talk therapy. Telling the traumatic story again and again seems to help. The prefrontal cortex “dampens” the overly active amygdala, he says: “The brain is better connected. It has greater capacity to deal with the trauma.”

Without the MRI, Neria would have to rely on self-reporting, which is not always definitive. “We know after decades of self-reports how biased they are,” he says. “But with the MRI, you have data.”

**A**lmost anyone who spends several hours at a rock concert or football game may notice afterward an annoying auditory artifact — ringing or roaring inside the ear. It could be high-pitched, like crickets screeching, or a dull rumble, like a jet engine during flight. Wait a few minutes or get a good night’s sleep and the blare usually goes away. But for some, the sound doesn’t stop. There will never again be a moment’s vacation from the noise.

The diagnosis is tinnitus. Medical experts rarely agree on anything about it, even the pronunciation (some say tin-NIGH-tus; others, TIN-uh-tus), but millions have it, and there is no cure. Cognitive-behavioral therapy can help, but for some the sound is so strident, they are virtually incapacitated. A few are so devastated they commit suicide. Half of US soldiers exposed to IEDs develop tinnitus, and 1.5 million veterans receive disability benefits for it, at a cost of \$2 billion per year.

Diana Martinez, a professor of psychiatry at CUIMC, got tinnitus seven years ago after a flight from Hawaii to Newark. “It was a high-pitched buzz,” she recalls. “I felt like I was in

▼ Kathleen Durkin, manager of magnetic-resonance imaging, helps coordinate some seventy-two studies at the research center.



▲ Senior research scientist Ray Lee is designing a machine that can accommodate two people and capture human interaction.

the subway station all day long,” Martinez was lucky. Tinnitus, a mysterious disorder, occasionally disappears, and within a week, hers did. “Thank goodness,” she says. “It’s miserable.”

Martinez never forgot that terrible week. Her new \$1.6 million study, funded by the US Department of Defense, will monitor forty volunteers. Previous research suggests that the brains of tinnitus patients have low levels

of GABA, an amino acid believed to block anxiety (“a brake on the brain,” says Martinez). Injections of ketamine, a common anesthetic, could help; earlier findings show ketamine boosts GABA in the prefrontal cortex. Increase GABA in the auditory cortex, the part of the brain that processes hearing, and tinnitus may diminish.

With the MRI, it’s easier to tell if the ketamine is working. As with Neria’s PTSD study, Martinez can ask patients if they’re feeling better, but survey responses are subjective. With patients in the scanner, the MRI can

image the change in GABA levels after the ketamine injections. “It’s the best way to look,” says Martinez. A half billion people worldwide may benefit from her research.

**D**oing the research is one thing. Delivering the data to the world is another. Vaughan has thought of that too.

“Since day one,” he says, “we have saved all of our MR data in the cloud.”

This is a first, at least for MRI research. Laboratories, limited by storage capacity, once had to toss old data to make room for more. But for the past year and a half, the Zuckermand Institute has stockpiled its gobs of data in the cloud on a customized Google platform. Eventually, advanced machine learning will scrutinize the data in a fraction of the time it would take a researcher. “This will be the future,” says Vaughan. “It just has to be.”

And it will be another beginning: Vaughan hopes Columbia will be the prototype for a worldwide network of cloud-based data. Consortiums of researchers could connect.

Looking for clues to cure autism, PTSD, tinnitus, and a thousand other disorders? Just access the cloud and analyze the data from millions with the same problem. “If the data set is big enough,” says Vaughan, “you can ask a question, get a correlation, and answer any medical question you could imagine. The cloud is like your mind. The more information you have, the smarter you are. This opens up a whole new world.”

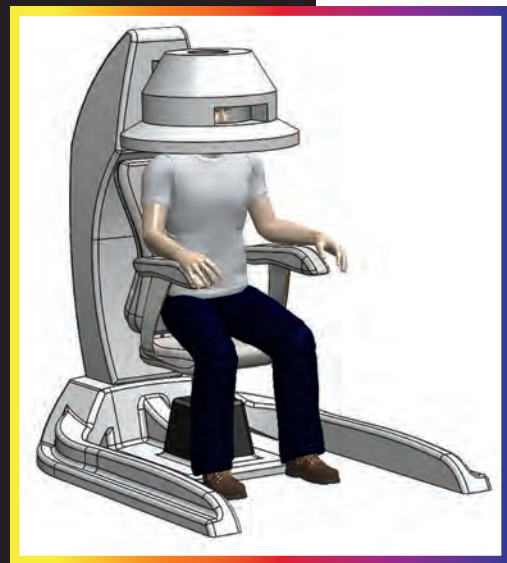
But today, 90 percent of the world has no access to MRIs. “The machines are big, heavy, fragile, and expensive,” Vaughan says. Throughout much of Asia, Africa, and South America, they are not affordable, deliverable, or maintainable. “We need a completely different kind of magnet,” he says. “One we could bring to the developing world. One that can go on the back of a truck and bounce on a bumpy dirt road to a village in Guatemala.”

For that to happen, the magnet and scanner need to be one-fifth the size and weight of current models, yet furnish just as good an image. Vaughan is working on it. With a miniaturized unit, cost is less. Delivery is easier. Solar battery systems or a generator could supply power. That standard three-room suite becomes a single room. For the coolant, the costly liquid helium could be replaced with nitrogen, an inert gas that composes nearly 80 percent of Earth’s atmosphere. “It can be liquefied right out of the air,” Vaughan says. And a clinic’s MR system, no matter how remote, could send data by satellite link directly to the cloud. “You could run a worldwide lab from your desk,” he says.

“Imagine having access to billions of patients, collecting and storing data from everybody,” says Vaughan. “At that scale, you could study every disease or behavior or characteristic known to man.”

A group of international investors — based in China, Malaysia, Korea, Taiwan, and the United States — has asked Vaughan to develop a more accessible MR system. That pilot program, if it flies, might expand throughout the world. In the US, a next-generation MRI might one day sit in the corner of a doctor’s office in Manhattan. Walk-in clinics will be in shopping malls. That data would go to the cloud too.

How long before all this happens? “A decade,” he says. “In a decade, everyone will see this in place, and spreading fast everywhere.” Even in Mongolia? “Yes,” says Vaughan. “Even Mongolia.” 🐏



▲ Rendering of a head-only MR machine that will be able to scan brain activity while someone draws a picture, plays the piano, or lifts weights.

# Life on the Brink

# One million plant and animal species are at risk of extinction, many within decades. Can anything be done to prevent this ecological catastrophe?

**Shahid Naeem, the chair of Columbia's Department of Ecology, Evolution, and Environmental Biology, is an expert on biodiversity. *Columbia Magazine* interviewed him about the world's soaring extinction rates.**



**Can you tell us about your work?**

I study the interconnectedness of plants, animals, and microbes.

In particular, I look at what happens when you start to dismantle natural ecosystems by either removing native species or introducing invasive ones.

**How serious is the problem of species extinction today?**

We're in the midst of a mass-extinction event unlike anything that's happened since dinosaurs were mostly wiped out sixty-six million years ago. A report put together recently by the United Nations concludes that around one million species of plants and animals are now threatened with extinction, many within

decades. We've already lost several million species over the past two or three hundred years, which means that we're on course to reduce the earth's total biodiversity by 75 percent or more.

**We often hear about exotic creatures like tigers and pandas being endangered. But aren't more-ordinary plants and animals threatened too?**

Yes, thousands of species of amphibians, fish, coral, insects, microbes, mammals, and plants are at risk. And all these organisms are important, because collectively they make up healthy ecosystems that remove pollutants from our water and air, enrich our soil, nourish our crops, and regulate our climate systems. The ramifications of this ongoing and massive die-off could be profound.

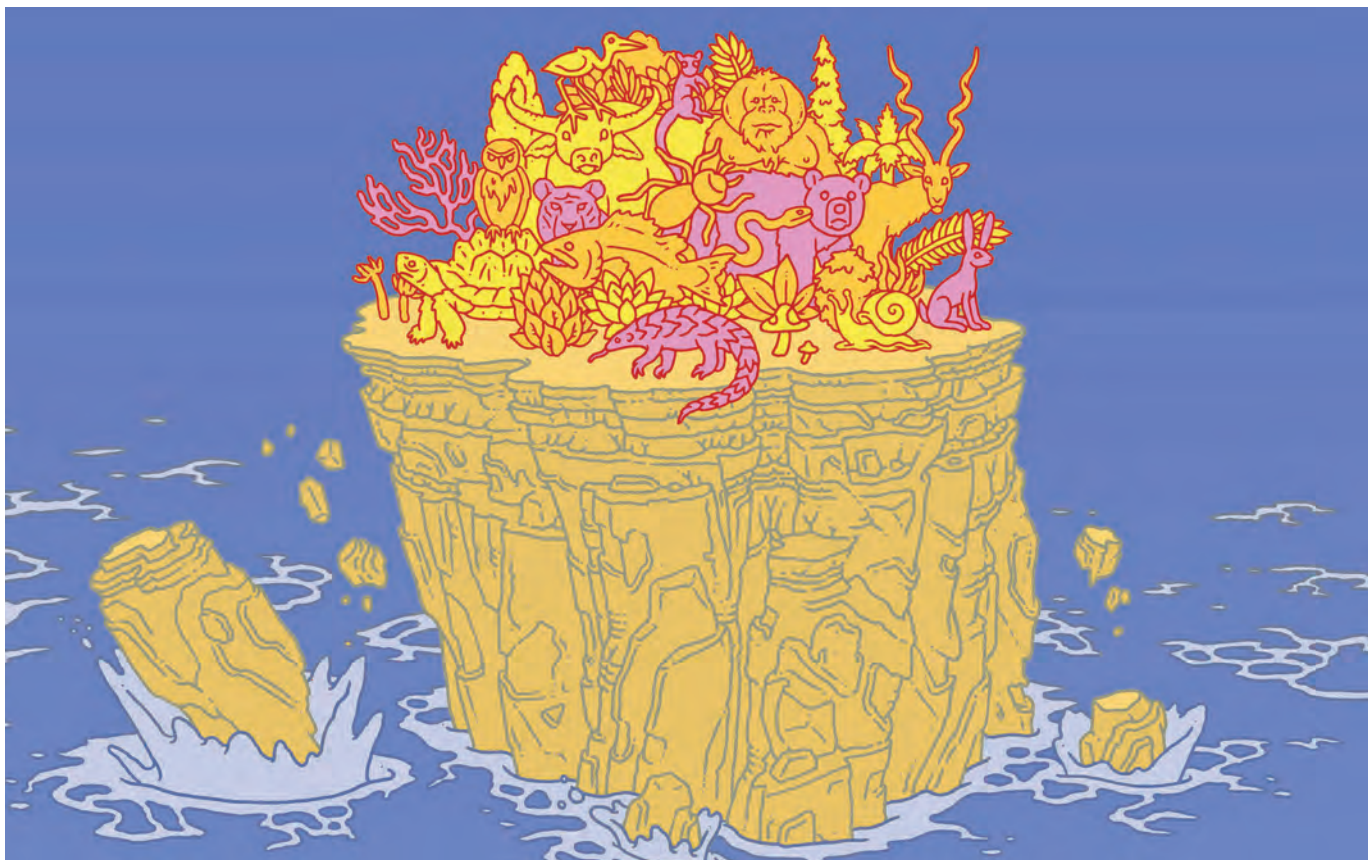
When I teach, I like to use an old desktop computer as a prop to illustrate what we're doing to nature: I take the back off, and while it's running I'll start snipping small wires with a pair of pliers.

The students are shocked to see that the computer keeps working. But then I ask them how much they'd pay for it. They inevitably say, "Not much," because common sense dictates that even if it is still running, it probably won't be for long. And yet, I point out, we're doing the same thing to the environment, and people don't seem terribly concerned.

Of course, you can question whether nature is truly "designed" in the way a computer is. My argument is that nature does have a design to it, in the sense that it's evolved over billions of years to function in a particular way.

**So what will the earth be like if we continue on this course?**

Dismal. If you lose 75 percent of all species — which is the scientific definition of a mass-extinction event — what emerges is an entirely different world. The climate is going to be different, the dominant life forms are going to be different, and even the color of the sky could be different, since



that blue hue is the result of sunlight being scattered by oxygen molecules and other particles produced by vegetation. Our planet has experienced a total of five previous mass-extinction events, and the fossil record shows the average recovery time is about ten million years.

Some people might say, “Well, we’ve already lost the dodo bird and the great auk and a few amphibian and butterfly species, and we seem to be doing fine.” But the scale and pace of the losses we’re experiencing are astounding.

### What’s driving the current wave of extinctions?

Agriculture is a big player. In order to feed the world’s growing population, we’re converting vast stretches of forest, wetlands, and grasslands into farms and causing enormous amounts of chemical fertilizer to run off into rivers, lakes, and coasts. This is ruining the habitats of countless plants and animals, both on land and in water. We’re also overharvesting our

oceans. On top of that, through international trade and travel we’re inadvertently introducing many species into new environments, which is wreaking havoc on local food chains. Black rats, for example, have managed to invade nearly every corner of the world. They’re threatening the survival of lots of birds and plants on tropical islands. We’re also unknowingly spreading infectious diseases among wildlife. A few years ago, people exploring caves in Europe apparently brought a bat disease called white-nose syndrome back to the US. The disease isn’t especially deadly to European bats, but it’s devastating bat populations in this country.

### Are we suffering any serious consequences right now?

Yes, in so many ways. The loss of bats is a big problem for American farmers, because they’re an environmentally friendly form of pest control. With fewer bats to do the work, farmers are using more chemical pesticides. The collapse of

honeybee populations is also causing headaches, requiring farmers to sometimes rent colonies of bees to pollinate crops. Shrinking populations of wild animals in US woodlands have even been linked to the Lyme-disease epidemic, since the forest floor is now dominated by tick-carrying rodents like white-footed mice.

Another concern is that by extinguishing so many plant species, we’re jeopardizing global food security over the long term. That’s because among the countless wild varieties of domestic crops, there are likely to be some that possess rare traits such as drought or heat resistance. By eliminating this reservoir of alternative crop varieties, we’re reducing our ability to adapt to global warming.

### The authors of the UN report suggest that biodiversity loss is as severe a threat to humanity as climate change. Do you agree with that?

If I had to rank them, I would actually say that biodiversity loss is a scarier prob-

lem, because when species go extinct, there's no bringing them back.

Climate change and biodiversity loss are closely intertwined, though. In fact, climate change is now considered a principal driver of biodiversity loss, in part because it's altering the habitats of many species. And when humans destroy biodiverse rainforests, they also reduce the earth's natural ability to remove carbon dioxide from the air. So a planet that's less green and less biologically diverse is likely to be hotter and drier.

### **Climate change has certainly received more public attention than biodiversity loss. Why do you think that is?**

Climate change is easier for people to get their heads around. They see its effects firsthand, with all the heat waves, droughts, forest fires, and floods we're experiencing. The effects of biodiversity loss can be more difficult for people to recognize.

It's important to note that the costs of biodiversity loss are more dramatic for people in the developing world, since they tend to be more reliant on natural resources in their immediate environments. For example, in many poor countries, local fish are a crucial source of cheap protein. So when marine ecosystems are disturbed — by either overfishing or pollution — people are in serious trouble. We've seen this happen off the coast of West Africa, where European fishing companies, having depleted the waters off their own coasts, have begun harvesting African waters. That's exhausting the West Africans' fishing stock and forcing many people to resort to eating bushmeat. And that, in turn, is contributing to the endangerment of monkeys, elephants, antelopes, and many other animals.

### **When you began your graduate studies, in the early 1980s, the term "biodiversity" hadn't even been coined yet. How was the field of ecology different then?**

Scientists who were interested in the diversity of life mainly saw it as a window into evolution. They wanted to know where individual species were situated on the tree of life and who was



Shahid Naeem

## **“Seemingly small ecological changes can have outsized consequences.”**

descended from whom. The questions that I and many other ecologists of my generation came to study — about how relationships among species affect ecosystems — didn't really interest the previous generation of scientists. To the extent they even thought about the topic, they figured it didn't much matter.

### **How could it not matter?**

Well, imagine you're standing in the middle of a dusty prairie. What would you think made it that way? You'd probably consider the annual precipitation, temperature, altitude, exposure to wind — climatic conditions dictated by large-scale geophysical forces. You might not guess the landscape could be significantly altered by something as simple as sprinkling some grass seeds, introducing a particular insect, or driving out a pack of predators. But study after study has shown that seemingly small ecological changes can have outsized consequences. There was a famous case a

few years ago in which the reintroduction of a previously overhunted species of gray wolf in Yellowstone National Park changed the whole ecosystem, bringing populations of many other animals and plants back into balance and even stabilizing soil in a way that shifted the course of a river.

### **You published a landmark paper in 1994 that was the first to demonstrate how biodiversity influences the overall health of ecosystems.**

To me, it always seemed intuitive that biodiversity is a powerful force in its own right. I got my chance to test the idea while working as a postdoctoral researcher at London's Imperial College. There was a facility there called the Ecotron, consisting of growth chambers about the size of meat lockers in which you could control the light, temperature, rain, and just about every other climatic condition you could think of. They were essentially small biospheres. And what I

did, as part of a team that also included the distinguished biologist Sir John Lawton, was to establish weedy little meadows in each chamber, with lots of plants, insects, worms, slugs, mites, and microbes. We put the same basic types of organisms in each chamber and held the climatic conditions constant; the only difference was that some chambers contained more species of each type than others. And what we found was that the more diverse ecosystems functioned better in most every respect: they produced more vegetation, they recycled organic matter faster, they retained more nutrients in their soil when it rained, and they even sucked more carbon dioxide out of the air.

**That principle is now widely accepted.**

Building on that work, ecologists have since developed formulas to assign monetary value to the individual components of ecosystems, determining the worth of honeybees in a patch of grassland, water-purifying vegetation on the banks

of a reservoir, or deep-rooted trees holding mud in place on the side of a hill. This enables us to help farmers, water managers, forestry officials, and others anticipate the potential consequences and costs of altering local environments. Columbia faculty and students have worked on projects like these all over the world. A few years ago, I led a team with colleagues from the Department of Ecology, Evolution, and Environmental Biology that analyzed a tract of rainforest in Panama, quantifying how much more carbon dioxide the forest would draw out of the atmosphere if the country adopted timber-harvesting practices that preserved its rich diversity of tree species.

**What kinds of solutions are needed to preserve biodiversity on a global scale?**

I think improving education and research in this area is the most urgent need. Of the US government's \$150 billion annual budget for basic science research, only a tiny fraction — less than one-tenth of a

percent — is spent on environmental-biology research projects. That's not commensurate with the magnitude of the ecological problems we face.

Additionally, I think that agricultural systems need to be improved. In wealthy countries, the priority should be reducing the use of chemical fertilizers and pesticides. In developing countries, farmers need help increasing the amount of food they grow per acre, so that they can preserve more of their forests, grasslands, and wetlands. There's a major movement now toward "sustainable intensification," which combines organic-farming methods with some industrial-farming strategies, like the limited use of genetically modified crops and chemical fertilizers when they're absolutely necessary. It's a hybrid approach that has drawn criticism from some environmentalists, but I think that if we're going to feed ten billion people by mid-century without destroying the planet, it's the best chance we've got.

— David J. Craig

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# EXPLORATIONS

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## How ISIS really recruits its members

**T**he Islamic State, or ISIS, has recruited tens of thousands of people to its cause, mostly through social media. What has made the group's online propaganda so successful, and what can be done to combat it?

To find answers, a team of researchers led by Columbia political scientist Tamar Mitts '17GSAS recently turned to big data, analyzing the impact that some twenty-six thousand ISIS recruitment messages had on the attitudes of more than two hundred thousand of the group's Twitter followers over a two-year period. Specifically, the researchers sought to identify characteristics of ISIS video and audio messages that succeeded in pushing followers further down the path of radicalization — as shown by the levels of enthusiasm people expressed for ISIS before and after encountering certain posts.

"Knowing what kinds of extremist propaganda resonate with people is crucial for designing effective counter-messaging," says Mitts, an assistant professor at the School of

International and Public Affairs and a member of Columbia's Data Science Institute. "But until now, no one had examined this issue in a rigorous manner."

Her team's findings are powerful and surprising. The data set reveals, for example, that videos of beheadings and other atrocities were unpopular with all but the group's most fanatical supporters. Instead, the vast majority of ISIS's Twitter followers were inspired by propaganda emphasizing the personal benefits that people could supposedly enjoy by joining the group — benefits like getting a free home in the caliphate, finding a spouse, and feeling camaraderie with fellow fighters. Every time ISIS released messages extolling such "material, spiritual, and social" perks of jihadism, the researchers write, the Internet lit up with tweets declaring people's intentions to join the group.

"You could consider this ISIS's version of 'positive messaging,'" Mitts says. "It spoke to people's basic needs rather than any hunger for violence."

ALAMY

Mitts says her research has implications for combating radical rhetoric both online and offline. She points out that while Internet companies have become more adept at rapidly identifying and removing violent content from their sites, they have struggled to detect other types of extremist propaganda in a timely manner. That is because the image-recognition software the companies use to spot dangerous content is better equipped to identify scenes of graphic violence featuring images of knives, guns, blood, flames, or military fatigues.

"The nonviolent propaganda gets taken down eventually, but not before lots of people have already seen it," she says. "This is a big problem, because the nonviolent content is feeding ISIS's pipeline of new recruits. Internet companies need to figure out a way to detect it faster, either by developing better AI programs or hiring more human censors."

At the same time, Mitts says, people involved in community-based outreach efforts to combat extremism ought to speak frankly to vulnerable young people about the falsehoods ISIS peddles about the daily lives of recruits.

"Ample media reports show that life for ISIS members isn't anything like what the group promises it will be," she says. "Young people need to hear the truth so they don't end up making irreparable mistakes out of desperation."

## Astrophysicists strike gold

A tiny bit of the gold in your wedding band, favorite necklace, or watch fell to Earth after a violent collision between two neutron stars 4.6 billion years ago, according to a new study by astrophysicists Szabolcs Márka of Columbia University and Imre Bartos '12GSAS of the University of Florida. The paper, which appears in the journal *Nature*, is among the first to pinpoint the cosmic birthplace of rare elements. It suggests that an epic stellar explosion that occurred around the same time that our solar system was forming spewed out approximately 0.3 percent of all the gold, platinum, uranium, and iodine found on Earth.

Since the explosion distributed these elements evenly throughout our solar system, every human may have an eyelash's worth in them, mostly in the form of iodine, according to the scientists. A wedding band would contain about

ten milligrams of its gold and a nuclear reactor two hundred kilograms of its uranium.

Márka and Bartos made the discovery by analyzing meteorites that date from our solar system's formation and then using computer models to determine what kind of cosmic event likely produced their unique chemical composition.

The scientists say their findings suggest that collisions between neutron stars — the ultra-dense cores of massive stars that have collapsed in on themselves — play a more important role in the life cycles of elements, planets, and solar systems than was previously recognized.



Emlyn Hughes, left, and research assistant Gemma Sahwell '19BC collect soil samples on the Marshall Islands.

## Dangerous radiation lingers for decades

More than half a century after the US conducted nuclear-bomb tests on the Marshall Islands, radiation levels there remain dangerously high, according to new research led by physics professors Emlyn Hughes '87GSAS and Malvin Ruderman '46CC.

Their team recently traveled to the Marshall Islands, a nation of twenty-nine coral atolls in the Pacific Ocean, to determine if any parts of the territory that have long been considered too radioactive for human habitation could be repopulated. The scientists found that some restricted islands are now safe for people, but that others should remain off-limits. They also determined that fruits growing on several uninhabited islands that the Marshallese often visit to collect food are unsafe to eat.



## The mysterious case of the alien rock

A team of geologists led by Cornelia Class of Columbia's Lamont-Doherty Earth Observatory believe they are close to solving a mystery that has puzzled scientists for more than a century: why a small tropical island in the Indian Ocean contains a mountain of crystalline rock that could never have formed there naturally.

The island, called Anjouan, was born some four million years ago when volcanic eruptions pushed enormous amounts of lava above the waves. As a result, Anjouan is composed entirely of black igneous rock — except for a curious mass of glittery quartzite. “To say that the quartzite doesn’t belong here would be a tremendous understatement,” says Class, who led an expedition to Anjouan to collect samples and survey the landscape.

According to Class, quartzite forms in very particular circumstances,



Cornelia Class and archaeologist Bourhane Abderemane inspect a chunk of quartzite on Anjouan.

typically when pure quartz sand grains accumulate in river deltas, get buried, and fuse together with other sediments. Quartzite could not have formed on Anjouan because the island’s volcanic rock contains no quartz grains; even if it did, Anjouan has no rivers large enough to forge such composite stone. This has led Class to hypothesize that the rock formed either on mainland Africa, some two hundred miles to the west, or Madagascar, two hundred miles to the east, and then hitched a ride on a shifting piece of the earth’s crust that dumped it on the sea floor. She suspects that the mass of stone, which appears to be at least twice the size

of the Empire State Building, was coughed up by the same volcanic eruptions that made the island.

“It’s totally crazy,” says Class. “The thing would have had to be propelled nearly two miles upward.”

Class and her colleagues, who include Columbia geochemist Steven Goldstein ’76CC, ’86GSAS, are now analyzing samples of the quartzite to determine its age. If they can match it to quartzite in Africa or another location, they will have compelling evidence of the stone’s origin — and fresh insight into the power of underwater volcanoes.

“Our current models of volcanism may have to be updated,” Class says.

# Making precision medicine work for every body

**P**recision medicine is reshaping the health-care field, as doctors and researchers use patients' genetic profiles to choose the treatments that are likely to work best for them.

But for all its promise, precision — or personalized — medicine is also poised to create new inequities. That's because the people who have had their DNA collected as part of medical-research projects are disproportionately white. This means that some conclusions drawn from genetic databases may apply only to white people, since diseases can present differently from one ethnic group to another — progressing at different speeds and responding differently to treatments.

Sandra Soo-Jin Lee, an anthropologist and bioethicist in the recently created Department of Medical Humanities and Ethics at Columbia University Irving Medical Center (CUIMC), is hoping to address the imbalance by leading a four-year, \$2.8 million study to identify the most effective ways of increasing minority-group participation in DNA-collection



A new study aims to identify ways of diversifying genetic databases.

efforts. Funded by the National Human Genome Research Institute, her project will evaluate efforts now being undertaken at academic medical centers across the US, including at CUIMC, to build more diverse genetic databases.

“Without engaging underrepresented communities in genetic studies, efforts to move precision science forward may recapitulate ongoing inequalities in health care and bias the research,” Lee

says. “The early stages of precision medicine offer a critical window in which to intervene before research practices and their consequences become locked in.”

She warns that diversifying genetic databases may prove challenging, however. “There is a long history of racial discrimination and exploitation in medical research,” she says. “Questions about trust loom large.”

— Carla Cantor '82SIPA

## Do cell phones reduce violent crime?



**A**ccess to cell phones has been credited with everything from fueling pro-democracy movements to improving market access for farmers in developing nations. Now a paper by Columbia economist Lena Edlund suggests that cell phones may have also helped slash US murder rates in the 1990s.

Edlund and coauthor Cecilia Machado '10GSAS, an assistant professor at the Getulio Vargas Foundation in Brazil, argue that the availability of cheap cell phones in the latter half of the nineties made it easier for drug dealers and their customers to arrange handoffs in discreet locations and therefore reduced the incentive for dealers to peddle their merchandise on street corners. This eased turf battles, the researchers theorize, and reduced gang violence.

“As drug dealing became less about defending physical territory and more about accumu-

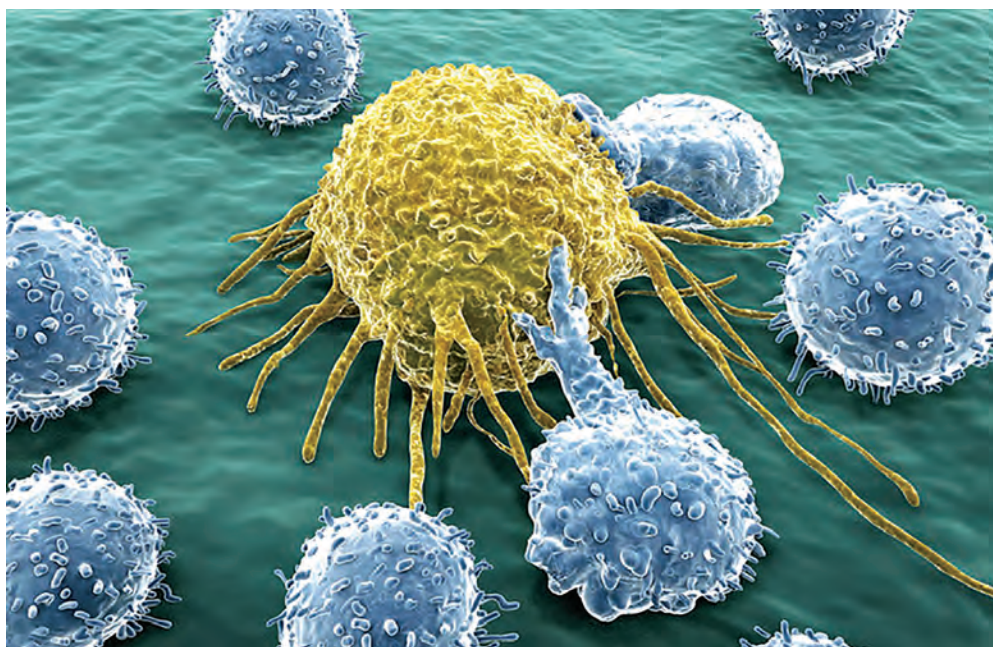
lating customers through private networks, more dealers could enter the market and it became less profitable and there was less to fight over,” says Edlund.

As evidence, she and Machado provide county-level statistics showing that as cell-phone towers were erected across the United States, murder rates dropped in surrounding areas. Killings fell most sharply in urban neighborhoods and among Black and Hispanic men, who the researchers say are typically the victims of gang murders.

Edlund and Machado estimate that the proliferation of

mobile phones may explain 19 to 29 percent of the decline in homicides between 1990 to 2000, during which time the total annual number of murders dropped from about 25,000 to 15,000. More-aggressive police tactics, stricter sentencing for drug crimes, and lower unemployment rates may also have been contributing factors.

“Our data suggest that the drop in drug-related homicides is permanent,” Edlund says. “The market for drugs has changed, and we’re not going back to the street business model.”



An artist's rendering of white blood cells attacking a cancer cell.

## Now scientists can alert immune system to cancer cells in hiding

**C**olumbia researchers have genetically reprogrammed bacteria to invade tumors and strip cancer cells of a disguise they use to hide from the immune system. The technique, developed in the laboratories of immunologist Nicholas Arpaia and biomedical engineer Tal Danino, could lay the groundwork for a new type of immunotherapy, a form of cancer treatment that turns the body's natural defenses against the disease.

Immunotherapy has been heralded as the next revolution in cancer treatment, but it has not been widely adopted in part because it can cause serious side effects. Arpaia and Danino say that their approach, which they've tested successfully in mice, could dramatically reduce this risk, since it stimulates the immune system only in the immediate vicinity of tumors.

"A lot of immunotherapy drugs are injected into the bloodstream and therefore spark unintended immune reactions throughout the body," says Arpaia. "The colon, skin, lungs, liver, and endocrine organs can all be seriously damaged."

To deliver an immunotherapy drug directly to cancer cells, Arpaia and Danino genetically reprogrammed a safe variety of *E. coli* that can be taken orally and that will ultimately be cleared out from most parts of the body by the immune system.

"But it will colonize tumors, because that's what bacteria do — they seek refuge in cancers that are operating below the radar of the immune system," says Danino. Once this *E. coli* reaches the tumors, it sets to work undermining the cancer cells' disguise: it manufactures an antibody that will bind to the cells' outer surfaces, covering up a protein that the cells have evolved to fool the immune system into believing they are ordinary and healthy.

In a recent paper in the journal *Nature Medicine*, the researchers report that this treatment cured lymphoma in mice without causing the animals any discernible side effects. "Mice will lose weight, stop grooming, and generally look miserable when you give them drugs that have adverse effects," says Arpaia. "But our mice were happy and healthy-looking."

The Columbia researchers are now conducting follow-up studies and hope to begin human trials within the next two to three years.

They say their approach — which is representative of an emerging field called synthetic biology — may also hold lessons for scientists developing treatments for other diseases. "Since we now have the ability to genetically reprogram living cells to intelligently sense and respond to diverse environments, synthetic biology will have an important role in the future of drug delivery," says Danino.

## Cash poor

**A**merica's welfare reforms of the 1990s gave states broad discretion in how they spend money allocated by the Temporary Assistance for Needy Families (TANF) program, the federal government's main cash-welfare program for families with children. As a result, some states give hardly any TANF money to needy families directly, preferring to spend it on initiatives that they claim will help poor people lift themselves out of poverty.

Now research by Zachary Parolin, a postdoctoral researcher at the Columbia School of Social Work's Center on Poverty and Social Policy, reveals that this decentralized approach is harming one segment of the US population in particular: Black children.

According to Parolin, direct cash support is crucial to improving the lives of poor kids and is hardest to get in states with large Black populations.

"The single most important predictor of how a state distributes its TANF money is its racial composition: the higher the African-American proportion of its population, the less money it puts toward cash assistance," says Parolin, whose study appears in the journal *Socio-Economic Review*.

The racial bias in the distribution of cash welfare is so pronounced, Parolin found, that if it were to be corrected and every state



were to provide at least 22 percent of its welfare allotments in cash payouts (which is the current national average), more than a quarter of a million Black children would be lifted out of poverty.

“That would reduce the Black–white child-poverty gap by up to 15 percent,” Parolin says, noting that a Black child is about twice as likely to live in poverty as a white child.

The situation would be less troubling, Parolin says, if the money diverted away from cash assistance were nec-

essarily being used to help the poor in other ways. But increasingly, states are funneling their welfare dollars into programs that he says provide little if any benefit to low-income people.

“A lot of states are essentially using their TANF budgets as slush funds to pay for social programs they might otherwise have covered in their general budgets,” he says. “Meanwhile, huge numbers of families are unable to put food on the table, pay their electricity bills, or buy clothes for their children.”

## Deep-water surprise

While surveying the Atlantic sea floor, scientists aboard the research vessel *Marcus G. Langseth* (at right) discovered a gigantic aquifer of fresh water trapped in sediments below the salty ocean.

The aquifer, stretching from Massachusetts to New Jersey and extending from the shore some fifty miles out to sea, is the largest such formation yet found in the world. It appears to hold 670 cubic miles of water — more than Lake Erie and Lake Ontario combined.

In their study, geophysicist Kerry Key of Columbia’s Lamont-Doherty Earth Observatory, fellow geophysicist Rob L. Evans of the Woods Hole Oceanographic Institution, and Columbia PhD candidate Chloe Gustafson argue that such aquifers probably lie off many coasts worldwide and could be tapped as sources of water in arid areas. “We knew there was fresh water down there, but we didn’t know the extent,” says Gustafson.



Research vessel *Marcus G. Langseth*

## STUDY HALL RESEARCH BRIEFS

### Head start for your heart

Young adults with high blood pressure or cholesterol are up to 65 percent more likely to have heart disease later in life, regardless of whether they get

those numbers down in middle age, new research shows. “The take-home point of the study is: don’t wait to make healthy choices,” says author Andrew Moran ’01PS, ’02PH, a Columbia associate professor of medicine.

### Europe’s real terrorism problem

Richard J. McAlexander, a Columbia PhD candidate in political science, has found that incidents of Islamic terrorism in Western Europe don’t increase following waves of immigration from non-European countries, as some commentators have suggested, but that far-right terrorist attacks against immigrants do tend to spike in such periods.

### PTSD breakthrough

Columbia neuroscientists Eric Kandel and Joseph Rayman have identified a protein in the brain that suppresses fearful memories in female mice. The discovery could lead to new treatments for posttraumatic stress disorder in women, who are disproportionately affected by the condition.

### The big melt

The Himalayan glaciers are now shrinking twice as quickly as they were two decades ago, a trend that, should it continue, will threaten freshwater supplies for hundreds of millions of people across Asia, according to research by Joshua Maurer, a PhD candidate at Columbia’s Lamont-Doherty Earth Observatory.

### Making contact

A team of medical researchers led by Columbia neurologist Jan Claassen has shown that routine EEG recordings of the brain, when analyzed using new computer algorithms, can identify brain-damaged patients who are still conscious despite being unable to move or respond to prompts. Claassen says the technique could eventually help physicians and families better care for patients who appear comatose.

**Wait watchers** Jing Dong ’14SEAS, an assistant professor at Columbia Business School, has found that hospitals can minimize congestion in emergency rooms by posting wait times online, thus encouraging patients to visit hospitals with the shortest delays.

**Lightweight specs** Columbia engineers, led by applied-physics professor Nanfang Yu, have found a way to make magnifying lenses that are flat rather than convex and thinner than a human hair. They say their lenses could reduce the size, weight, and cost of many optical instruments, including cameras, microscopes, telescopes, and eyeglasses.

# NETWORK

## YOUR ALUMNI CONNECTION



## Capturing the Life of Toni Morrison



Artist Mickalene Thomas created the poster art for *Toni Morrison: The Pieces I Am* using a photo by Timothy Greenfield-Sanders.

In the opening of the dazzling new movie *Toni Morrison: The Pieces I Am*, a photo collage reveals a series of defining moments in the writer's life. There's Morrison the young book editor in New York sporting an afro and Morrison the literary superstar smiling serenely for a press photo. In the last image we see Morrison the cultural icon, an elegant elderly woman looking deep into the camera with soulful eyes. The portrait is intimate and candid, suggesting a trust between subject and photographer forged over many years. It was taken by Timothy Greenfield-Sanders '74CC, the documentary's director.

The unlikely friendship between Greenfield-Sanders, a photographer famous for his unflinchingly direct portraits of celebrities, and Toni Morrison, a notably press-shy writer who passed away on August 5 at the age of eighty-eight, is the heart and the engine of this two-hour film, which was released in theaters in June and is available to stream on Hulu starting September 17.

"Toni Morrison was really one of the greatest artists of our time; there was no one like her," says Greenfield-Sanders, who first met Morrison in 1981 when he took her picture for the *SoHo Weekly News* after the release of her fourth book, *Tar Baby*. "Toni and I hit it off," he says. "I remember this confident presence

in the studio, smoking a pipe." After that, Morrison frequently chose Greenfield-Sanders to photograph her for press pictures and book jackets. As Morrison said in an interview this summer, "I trusted him, and I still trust him."

So it makes sense that the author allowed Greenfield-Sanders to expose the "pieces" of her life on film. In the movie we are reminded of Morrison's momentous contributions to American literature — not only as the author of richly textured, harrowing novels like *The Bluest Eye* and *Beloved* but also as an editor at Random House, where she helped introduce Black writers like Gayl Jones and Toni Cade Bambara to the masses.

In the film, Greenfield-Sanders uses his signature style of portraiture — in which the subject, positioned against a plain backdrop, stares into the camera — to capture Morrison as she tells her own story. She reflects on her upbringing in working-class Ohio, on the criticism she received for writing books that were "too Black" and "too female," and on the sheer joy she felt in winning the Nobel Prize in Literature in 1993. At times she is surprisingly frank. Reminiscing about her college years at Howard University, she laughs and declares, "I was loose!" "It's a Toni that very few people got to see," says Greenfield-Sanders.

The director illustrates Morrison's narrative by splicing in works by African-American

visual artists, such as Kerry James Marshall and Kara Walker. He also features interviews with some of Morrison's collaborators and admirers. Oprah Winfrey and Angela Davis, as well as Farah Jasmine Griffin, the chair of Columbia's new African American and African Diaspora Studies department, and Hilton Als, the Pulitzer Prize-winning theater critic and Columbia professor, give perspectives on Morrison's influence on their lives and our culture.

Greenfield-Sanders studied art history at Columbia, then attended the American Film Institute in Los Angeles, but he initially eschewed filmmaking in favor of photography. He preferred that medium, he says, because it allowed him to work alone, without a crew. At AFI he got a job photographing the school's visiting dignitaries — Hollywood legends like Bette Davis and Alfred Hitchcock '72HON — and became comfortable mingling with the stars. In fact, it was Davis who gave Greenfield-Sanders some of his most important lessons in photography. As he tells it, he bent down to take her photo from a low angle, and she snapped, "What the fuck are you doing shooting



from below?" Davis offered to teach him about portraiture if he'd drive her around Hollywood, and he accepted.

Since then, Greenfield-Sanders has photographed countless famous figures, from Andy Warhol to Beyoncé, Donald Trump to Elizabeth Holmes. He works out of his home, a former church rectory in the East Village, and shoots in large format with a vintage Deardorff 8 × 10 camera. The tedious process requires looking at the image upside down and making sure his subject stays very still. "I like the challenge," he says, adding

that he only takes a few photos per shoot. "Some photographers just keep shooting and shooting, and eventually they get something. I don't think that's really the art of portraiture."

Greenfield-Sanders got into filmmaking in the 1990s when he made *Lou Reed: Rock and Roll Heart*, a documentary for PBS about the musician and Velvet Underground frontman. The movie went on to win the 1998 Grammy Award for Best Music Film. In 2008 Greenfield-Sanders released *The Black List*, a series of "living portraits" of notable African-Americans speaking about their experiences with race and identity. Filming Morrison for the project, Greenfield-Sanders decided he wanted to make her story into something bigger. "I immediately knew she deserved her own feature documentary," he says.

Greenfield-Sanders says he thinks the film has particular resonance right now. "You can't look at Toni's struggle and ideas and not feel like they have real currency in this political climate," he explains. "We live our lives, get older, and often miss the right moment to capture an extraordinary life, with the subject fully engaged. I just felt it was time to film Toni's story." — *Julia Joy*



Rocco B. Commisso (left) recently bought the Italian soccer team ACF Fiorentina, shown above visiting Columbia.

## He Loves Italian Soccer So Much He Bought a Team

Rocco B. Commisso '71SEAS, '75BUS, a lifelong fan of Italian soccer, is the new owner of the Florence-based team ACF Fiorentina. The founder, chairman, and CEO of cable provider Mediacom bought the club in June.

A Columbia men's soccer alumnus, Commisso grew up in Calabria, Italy, and moved to New York when he was twelve. At Columbia he earned All-Ivy honors three times and was captain of the first team to make it to the NCAA tournament.

Commisso has stayed close to his alma mater. He served as the chairman of Friends of Columbia Soccer from 1978 to 1986, and the home stadium was named in his honor in 2013. He was inducted into the Columbia University Athletics Hall of Fame in 2016.

# Poster Pundit



**D**wight Cleveland '82CC started buying movie posters as a teenager and is now one of the world's foremost collectors. The Chicago real-estate developer, who once owned more than thirty-five thousand posters, lobby cards, and other movie ephemera, recently consolidated his archive into some five thousand rare works. Selections will be on display through October at the Norton Museum of Art in West Palm Beach, Florida, and Cleveland's new book, *Cinema on Paper*, will be published the same month. We asked Cleveland to tell us more about his prize posters. — *Len Small*



► This Czech *King Kong* poster is similar to the American one — but the image of Kong is four times bigger! And in *King Kong*'s case, no matter what anyone says, size does matter.



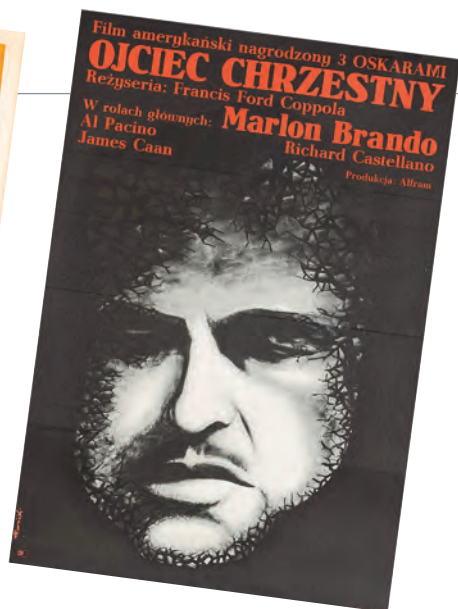
▲ This lobby card for the 1929 silent film *Wolf Song*, with Lupe Vélez and Gary Cooper, really grabbed me. I fell in love with it and had to own it. You can see the romance between Vélez and Cooper.

The great posters are the ones that reduce the soul of a movie to one image. Movie posters start out as advertising art. They're meant to grab you by the earlobes and yank you into the theater. But for those of us who collect, a poster's ability to evoke the memory of the movie, and of a particular time, is also important.

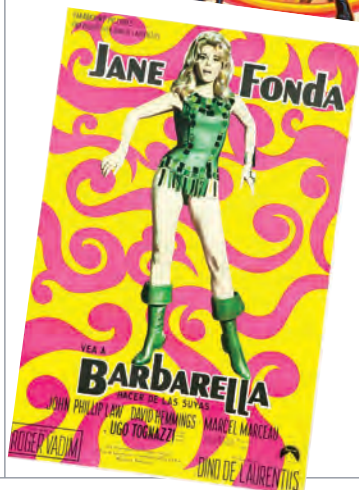
► To be honest, I was not a great film lover when I started this stuff. I got into it because of the graphics. I don't have a favorite style or technique; what I'm looking for is something that's striking. This *Dirty Dancing* poster from Poland is just a black-and-white image of a set of legs. It couldn't be simpler, but it's very powerful.



◀ It's hard to put a value on the collection. The thing is, most of the posters have not been sold before — they're one of a kind — so it's hard to judge. I have an idea of what my *Casablanca* poster is worth, because the only other known copy sold for \$225,000 a couple of years ago. Some of my posters could be worth even more.



▲ It's interesting to see how different countries represent the same movie. The American poster for **The Godfather** is quite mundane — it's a hand holding puppet strings, which was the original book cover. It's an inoffensive and not-challenging graphic. But some of the foreign ones are fascinating: this Polish one has Brando's face ringed with thorns. It's really dynamic, and far superior.



◀ I have several **Barbarella** posters. Each version communicates the essence of the movie in a very different way. The British one is cartoonish, and the Argentinian one has amazing 1960s psychedelic art.

▼ My collection started getting serious when I was at Columbia. I looked for posters by advertising in the booklets that they handed out at flea markets and antique shows. One of my favorite acquisitions from that time is a title card from **Gangway**, featuring a British star named Jessie Matthews. She was considered to be a better dancer than Ginger Rogers.



▲ I love this rerelease of a **Singin' in the Rain** poster from Argentina. It's not a valuable poster, but it's a great shot of Gene Kelly swinging from the lamppost, umbrella in hand. People often ask me what my favorite poster is, but I hate that question. It's like asking me who my favorite child is! I've got fifty posters in my top five.

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## ASK AN ALUM: **HOW TO WALK THE WALK**

**Olivia Pittet '79GSAS** has followed the medieval pilgrimage route to the Cathedral of Santiago de Compostela in Galicia, Spain, three times. We asked her to tell us more about the famous trail and share tips from her new book, *The Camino Made Easy: Reflections of a Parador Pilgrim*.

### Can you give us a brief history of the Camino Way?

It's a convoluted and mostly apocryphal story, but here goes. After Jesus's death, the apostle James went to Spain to preach the Gospel, then returned to Jerusalem, where he was beheaded. Legend has it that his headless corpse made its way back to Spain in a rudderless boat and was buried in Galicia. This story dropped off the religious radar for some seven hundred years until it was reclaimed as a political rallying point for Spaniards in their conquest of the Moors. James became Spain's patron saint, and Catholics made pilgrimages to his shrine. The Way of St. James (El Camino de Santiago) eventually grew into the third most important pilgrimage in Christendom after Jerusalem and Rome.

### Is there one specific route?

In the Middle Ages, people just set out from their front doors, so there are a number of routes, but the most popular one — the one we know as the Camino today — is a five-hundred-mile trek from the foothills of the French Pyrenees across northwest Spain.

### That's a long way. How long does it take?

That depends on how fast you walk, but basically four or five

weeks. The original pilgrims spent three months on the trail. My daughter, a marathon runner, did it in twenty-seven days. You don't even have to walk the whole way. To get a *compostela*, or certificate of completion, you just have to walk the last hundred kilometers, or sixty-two miles.

### Is the Camino accessible to everyone?

Yes. It isn't a wilderness trail. It goes through major World Heritage cities like Burgos, León, and Santiago. More than two hundred thousand people walk the Camino every year. They each do it in their own way. You can walk with a backpack, staying in the auberges or hostels. You can do it by horseback, by bike, or with a donkey to carry your pack. You can join a group on a cultural walking tour and have your luggage transported from inn to inn as my husband and I did. You can even do it in stages over several vacations.

### Are all these walkers pilgrims?

Originally the Camino was a pilgrimage made by Catholics who were doing penance for their sins. Devout Catholics still make the pilgrimage, but a lot of pilgrims consider themselves more spiritual than religious. The Camino also attracts fitness enthusi-



Top: Olivia Pittet. Bottom: The Cathedral of Santiago de Compostela, home of the shrine of St. James.

asts who are taking on a personal challenge and students looking for a cheap summer vacation offering plenty of wine. Any pilgrimage depends on what you bring to it and what you take from it. The Camino Way is not just a journey but a process, and everyone's is different.

### Did your studies at Columbia influence your interest in the Camino?

Very much so. I did my master's at Columbia, where I specialized in Chaucer and

Middle English. I wrote my thesis on another saint's legend, recounted in *St. Erkenwald*, a fourteenth-century poem. My love of medieval literature certainly informs my book.

### Do you have another pilgrimage in your future?

I will turn eighty in October, and I would like to explore the more Protestant aspects of pilgrimage — not a journey to a specific site but more, in the spirit of John Bunyan, a journey of the soul.

# Outward Bound

The Eco-Challenge — an eleven-day, twenty-four-hour-a-day race across the jungles and mountains of Fiji — is perhaps the toughest endurance event in the world. And this year, Joshua Forester '04CC will be among the competitors. A former Columbia track and cross-country star, Forester spends his days as a data-science researcher on a Department of Defense contract at Georgia Tech, but he dedicates his weekends to running, mountain biking, rock climbing, and backpacking — “If it’s outside and self-powered, I’m game.” Forester will be competing on a four-person team made up of athletes affiliated with the US military. While he doesn’t yet know the exact course, Forester expects that the four-hundred-plus-mile race — which was created by *Survivor* producer Mark Burnett and which will be filmed for broadcast on Amazon Prime — will involve a mix of outrigger paddling, biking, rappelling, climbing, whitewater rafting, and paddleboarding, all of which he’ll do on an average of three hours of sleep a night. “It’s truly as much a mental test as it is a physical one,” he says.



Über-athlete Forester pursues a myriad of grueling sports.

COURTESY OF JOSHUA FORESTER

## NEWSMAKERS

● **Henry Buchwald '54CC, '57PS** received the Jacobson Innovation Award from the American College of Surgeons for his pioneering work in the field of metabolic and bariatric surgery. Buchwald, eighty-seven, still practices medicine and conducts research at the University of Minnesota.

● **Terrence McNally '60CC** won a lifetime-achievement award at this year’s Tony Awards. McNally is a playwright, librettist, and screenwriter who has won four other Tonys over the course of his career. At this year’s ceremony, director **Rachel Chavkin '08SOA** also won for best direction of a musical (see our feature story on page 26).

● *Washington Post* Global Opinions editor **Karen Attiah '12SIPA** was named 2019 journalist of the year by the National Association of Black Journalists. The group recognized Attiah for, among other things, turning the murder of her colleague and friend Jamal Khashoggi into an opportunity to bring greater attention to the issue of press freedom around the world.

● **Ann Kim '95CC** won the 2019 James Beard Award for best chef in the Midwest. Kim is the owner of the Minneapolis restaurants Young Joni, Pizzeria Lola, and Hello Pizza and is known for blending flavors from her native Korea with classic Italian dishes.

● The *Nation* magazine has named **D. D. Gутtenplan '78CC** as its next editor in chief. Founded in 1865, the *Nation* is America’s oldest continuously published weekly magazine. Before the appointment, Gутtenplan was the magazine’s London correspondent.

● **Alicia Graf Mack '03GS** was appointed director of the dance program at the Juilliard School. Mack is a former lead dancer with the Alvin Ailey American Dance Theater and the Dance Theatre of Harlem. She is Juilliard’s first Black dance director.

● **Josh Simpson '19CC** was selected by the Miami Marlins in the 2019 Major League Baseball Draft. Simpson, a left-handed pitcher, is the first Lion to be drafted since 2016.

# BULLETIN

UNIVERSITY  
NEWS AND  
VIEWS



## COSTIS MAGLARAS TAKES THE REINS AT BUSINESS SCHOOL

**C**ostis Maglaras, an authority on operations research, data analytics, and quantitative finance, is the new dean of Columbia Business School. He succeeds Glenn Hubbard, who led the school for fifteen years.

A member of the business school's faculty since 1998, Maglaras attended Imperial College London and earned his PhD in electrical engineering from Stanford. His research focuses on the development of computer algorithms that analyze data to help business leaders make better pricing, resource-allocation, and investment decisions. He has consulted for Fortune 500 firms and in 2007

helped found the New York-based company Mismi, Inc., which develops algorithmic trading technologies for US equity markets.

Maglaras oversaw the business school's PhD program from 2011 to 2017 and led its Decision, Risk, and Operations division from 2015 to 2018. In those roles, he was instrumental in updating the school's curriculum to include more instruction in data-driven and technology-based decision-making. He pioneered the school's technology-and-analytics curriculum and also helped create a new master's degree in business analytics, offered jointly by the business and engineer-

ing schools, which prepares students for jobs as data scientists and analysts.

Maglaras's appointment comes at a pivotal time for the school, which is scheduled to relocate from Uris Hall on the Morningside campus to the Henry R. Kravis Building and the Ronald O. Perelman Center for Business Innovation on the Manhattanville campus by 2022.

"For more than one hundred years, Columbia Business School has been educating future business leaders and changing the practice of business across the world," says Maglaras. "I am deeply honored to be a part of this continuing journey."

COURTESY OF COLUMBIA BUSINESS SCHOOL

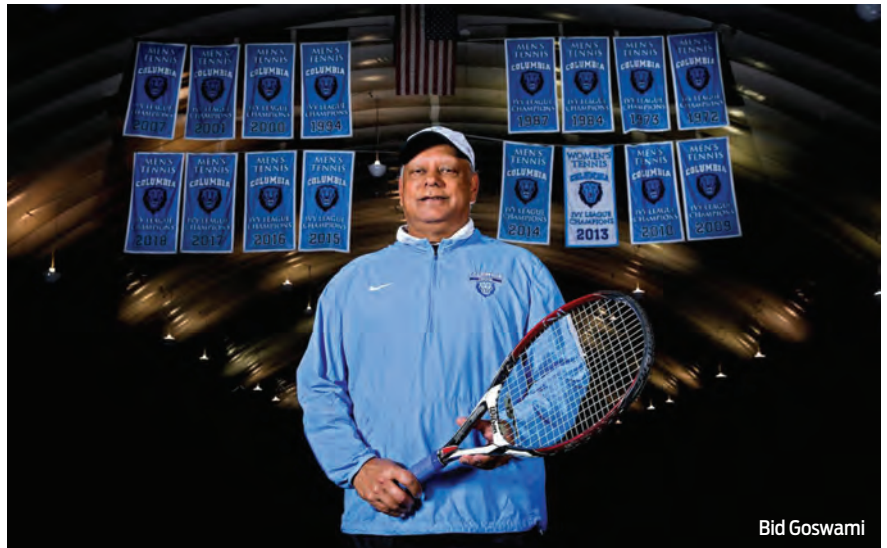


## KNIGHT INSTITUTE WINS LAWSUIT CHALLENGING PRESIDENT'S TWITTER TACTICS

**T**he Knight First Amendment Institute at Columbia University won a free-speech lawsuit this summer after persuading a federal appeals court that President Trump's practice of blocking critics from his Twitter account violates the First Amendment of the US Constitution.

The Knight Institute filed the lawsuit in 2017 on behalf of seven people who were blocked from the @realDonaldTrump account after they criticized the president and his policies; Trump, following a district-court ruling against him last year, unblocked the plaintiffs but also appealed the decision. The appeals court's ruling against the president in July is expected to have broader ramifications for free speech in the digital era.

"Public officials' social-media accounts are now among the most significant forums for discussion of government policy," says institute director Jameel Jaffer, who argued the case before the US Court of Appeals for the Second Circuit in March. "This decision will ensure that people aren't excluded from these forums simply because of their viewpoints, and that public officials aren't insulated from their constituents' criticism."



Bid Goswami

## ACES DOWN THE LINE

**A**fter thirty-seven seasons, fourteen Ivy League titles, and a career record of 510–200, Columbia tennis head coach Bid Goswami retired this summer as the winningest coach in program history. Goswami, who was named the national coach of the year by the Intercollegiate Tennis Association this past May, is being succeeded by Howard Endelman '87CC, the team's associate head coach since 2010 and among Goswami's very first recruits back in 1983.

In June, more than two hundred former Lions tennis players, friends, and family — many traveling from overseas — attended a dinner in honor of the legendary coach. Many recalled the wins and championships, but at the heart of their stories were the life lessons learned along the way. "I think he brings all of us in and makes us real adults," said former All-Ivy tennis player Ashok Narayana '15CC. "He taught me so many things beyond tennis."

## TAIWANESE PRESIDENT SPEAKS ON CAMPUS



**T**he president of Taiwan, Tsai Ing-wen, visited Columbia this summer, meeting with students and faculty and participating in a wide-ranging conversation about global politics. Her visit was part of a two-day trip to New York City that occurred despite objections from China, which claims Taiwan,

a self-governing island of twenty-four million people, as its own territory.

Addressing a packed crowd at the Italian Academy for Advanced Studies, Tsai spoke firmly of the importance of democracy. "Each day that Taiwan chooses freedom of speech, human rights, and the rule of law is a day that we drift further from the influences of authoritarianism," Tsai said. "Taiwan stands as a rare example of a country that has both experienced authoritarianism and championed democracy in the modern age."

While a group of about fifty pro-Taiwan and pro-China demonstrators gathered outside, the audience in the Italian Academy was vocal but calm, asking Tsai a range of questions about Taiwan's relations with the US and China.

## TOP FACULTY HONORED

**E**ight faculty members in the Arts and Sciences began this semester as new recipients of Distinguished Columbia Faculty Awards, which recognize exemplary teaching and mentoring. The awards, which include stipends of \$25,000 per year for three years, were created with a gift from the late Gerry Lenfest '58LAW, '09HON.

The 2019 recipients are Taooufik Ben-Amor, the Gordon Gray Jr. Senior Lecturer in Arabic Studies; Matthew Hart, an associate professor of English and comparative literature; Kimuli Kasara, an associate professor of political science; Ben Marcus, a professor

of writing; Serena Ng, the Edwin W. Rickert Professor of Economics; Pier Mattia Tommasino, an assistant professor of Italian; Gray Tuttle, the Leila Hadley Luce Professor of Modern Tibetan Studies; and Maria Uriarte, a professor of ecology, evolution, and environmental biology.

This year, five other Columbia professors were elected to the American Academy of Arts and Sciences. They are philosopher Souleymane Bachir Diagne, art historian Kellie Jones, mathematician Michael H. Harris, computer scientist Kathleen McKeown, and biomedical engineer Gordana Vunjak-Novakovic.



Members of the law school's Class of 2019.

## LAW-SCHOOL DONORS ENDOW FIFTY NEW SCHOLARSHIPS

**A**lumni and friends of Columbia Law School recently completed a fundraising challenge that saw fifty donors give \$100,000 each for student aid. Their gifts were matched by the New York-based Jerome L. Greene Foundation, resulting in the creation of a \$10 million endowment that will support fifty new scholarships in perpetuity.

The establishment of the scholarship fund is part of a larger effort by the law school to raise \$100 million for student aid over the next few years — including scholarships, summer internships, and loan repayments for graduates in public-service careers.

“We are helping to ensure that the very best students from diverse socioeconomic backgrounds can attend Columbia Law School and have access to the finest legal education in the world,” says dean Gillian Lester.

The late Jerome L. Greene '26CC, '28LAW, '83HON and his wife, Dawn M. Greene '83HON, were among Columbia's most generous benefactors; their foundation has supported major University initiatives in, among other fields, neuroscience, legal education, and public health.

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## BIOTECH INCUBATOR RECEIVES \$1M BOOST FROM ENGINEERING ALUM

**S**ince 2012, the Columbia Biomedical Technology Accelerator has been helping teams of Columbia physicians, engineers, and natural scientists turn their biomedical inventions into lifesaving commercial products.

Now the incubator, also known as BiomedX, has received a boost from Yiannis Monovoukas '84SEAS. A prominent biotechnology executive, Monovoukas has donated \$1 million to create a

fund, named for him and his wife, Jamie, that will provide financial backing and support services to promising ventures in BiomedX's pipeline.

“BiomedX combines my passions for innovation, engineering, and entrepreneurship,” says Monovoukas, the former chairman, president, and CEO of TEI Biosciences, a regenerative-medicine company, and a member of the engineering school's Board of Visitors.

COURTESY OF COLUMBIA LAW SCHOOL



## MELISSA BEGG NAMED DEAN OF SCHOOL OF SOCIAL WORK

**M**elissa Begg, a Columbia population-health scientist and academic administrator, became dean of the School of Social Work on September 1.

She succeeds Irwin Garfinkel, who led the school on an interim basis after dean Jeanette Takamura stepped down in late 2016.

A professor of biostatistics, Begg specializes in analyzing data from sibling and family studies as a means of identifying early-life determinants of adult health problems. She has also done extensive research on how graduate-education programs are best developed and implemented. Born and raised in Queens, Begg studied mathematics at Fairfield University in Connecticut and earned a doctorate in biostatistics at the Harvard School of Public Health. She joined Columbia's Mailman School of Public Health in 1989.

Begg has held a number of senior leadership positions at Columbia. From 2006 to 2018, she was codirector of the Irving Institute for Clinical and Translational Research at Columbia Univer-

sity Irving Medical Center, where she promoted interschool collaborations and created infrastructure to support the career development of doctoral and postdoctoral students and junior faculty. From 2010 to 2014, she served as the Mailman School's vice dean for education, and for the past five years she served as Columbia's vice provost for academic programs, overseeing the University's accreditation process, the approval process for new educational programs, the execution of agreements with partner institutions, and the establishment of centers and institutes.

Begg says she wants to lead Columbia's School of Social Work in order to advance its 120-year-old tradition of "combining foundational research on social-welfare programs ... with innovative education for effective social-work practice." She adds, "I am ready to apply my thirty years of experience to solidify and expand the school's track record in maximizing human potential, advancing social justice, and pursuing excellence in evidence-based social work."

## BIG GRANT FOR BIG DATA

**T**he National Science Foundation (NSF) has awarded \$4 million to the Columbia-led Northeast Big Data Innovation Hub to support the consortium's work finding data-driven solutions to some of the biggest challenges in health care, energy, finance, urban policy, and education.



Jeannette M. Wing

As the lead agency, Columbia identifies high-priority needs and builds partnerships with other universities, foundations, private research organizations, and companies to undertake projects with real-world impact. The Northeast Big Data Innovation Hub is one of four US regional innovation hubs funded by NSF.

Jeannette M. Wing, the director of Columbia's Data Science Institute and principal investigator for the Northeast Big Data initiative, said the new NSF award will allow the hub to expand its work in two ways: "first, by addressing the crosscutting themes of data privacy and data ethics to ensure positive social impact, and second, by coordinating with the other regional hubs toward a national network of data-science institutions."

## The Widow Washington

By **Martha Saxton** (Farrar, Straus & Giroux)

**T**he absorbing new biography *The Widow Washington* reveals that almost everything we know about Mary Ball Washington, the mother of the father of our country, is wrong. Not that we've ever known much. Primary-source documents from her life are scarce, and for various reasons her son's biographers have largely relegated her to the category of cold, overbearing mothers (not to mention mothers-in-law, for Mary has often been cast as a foil to her famously charming daughter-in-law Martha Custis Washington). Now, thanks to scrupulous archival research by

Amherst College historian and women's studies professor Martha Saxton '89GSAS, Mary Washington has finally been rescued from this shallow, sexist stereotype and granted "the dignity of her independent existence."

That existence was filled with turmoil, both emotional and economic. Mary Ball was born around 1708 in Lancaster County, Virginia, to a mother who had come to America from England as an indentured servant and her second husband, a prosperous planter. Mary's husband, Augustine Washington, was also wealthy — a Virginia widower whom Mary married at twenty-two and bore four sons (including George, her firstborn) and two daughters. But Mary experienced loss early and often, suffering the deaths of her father, stepfather, half-brother, and mother, all by the time she was twelve. In the aftermath, she sought solace in Christian devotional tomes. These books, which she read again and again throughout her life, extolled the virtues of frugality, piety, meekness, hard work, obedience (which conveniently doubled as an apologia for slavery, an institution in which Mary participated fully and unquestioningly from birth),

and private prayer, which she practiced almost obsessively.

Tall, strong, and athletic (like her son George), Mary enjoyed a comfortable, evidently happy life as a wife, mother, and "plantation mistress" during her thirteen-year marriage to Augustine. But his death in 1743 plunged her into economic uncertainty — she was thirty-five, with five children ranging in age from eleven to five. Augustine's will divided his property between his six sons (greatly favoring the two sons from his first marriage) and subjected Mary to the full brunt of Virginia's inheritance laws, under which, as Saxton puts it, "a widow's role was to be transmitter of property from man to man."

Mary could use George's property until he turned twenty-one, at which point he would assume primary control. Cash-strapped and overwhelmed, she struggled to manage diminished acreage and often relied on George for advice. Mary adored George and likely favored him above her other children — and George undoubtedly benefited from their strong bond. It was more or less understood, for example, that upon reaching adolescence, male sons of wealthy, slave-owning Colonial families would avail themselves sexually of the enslaved females. That George apparently resisted this and other "debilitating temptations" has typically been ascribed to the loss of his father. But Saxton suggests that his maturity and self-control were mostly Mary's doing, particularly her inclusion of him in her religious practices and in decisions about running the farm. "In the void opened by Augustine's demise, she treated George seriously as a man and as a religious being," Saxton writes. "George respected her moral authority and adopted much of her philosophy as his own."

Emerging most powerfully in Saxton's portrait of Mary's life as a widow are her devotion to her children and her intense focus, in a society where class divisions had widened, on "securing their prosperity in this world and salvation in the next." Using her limited resources wisely, she saw to it that George



acquired the “genteel postures and attitudes” essential for “entering manhood at the elite social level”; he became, like her, skilled at both dancing and horsemanship (his legendary prowess as a rider was key to his military valor). Her efforts paid off: “all her children married up.”

Unsurprisingly, given their legally mandated inequality, a chronic source of friction between mother and adult son was money — and the stories here do not flatter George. He routinely bad-mouthed Mary for her poor farm management (more likely a result of unscrupulous overseers), her profligate spending (a habit more characteristic of him than her, notwithstanding his notorious tightfistedness), and her repeated requests for money (she needed it, and he controlled it; hence her reputation as a nag).

Here and elsewhere, Saxton rights the historical wrongs that have been done to Mary Washington. But that is only part of the author’s achievement. In creating a complex, nuanced portrait of the woman who raised the most famous American of all time, Saxton also gives us a fresh lens through which to view George Washington, the harsh realities of the Colonial period (particularly for women), and the evil and infinitely exploitative institution of slavery. This book is an invaluable contribution to the literature not just on the Washington family but on this whole tumultuous period in America’s history.

— Lorraine Glennon

# Range

By David Epstein '02CC, '04GSAS, '04JRN (Riverhead Books)

What is the best way to pursue excellence? Should you focus all your time, energy, and attention on a single pursuit? Or would it be wiser to dabble in several before committing to one?

In his book *Range: Why Generalists Triumph in a Specialized World* — an instant *New York Times* bestseller — David Epstein '02CC, '04GSAS, '04JRN digs into the evidence looking for answers. A former *Sports Illustrated* staffer, Epstein begins in familiar territory, comparing the stories of two elite athletes: Tiger Woods, the golf cham-

pion, and Roger Federer, the tennis star. Woods was practically born with a golf club in his hands and was encouraged by his parents to go all in when they recognized his precociousness; Federer tried out a number of sports — swimming, skiing, skateboarding — before committing to tennis.

So which method is best, the Roger or the Tiger? Epstein makes a strong case for the Roger. Research shows that “it takes time — and often forgoing a head start — to develop personal and professional range, but it is worth it,” Epstein writes. Furthermore, “highly credentialed experts can become so narrow-minded that they actually get worse with experience, even while becoming more confident — a dangerous combination.”

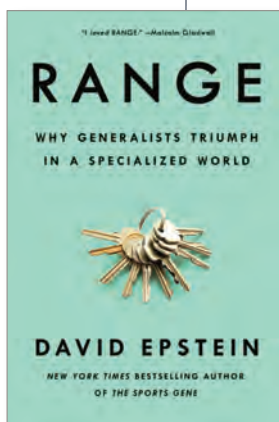
In true generalist fashion, Epstein examines several disciplines to support his argument,

highlighting exemplars from art, science, education, and business. For example, Nintendo’s all-time most influential video-game innovator, Gunpei Yokoi, had no specific life plans when he took the job. His advantage emerged from his experiences as a hobbyist, inventor, and tinkerer. Epstein also advocates for late bloomers, among them Vincent van Gogh, who only started painting in earnest at age thirty-three, and former Girl Scouts CEO Frances Hesselbein, whose professional career began when she was in her mid-fifties.

Though Epstein’s defense of dabbling is convincing, he also shows us that the approach doesn’t work equally well in every field. In a chapter on chess masters, Epstein points out that a devotion to the game from early childhood onward can be helpful, because chess tests the skills of a person working in an isolated rule-based system. Conversely, less technical domains that demand flexible thinking, like film and literature, reward creative types. Epstein suggests, for example, that Haruki Murakami’s early musical aspirations fueled his fresh approach to literary fiction.

It makes sense that Epstein was keen to explore this topic, since his own career has taken some turns — he studied environmental science and journalism at Columbia and coauthored a paper on Arctic ecology while writing for *Sports Illustrated* — and his book shines when he makes personal connections to a topic. His key point seems to be that getting lost can land us in wonderful places — certainly a worthwhile message, and one that many will welcome.

— Oren Smilansky '14SOA



# The Sweetest Fruits

By Monique Truong '95LAW (Viking)

When laid out, the simple facts of Patricio Lafcadio Hearn's life seem not just improbable but impossible. Hearn, the historical figure at the center of a new novel by Monique Truong '95LAW, was born in 1850 on an island in the Ionian Sea, separated from his mother, abandoned by his father, and raised in Ireland by a maiden aunt before immigrating to America at nineteen. Hearn worked as a newspaper reporter; married, then divorced a former slave; and authored one of the

the United States as a refugee in 1975 and worked as an intellectual-property lawyer before starting to write novels, songs, librettos, and culinary essays. Her best-selling first novel, *The Book of Salt*, was about a Vietnamese cook working in the Paris home of Gertrude Stein and Alice B. Toklas. And in *The Sweetest Fruits*, Truong is again on the sidelines of history, showcasing a supporting cast of characters rather than the motivations and musings of her famous subject. Here she tells Hearn's story from the perspective of the three women who loved him — his mother, Rosa; and his two wives, Alethea and Setsu.

The limitations that mid-nineteenth-century society placed on the lives of these women are immediately clear. Truong's first two narrators — Rosa, a peasant from the Ionian islands who was forbidden by her strict father from attending school, and Alethea, a former slave who worked as a cook in the boarding house where Hearn lived — are illiterate. Because they wouldn't have been able to write down memories of Hearn, Truong puts them in conversation with yet another woman — Elizabeth Bisland, an American journalist who closely followed Hearn's career and published a biography of him in 1906 (Truong peppers the book with excerpts from Bisland's book).

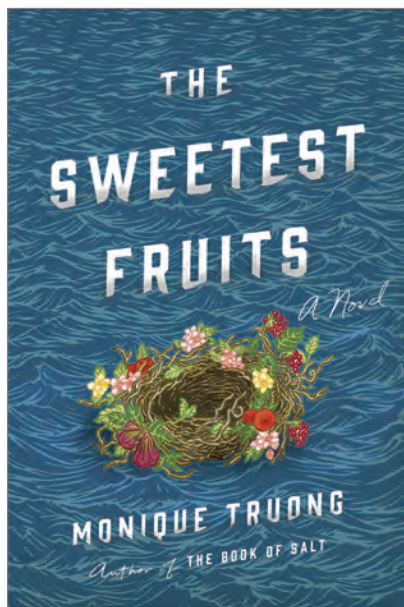
Telling Hearn's story through so many filters is an ambitious task, and Truong's considerable talent is particularly evident in Rosa and Alethea's sections; even though their narratives are delivered secondhand, their voices and characters emerge fully formed. They are vastly different people, products of their distinct environments and upbringings, but both are utterly defined by the freedoms denied them. Rosa is dreamy, ethereal, and naive, steeped in the island folklore on which

she was raised. Locked in her house for years by her cruel, religious father, she says, "I was too stupid and dull at eighteen to dream of flying. I only wanted to wear my dress of drab feathers and lie down and die, a bird that had lost the battle for the sweetest fruits." Alethea is practical and matter-of-fact, and when talking to Hearn about her childhood as a slave she doesn't mince words: "He said that my condition then was full of sadness. I told him it wasn't sadness that I remembered about those days. It was toil and no pay."

Hearn's second wife, Setsu, a teacher, seems to have more in common with Bisland than with Rosa and Alethea — she is educated and upper-class. When we meet her, after Hearn's death, she has a contract to write a memoir of their unusual life together. She addresses her reminiscences directly to her dead husband, calling him by his Japanese name: "I held onto your story, Yakumo, until I could take a breath again for the both of us. To tell another's story is to bring him to life, and you, Husband, are still here."

So who was Hearn, the man who dominated the lives all of these women? Was he the needy Patricio, the starving baby that Rosa loved desperately but could not keep? Was he the defiant Pat, the young journalist who flouted legal and social convention to marry outside his race, only to leave his wife a few years later? Or was he the obsessive Yakumo, who became so entrenched in his adopted culture that he considered himself more Japanese than his native-born wife? The portrait of Hearn that emerges is one of a complicated, wounded man searching for a home. And without ever giving him a voice, this thoughtfully crafted, brilliantly researched novel is an intimate look into his strange, storied life.

— Rebecca Shapiro



South's first regional cookbooks before taking an assignment in Japan, where he wed the daughter of a samurai and wrote important books about Japanese culture and folklore. He died in 1904 at the age of fifty-four, having lived a life of exceptional scholarship, exploration, and drama.

Any novelist would be drawn to this life story, but Truong, a foodie and historian, seems especially qualified to capture its bold and unusual trajectory. Born in Vietnam, she came to

## READING LIST

### New and noteworthy releases

**WILD GAME** *By Adrienne Brodeur '88CC* For Adrienne Brodeur, summers meant bike rides on Cape Cod, lobster dinners on the beach, and — starting when she was fourteen years old — helping her mother, Malabar, cover up a passionate extramarital affair. Malabar's lover, Ben, was her husband's best friend, and the author's involvement in the situation got even more complicated when she fell in love with, and eventually married, Ben's son Jack. Brodeur's dramatic story makes for a perfect beach read; the fact that the soap opera is true makes it all the more compelling.

### A PRAYER FOR TRAVELERS

*By Ruchika Tomar '12SOA* Cale Lambert is used to people disappearing from her life. Her own mother abandoned her when she was a baby, leaving her to be raised by her grandfather in a tiny California desert town. And as Ruchika Tomar's moody, tense debut novel begins, the teenage Cale's life is being upended again. Her best friend Penny has gone missing, and Cale goes on a journey to find her, uncovering troubling secrets along the way.

**WELL** *By Sandro Galea '03PH* There is perhaps no more urgent topic in America today than health care. But according to physi-

cian Sandro Galea, dean of Boston University's school of public health, the American approach to public health is fundamentally skewed. Galea argues that our health-care system is almost entirely focused on treating illness rather than preventing it, which means that America spends more on health care than other countries, while getting worse results. It's an impeccably researched, well-reasoned look at a complex topic.

**OVERTHROW** *By Caleb Crain '99GSAS* This inventive, intensely political second novel from Caleb Crain follows Matthew, a bored graduate student who becomes entangled with Leif, a young Occupy Wall Street activist (and also a street poet and barista). But Leif, who espouses radical empathy, isn't just protesting in the conventional way. He believes that he can use psychic powers and occult weapons to infiltrate — and eventually overthrow — the 1 percent. Crain's premise is a bit out there, but his book is an interesting commentary on the very real modern issues of privacy and surveillance.

**THE STORY OF THE DINOSAURS IN 25 DISCOVERIES** *By Donald R. Prothero '82GSAS* Most grade schoolers could probably tell you that the triceratops has three horns and that the velociraptor was an ancestor of modern birds. But what they might not know is how humans man-



aged to learn so much about the creatures that roamed the earth millions of years ago. In his latest book, paleontologist Donald Prothero takes us behind the scenes of twenty-five major fossil finds and explains how they shaped our understanding of these ancient beasts.

### THE DREAMT LAND

*By Mark Arax '81JRN* It's easy to imagine California as one long stretch of coastline. But as journalist Mark Arax reminds us, most of the state is actually inland — a seemingly endless expanse of farmland with a very complicated relationship to one vital resource: water. Arax comes from a long line of Central Valley farmers, so California's history with water, or as Arax calls it, "liquid gold," is a very personal one. His stunning book weaves together memoir, reportage, and exhaustive research to explain how Californians

built an agricultural empire out of an arid land and what the future holds for his beloved state.

### THE LAST BOOK PARTY

*By Karen Dukess '87JRN* It's the summer of 1987 — a time when book publishers still took three-martini lunches and threw lavish launch parties. In Karen Dukess's charming debut novel, we see this world through the eyes of Eve Rosen, a floundering editorial assistant who takes a job on Cape Cod as the research assistant to a famed *New Yorker* writer and finds herself entangled in a complicated web of romantic relationships. Dukess herself worked at Little, Brown in the eighties before becoming a newspaper reporter and then a speechwriter for the UN — and her novel is brimming with nostalgia for an era when authors were celebrities and books were beloved.

# The Fame Game

Sharon Marcus, Orlando Harriman Professor of English and Comparative Literature at Columbia, explores self-promotion and stardom in her new book, *The Drama of Celebrity*



**Columbia Magazine:** Can you tell us a little about the history of celebrity?

**Sharon Marcus:** “Fame” is a term that’s been around since the Romans. The Latin word *fama* meant rumor, but it could also mean great deeds that would be known for millennia. Latin lacked a distinct word, like our “celebrity,” for the trivial sort of fame that’s a flash in the pan.

**CM:** Who were the early celebrities?

**SM:** In what is now Europe, some of the earliest known celebrities were politicians, performers, and athletes. Several key figures in Plato’s *Symposium* were Athenian celebrities: the politician Alcibiades, the playwright Aristophanes, and the philosopher Socrates. Leonidas of Rhodes, a runner, held the record for most Olympic wins (twelve over four Olympic Games between 164 BC and 152 BC) until Michael Phelps surpassed him in 2016. Medieval saints were also celebrities. But people who sought fame in classical and medieval times wanted to be remembered after their deaths. The goal of modern celebrity is to be renowned during one’s lifetime.

**CM:** When does fame become something akin to what we see today?

**SM:** In the 1500s and 1600s, people became interested in actors, playwrights, and humanists. In the eighteenth century, increased literacy and cheaper, faster ways of printing gave us public intellectuals like Rousseau, Byron, and Voltaire. They were well known not just for what they wrote but who they were. They even had stalkers.

**CM:** In your book you argue that the French actress Sarah Bernhardt (1844–1923) is the first model of modern celebrity. What made her a trendsetter?

**SM:** Bernhardt became the godmother of modern celebrity because her career coincided with several inventions that she cannily used to promote herself. The rise of photography made pictures of her widely available. The penny press — cheap mass-circulation newspapers — trumpeted her every role on stage and her doings offstage. Steamship and railway travel allowed her to tour the world as few actors had before. Telegraphy was brand new, and news about her could travel faster. Almost everyone had heard of her, read about her, or seen her picture.

**CM:** Are you saying that actors are the most likely to achieve fame?

**SM:** Not really; the same technologies helped many sorts of people become famous. The inventor Thomas Edison used photography and the press to promote himself; so did the showman P. T. Barnum. Politicians, monarchs, authors, and athletes were also celebrities. For decades, boxing was a huge sport and there were people who could name all the boxers but not the current president.

**CM:** How do people break through now?

**SM:** Courting controversy and generating scandal always work, but you have to be expert at using the most popular media of the day. Kim Kardashian started by attaching herself to the more famous Paris Hilton. Then she turned to reality TV, using it to create a sense of intimacy with viewers. She then quickly figured out how to move between a serial TV show and the faster-paced world of social media. If you want to hold people’s attention now, you have to understand how easily distracted people are and accommodate that.

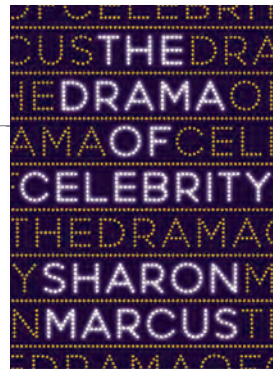
**CM:** How do things stand today?

**SM:** Today you have so-called micro-celebrities, for example those who are famous on YouTube. Some have ten million followers or more, yet many of us have never heard of them. I think it’s going to be interesting to see what happens to celebrity culture when it ceases to be a set of common reference points. In 1964, you could be a seventy-five-year-old who didn’t like the Beatles, but you knew who they were. Celebrity is no longer a common bond uniting generations.

**CM:** What’s next?

**SM:** Many celebrities have begun to limit their publicity after they become iconic. Lady Gaga and Rihanna and Katy Perry tweet less frequently now that they have become Twitter superstars. Even Kim Kardashian is scaling back her digital presence — she recently gave an interview to *Vanity Fair*, a “heritage” media brand, in a bid to be taken more seriously. The new prestige could involve limiting access rather than providing it.

— Bridget O’Brian ’80BC, ’81JRN



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# RARE FINDS

## WHAT IS IT?

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cover concept by  
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## WHERE'S IT FROM?

Al Jaffee Papers,  
1945–2018

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## Gone Mad

**W**hen news came earlier this year that *Mad* magazine was folding after 550 issues of clever gags, acerbic spoofs, and gorgeous cartooning, the comic-book cognoscenti emitted a collective GARRARGH!!

Started by Harvey Kurtzman and William Gaines in 1952, *Mad* became a humor bible for millions of American adolescents. With its sardonic, Yiddish-flavored New York sensibility, the magazine shot spitballs (and darts) at adult hypocrisy. Lampooning celebrities, politicians, and R-rated movies, it seeded the ground for *Saturday Night Live*, *The Simpsons*, *The Colbert Report*, and everything in between. “*Mad* never talked down to its audience,”

says Karen Green ’97GSAS, curator for comics and cartoons at Columbia’s Rare Book and Manuscript Library. “It never assumed that a ten-year-old was incapable of understanding life’s absurdities.”

This print, a study for the very first cover, is part of a collection donated by cartoonist Al Jaffee, creator of the *Mad* Fold-In. It shows that *Mad* was originally a parody of horror comics before it morphed into the authority-questioning bane of parents and teachers everywhere. *Mad* would keep its middle finger raised for six decades, skewering the pieties of the establishment. Perhaps, as Green suggests, *Mad* fell victim to our increasingly cockamamie culture: “When the whole world has crossed over into satire,” she says, “how do you stand out?” 🍷

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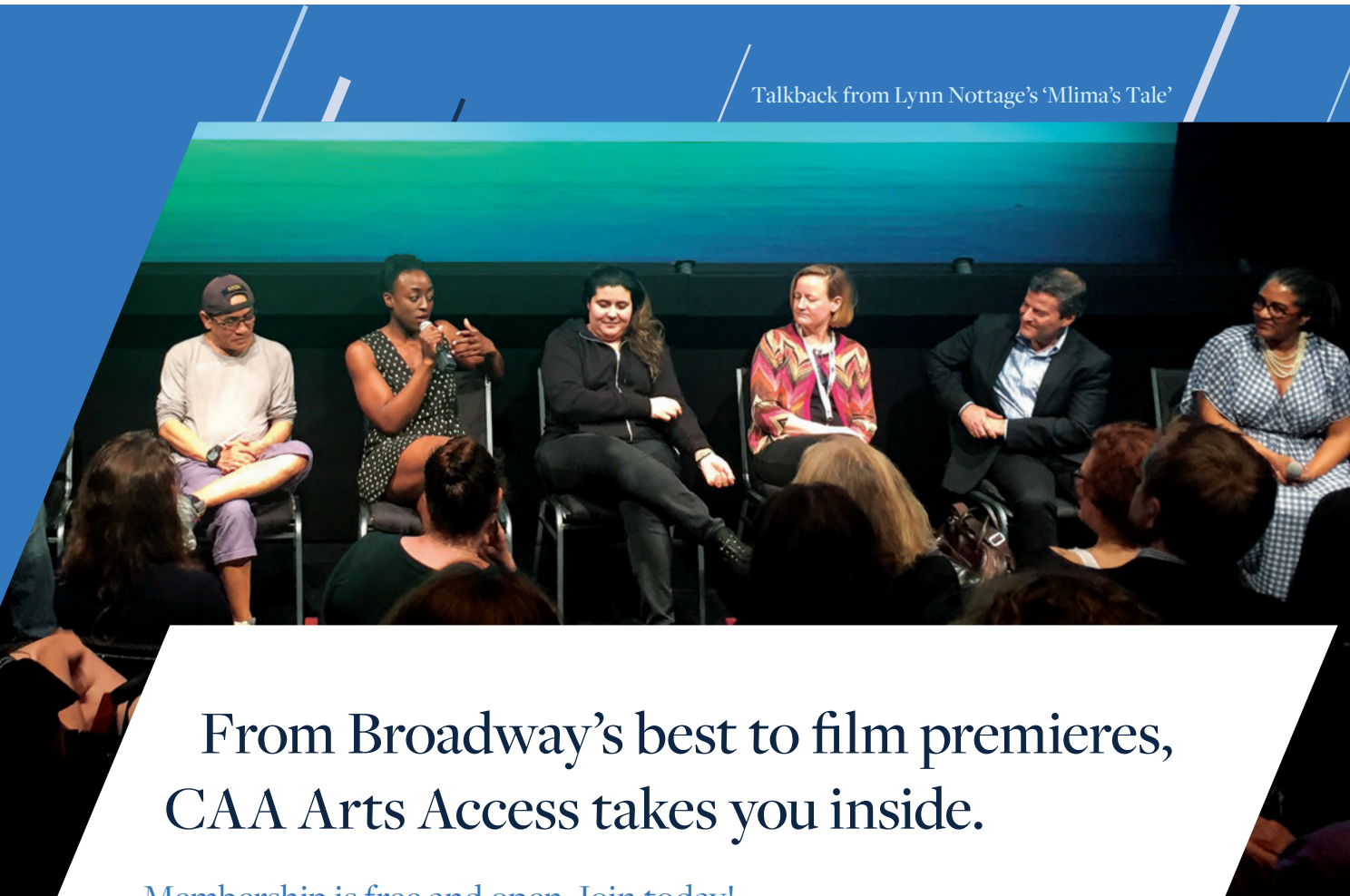
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