FALL 2025

COLUMBIA

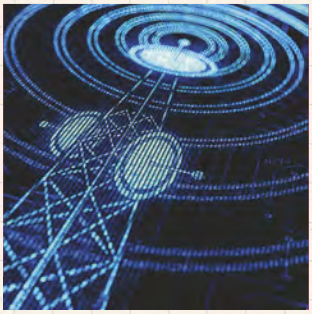
25 COLUMBIA IDEAS AND INNOVATIONS THAT CHANGED THE WORLD

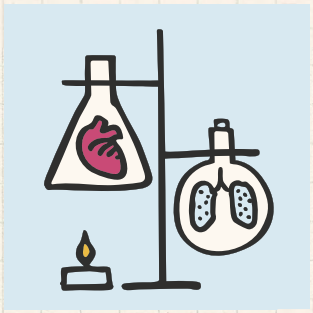








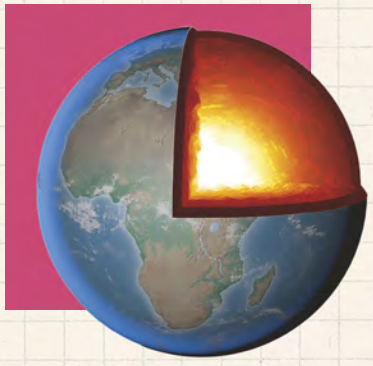


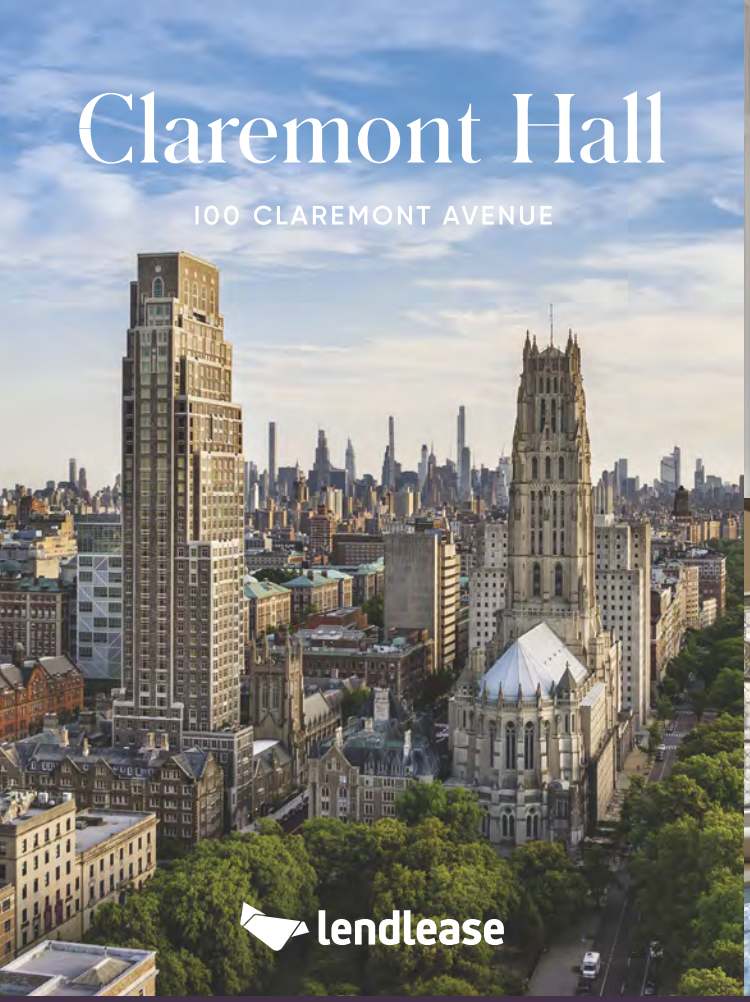
















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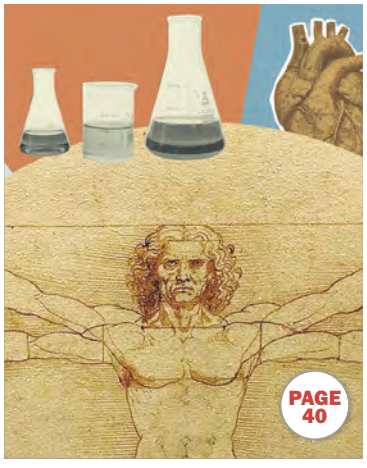
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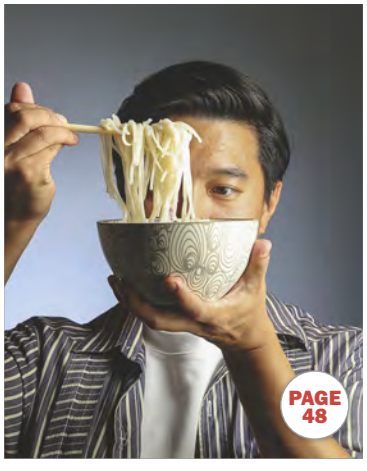
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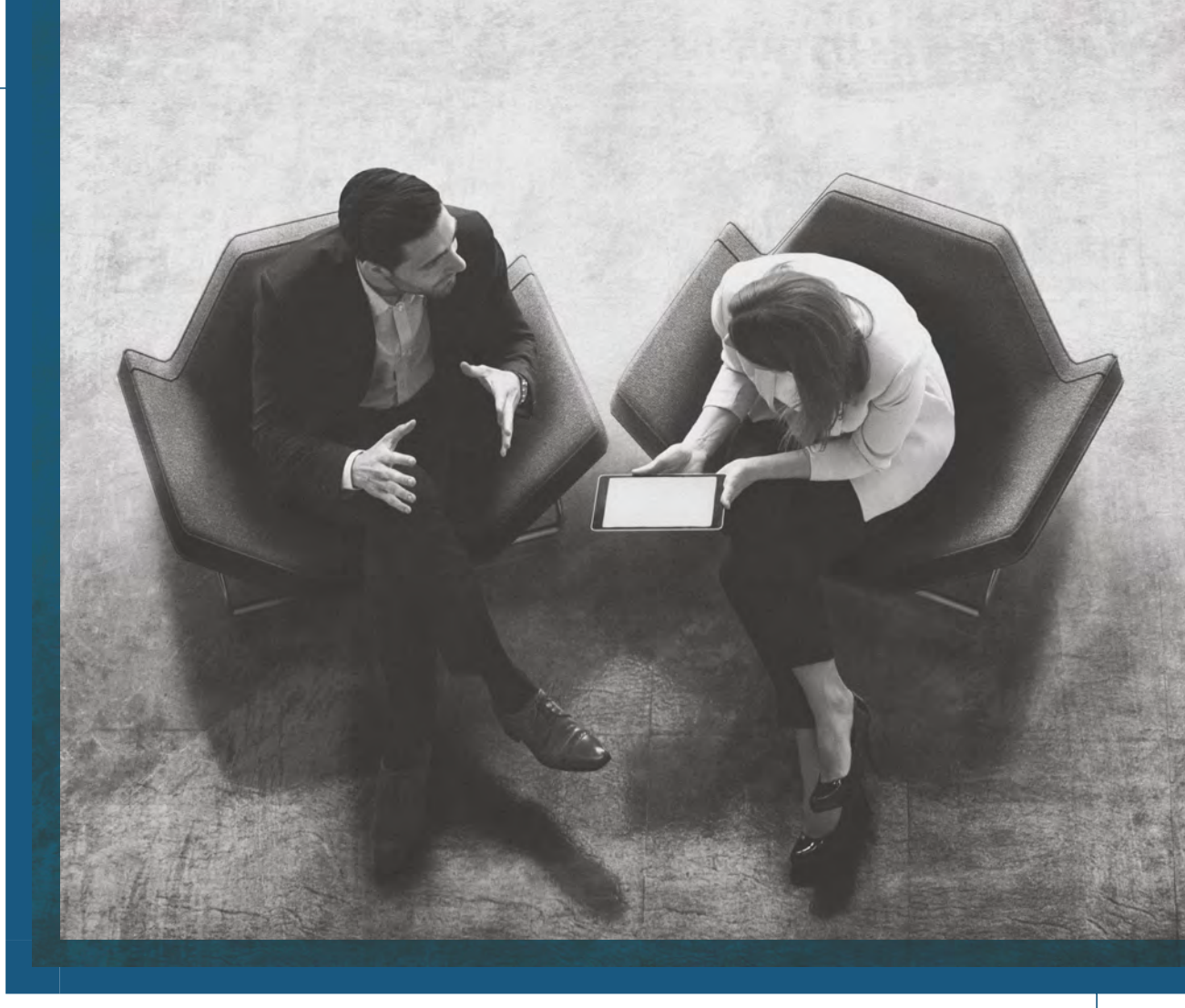
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FEEDBACK



A LION'S PRIDE

Thank you for being the excellent conduit you are for keeping alumni abreast of the many endeavors of Columbia University and its students that make us so proud to have had the privilege to study there.

Carolyn Gregov '65GS
Bradenton, FL

THE BILLION-DOLLAR QUESTION

The Spring/Summer 2025 issue is full of stories of Columbia scientists doing extraordinary work: trying to understand why younger adults are getting cancer; seeking to prevent mother–child HIV transmission; using AI to investigate how cells work; researching the increasing severity of heat waves; plus making advances in quantum computing, pioneering affordable 3D medical microscopes, discovering new galaxies, and more. The Trump administration wants to eliminate financial support for scientific research at Columbia and other universities. What will happen to this wonderful work and the wonderful scientists who do it?

Peter Clapp '69CC
Richmond, CA

See page 54 for an update on Columbia's agreement with the federal government. — Ed.

CLASS ACTION

In the Spring/Summer 2025 issue of the magazine, I searched once again for mention of students taking courses. I found none. Lots of interesting articles, but a visitor from another planet would be dumbfounded to learn that Columbia is a university where professors teach and students take notes, study, and pass exams.

This has been a source of angst for me for many years. Would it be so hard to cite the courses a faculty member teaches along with his or her research interests? Would it break a rule to mention students who are at the top of their classes in GPA as well as those doing interesting projects?

Please include the occasional reminder that Columbia is an academic institution as well as a research center.

Milt Hess '66SEAS
Arlington, VA

A HUMAN TOUCH

I look forward to receiving *Columbia Magazine*, especially for the writing of Paul Hond. He puts out well-researched and concise articles, always with a touch of humanity and an underlying verbal rhythm. In the Spring/Summer 2025 issue, his feature on Robert Moog was emotionally engaging, and the pieces on Jeannie Rhyu and William Vickrey were touchingly human.

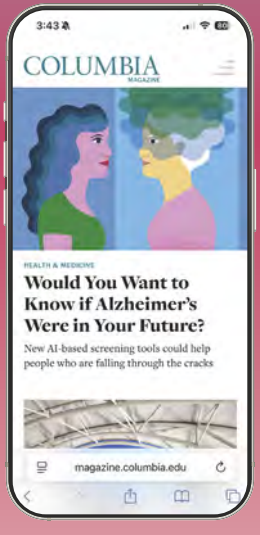
Thank you, Paul Hond! Write on.

Robert Chapla '68CC
Newbury, VT

FIFTY AND COUNTING

I enjoyed reading the excellent fiftieth-anniversary issue of *Columbia Magazine*, especially the ten-page spread highlighting some of the University's memorable and remarkable moments featured in its pages ("50 Years

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of *Columbia Magazine*," Spring/Summer 2025).

But I missed a reference to the broad series of articles on Columbia's great teachers and scholars published in the magazine during the early 2000s to commemorate Columbia's 250th anniversary. These articles, written by many of us who had studied or taught at Columbia, were reprinted with revisions in *Living Legacies at Columbia*, a 685-page volume published in 2006 by Columbia University Press.

During these trying days for Columbia, one would do well to recall its amazing intellectual history as demonstrated by the contributions of the brilliant men and women who helped make Columbia a premier university.

Robert J. Ball '71GSAS
New York, NY



A LION IN AUTUMN
Olivia Schulist painted over our Fall 2021 cover art by Gaby D'Alessandro as a gift for a friend who just graduated from Columbia.

Fifty years! Congratulations from the magazine's founding editor on an impressive journey from quiet beginnings to a publication chock-full of thoughtful, informative, and superbly written material. Here's to the next fifty!

Jenny Tesar
Bethel, CT

SAFETY NETS

While much credit for the creation of Social Security goes to Frances Perkins ("The Architect of Social Security," Backstory, Spring/Summer 2025), a few pioneers pointed the way, notable among them my grandfather Isaac Max Rubinow 1895CC, 1914GSAS, a theorist of and lifelong advocate for social insurance.

According to an article on the Social Security Administration's website, "In 1913, Rubinow published his classic book on the subject, *Social Insurance*. This book influenced a whole generation of social insurance theorists. Rubinow's work was known to FDR, who considered Rubinow to be the 'greatest single authority upon social security in the United States.'"

Ruth Lurie Kozodoy '76GSAS
New York, NY

Yes, Social Security was the most lasting achievement of Columbia alum Frances Perkins, but a more remarkable legacy is that she was the most effective

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and moral politician when it came to the plight of the Jews in Germany.

Although not Jewish herself, Perkins immediately grasped the dire reality facing Europe's Jews at a time when many media outlets were deliberately suppressing news of the crisis. As secretary of labor, she devised creative ways to help secure visas for Jewish refugees. Despite constant resistance from the antisemitic State Department, she succeeded in persuading the attorney general to approve a "charge bond" system, which allowed American Jews to post financial guarantees ensuring their relatives would not become public charges (and thus ineligible for visas). This mechanism was critical, as the Nazis had already stripped most Jews of their assets.

Perkins issued student and temporary visas, which allowed thousands of Jewish students to study here. When they refused to return to Germany after their visas expired, she declined to prosecute them and created legal roadblocks to delay their extradition.

Famous Jews who came to the US thanks to Perkins's efforts include Hannah Arendt, Albert Einstein, the actor Peter Lorre, the physicist Leo Szilard, and the composer Arnold Schoenberg.

The historian David Wyman wrote that Perkins did more than anyone in the US government to get Jews into the United States. At a time when antisemitism on campus is a controversial issue, it is nice to be reminded that some of my fellow alumni did the right thing at the worst time.

Jonathan D. Reich '85CC, '86SEAS
Gaithersburg, MD

I was delighted to read your article on the accomplishments of Frances Perkins. This largely forgotten leader deserves greater recognition. She not only proposed and fought for Social Security but also lobbied for much of the related New Deal legislation protecting working people that we take for granted today. Three years ago, while teaching at the Columbia Climate School, I organized a program at the law school honoring Perkins and her many achievements. Two Columbia professors participated. Thanks again for your timely article.

Philip Weinberg '58LAW
New Hyde Park, NY

QUESTIONS? COMMENTS?

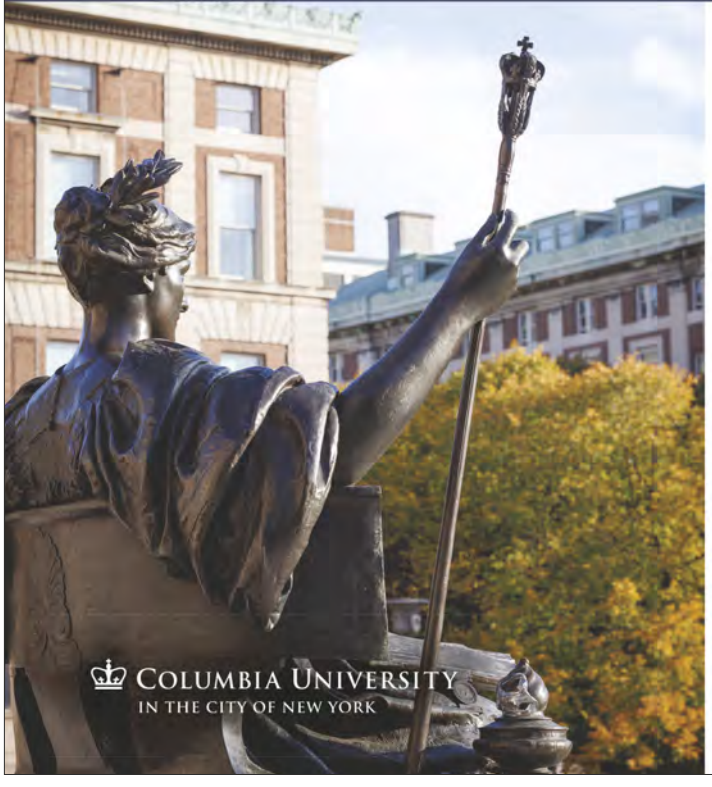
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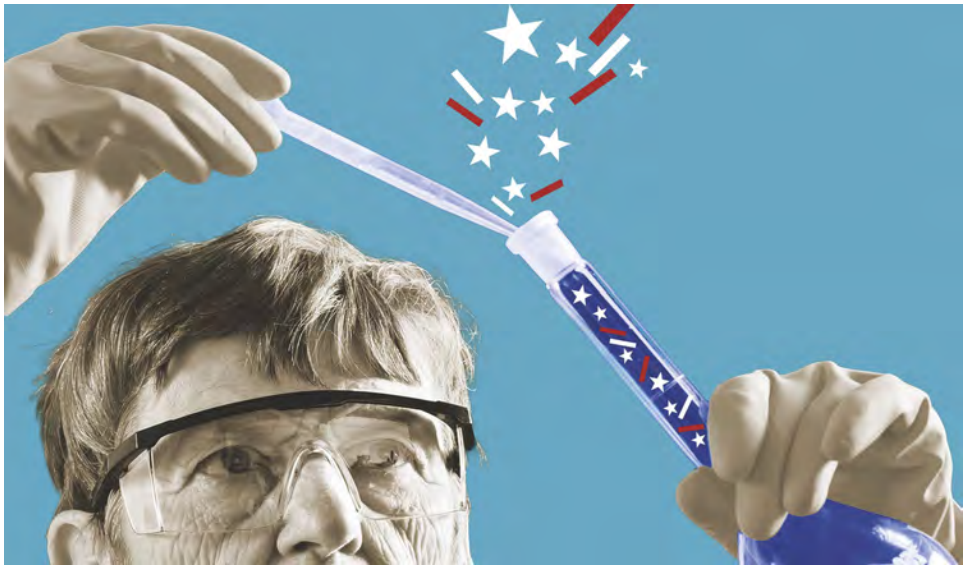
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COLLEGE WALK

NOTES FROM 116TH STREET AND BEYOND



A Brief History of Science Funding

Universities have come to rely on federal funding to support scientific and medical research. How did we get here?

This past spring, the US Department of Health and Human Services froze billions of dollars for scientific research at US universities over alleged violations of federal anti-discrimination laws. Columbia was hit particularly hard. The Trump administration announced that it was terminating $400 million in grants, mainly from the National Institutes of Health. In July, the University announced that it had reached a settlement with the US government to restore funding (see page 54).

The cancellation of grants nationwide has drawn attention to the very concept of federally funded science research: when did this system begin, for what purpose, and how has it changed over time?

Columbia history professor Alma Steingart '06GS recently provided some answers. From her office in Fayerweather Hall, Steingart, who studies how mathematical thought and computer technology have influenced US electoral politics, explained that government science funding as we know it began in the mid-twentieth century. Before World War II, she said, research money at universities came primarily from donors and private foundations; but during the war, the US Office of Scientific Research and Development (OSRD) began funding research aimed at gaining military advantage. The development of the atomic bomb, known as the Manhattan Project, in which Columbia physicists played a key role, was one major investment.

After the war, Vannevar Bush '47HON, the former dean of MIT's engineering school and the head of OSRD, called on the US to fund basic research in the physical and medical sciences in order to ensure American strength and progress. "There was a realization that there was no going back to the previous model," said Steingart. "The debate was whether federal funds should be used for basic science or applied science. Many scientists felt that developing science around particular goals was limiting, and Bush successfully made the case that it was basic research that led to discoveries and applications that would help the country." Bush's advocacy led to the creation of the National Science Foundation (NSF) in 1950.

Then, in 1957, the Soviet Union launched Sputnik, the first artificial satellite. "That was a critical moment," said Steingart. Within a year, the NSF budget more than tripled, from $40 million to $134 million. Meanwhile, other government agencies, such

PHOTO ILLUSTRATION BY LEN SMALL (RAPIDEYE / ISTOCK)

as the Atomic Energy Commission and the Air Force Scientific Advisory Board, noting that basic science was already being funded, began to direct money toward applied research.

"With the Cold War came the idea that you needed an army of engineers, mathematicians, physicists, and chemists in order to keep pace with the Soviet Union," Steingart said. "Remember, the NSF doesn't just fund research. It also funds postdoctoral fellowships and PhD fellowships. And so in the 1960s, the number of PhDs greatly expanded — which meant that universities expanded, and so did their expenditures."

The influx of federal dollars led members of Congress to demand more accountability from scientists and cast doubt on studies with no obvious societal value. "Suddenly, there's a questioning of this basic-science-research model," said Steingart. "People are pushing for more applied research. They want to be sure that the research they're paying for will benefit the taxpayers."

A souring economy in the 1970s led to a contraction of science funding. "There was this feeling that we were producing too many PhDs for the economy to absorb, and you see a drop," Steingart said. "By the 1980s, people are talking about scientific research in relation to the economy and the GDP, and there is a push for private companies to support research and development rather than the government."

The privatization idea has held: Steingart noted that space-technology companies SpaceX (founded by Elon Musk) and Blue Origin (founded by Jeff Bezos) have entered what was once NASA's sphere. And she sees the current government's actions as a continuation of this model — as well as a break from it.

"It's a break because the administration is using funding as leverage to get concessions and attacking the autonomy of scientists to decide what research to pursue," said Steingart. "And it's a continuation in that the government is trying to move more research into the private sector."

But Steingart sees an inherent contradiction in this model. "Private companies are dependent on having highly trained individuals, and they rely on the universities to train scientists and engineers. Where else will they hire from?"

The other problem is that private companies are driven by profit, and not all areas of research generate revenue. "Say you're at the top of your field in artificial intelligence, and you really want to teach and work at a university. And let's say the funding goes dry. For you, it's not really a problem: many companies will be eager to have you," Steingart said.

"But if you're working on research that has to do with, say, drug abuse — or anything to do with public health or the public good — and your government funding dries up, no company is going to hire you to do that research, because this research has no way of making money."

Science research in the public interest? That's the domain of government — and of the modern research university.

"All science research is impacted by the funding freezes," said Steingart, "but particularly research that doesn't have a clear kind of profit model. And that's the research that the government has traditionally been so good at funding." — *Paul Hond*

Pictures, Plans, and Papers

For the first time in five years, Avery Library shows off some new acquisitions

On a cool, rainy evening shortly after graduation, the architect Frances Halsband '68GSAPP walked from her home on the Upper West Side to the Avery Architectural and Fine Arts Library on Columbia's Morningside campus. The bleachers on Low Plaza were dismantled; the walkways were puddly and quiet. But inside the library, on the main floor of Avery Hall, director Teri Harris '12GSAS and her team of archivists were readying Avery's first public exhibition since the start of the pandemic. The theme was new acquisitions — a selection of materials that the library had collected over the past five years, displayed upon nine long wooden tables.

Halsband entered the library, with its arched windows and doorways, its high white ceilings and long-stemmed hanging lamps. One of the tables held items that Halsband had recently donated. In 1972, she and her husband, Robert Kliment, who had taught at Columbia, founded the firm of Kliment Halsband, and one of



Morton Kaish, *Arrival XIII*, 2022, acquired by Avery Library, 2023.

AVERY ARCHITECTURAL AND FINE ARTS LIBRARY, COLUMBIA UNIVERSITY; GIFT OF MORTON AND LUISE KAISH

their first projects was converting a neighborhood building into the Columbia dormitory Hogan Hall. That led to other Columbia projects: the Computer Science Building; the 2004 Hamilton Hall restoration; and a 1997 master plan for the Lamont-Doherty Earth Observatory.

Campus architecture is where Halsband's heart is. She walked over to "her" table and found one of her lighter drawings: a lively, people-filled rendering of the Friends Seminary in Gramercy, for which her firm turned the interiors of three attached townhouses into a new academic space.

"This is one of my 'happy people drawings,'" said Halsband, who was the first woman president of both the Architectural League of New York and the New York chapter of the American Institute of Architects.





Halsband in Avery (left); photo by Daniel Dunham of Kamalapur Railway Station in Dhaka (right).

"I discovered early on that when you're talking to a client, you can show them a drawing of what you have in mind, and they're very polite. But the minute you put a person in the drawing doing something, they identify with that person who's sitting on a lounge chair in a library, or those kids dancing in the dance studio, and they think, 'Yeah, I want *that* to happen.'" In fact, said Halsband, it got to be a joke in the office: "Sometimes I would just draw two lines and say, 'That's the floor, that's the ceiling,' and then I'd just start drawing people doing things."

Other tables in the exhibit held acquisitions representing Avery's three main collections: artworks from Art Properties; books from Avery Classics; and papers, like Halsband's, from Avery Drawings and Archives. Other Columbians represented included architect Wang Chiu-Hwa '49GSAPP, known as "the mother of Taiwanese libraries"; Michael Sorkin '71GSAS, a critic and designer whose cache included a 1990s drawing for a towering Tokyo building called Godzilla; and architect Daniel Dunham '83GSAPP.

Dunham's daughter, Katherine Dunham, an adjunct associate professor at GSAPP, stood at her father's table. She pointed out a photo of latrines in Kolkata (formerly Calcutta) that her father had designed after the 1971 war of independence in East Pakistan — now Bangladesh — which created thousands of refugees and a need for latrines that could be quickly assembled. "My father was particularly proud of that work," she said.

The Avery exhibit only hinted at the riches that the library has acquired since 2020. As people moved through the space, Halsband reflected. "At best, people think of universities as ideal communities," she said. "There's this sense that everybody is there for the common purpose of learning. So it's a chance to ask, 'What is an ideal community, anyway? What does it look like?'"

For one evening, at least, it looked a lot like the scene in Avery Library. — *Paul Hond*

Farewell, Lindens; Hello, Cherries

A tree replacement on College Walk lets us branch out, sit down, and plug in



New trees and benches grace College Walk.

The arborists have spoken, said Don Schlosser, standing on College Walk near the Broadway gates in July. He pointed to the noble littleleaf lindens on the famed pathway. The trees, with their long, straight trunks, forked branches, and heart-shaped leaves, were more than sixty feet tall and more than seventy years old, and Schlosser, the assistant vice president of operations at Columbia, loved them as much as any on campus. But for safety's sake, he said, they had to come down.

The project began last semester, when workers removed mature lindens from the southwest quadrant of College Walk, on the path outside Pulitzer Hall, and replaced them

LEFT: LEN SMALL; CENTER: AVERY ARCHITECTURAL & FINE ARTS LIBRARY; RIGHT: PAUL HOND

with new cement benches (modeled after McKim, Mead, and White's originals, three of which remain on Low Plaza), electrical outlets, black lampposts ringed with shrubs, and a row of new Japanese sakura, or ornamental flowering cherry trees. Now, under Schlosser's eye, this pattern was being repeated in the other three quadrants — northwest, by Dodge Hall; northeast, by Kent Hall; and southeast, by Hamilton Hall.

Schlosser dated the old College Walk lindens to no later than 1953, the year that 116th Street between Broadway and Amsterdam was closed to automobile traffic. "They were planted almost at street level," said Schlosser. "There was no bed. The root flare" — the point where the trunk meets the root system, and which should be aboveground — "was coming up too high. So they raised the soil bed and covered the root flare with dirt. But those roots, which anchor the tree, need oxygen. So the root flare died, and the trees became like logs stuck in mud. They could just topple over."

The other problem was that College Walk's existing cherry trees — known for their pink blossoms in spring and their festive white lights in winter — were visibly suffering under the lindens. "They're not understory trees," said Schlosser. He pulled up a photo on his phone of the robust and fluffy pink-flowered cherry blossoms on Revson Plaza outside the law school. "That's what they look like when they're not in competition," he said, "and that's what we want the College Walk trees to look like."

Cherry trees have a long history in Morningside Heights. The Big Apple's first cherries arrived from Japan in 1912, a gift to the city from a group called the Committee of Japanese Residents of New York. The trees were planted in Riverside Park and in Claremont Park — now Sakura Park — in front of Riverside Church.

Schlosser envisioned the new College Walk benches filled with students, now enjoying unobstructed views of the historic buildings where the tall lindens had stood. And he wagered that the new cherry trees would hold their own against any in town. "When they mature, they're going to expand out into this bed," he said. "They're going to be magnificent."

— Paul Hond









CLOCKWISE FROM TOP LEFT: SIRIN SAMMAN; EILEEN BARROSO; CHRIS TAGGART; DIANE BONDAREFF

A SEA OF LIGHT BLUE Neither pouring rain nor frozen funds could dampen the joy of the Commencement ceremony for Columbia's 271st academic year, held on May 21. Umbrellas bloomed, caps flew, and more than fifteen thousand freshly minted graduates entered the ranks of Columbia alumni.

A Free Press in Peril?

At a J-school forum, *New York Times* publisher A. G. Sulzberger assessed the threat

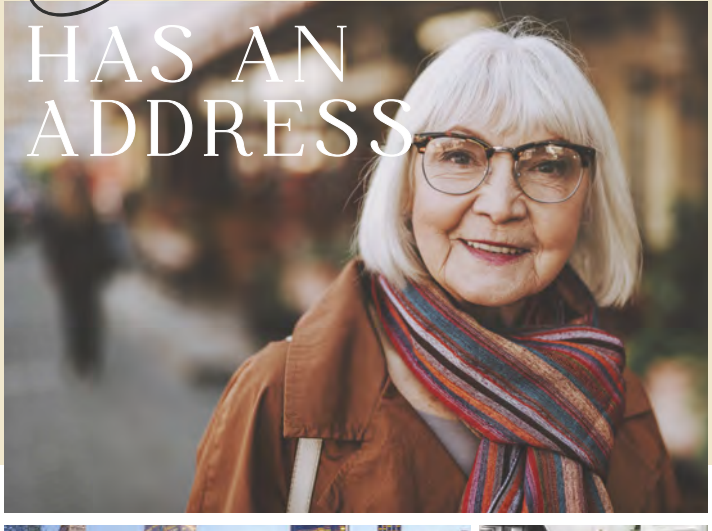
In the fall of 2016, three weeks after A. G. Sulzberger was named deputy publisher of *The New York Times*, Donald Trump was elected president. As Sulzberger, forty-four, who is now chairman and publisher of the *Times*, told Columbia Journalism School dean Jelani Cobb at a recent talk in Pulitzer Hall, Trump's election announced "an entirely new challenge for the industry, which is the most direct attack on the legitimacy, the rights, and the safety of journalists that we've seen in many generations."

Sulzberger's appearance at Columbia was part of an event called The Fight for Global Press Freedom, cohosted by the J-school and the *Times*. Inspired by a *Washington Post* opinion piece that Sulzberger wrote in September 2024, which warned of potential dangers to press freedom in the US, the event featured journalists Juliana Dal Piva of Brazil, András Pethő of Hungary, and Siddharth Varadarajan of India, as well as Bruce Brown, president of the Reporters Committee for Freedom of the Press, and Columbia Journalism School professors Sheila Coronel, director of the Toni Stabile Center for Investigative Journalism, and Azmat Khan, director of the Simon and June Li Center for Global Journalism.

Recounting the evolution of the president's verbal attacks on his newspaper, from "the failing *New York Times*" to "fake news" to "enemy of the people" ("a pretty big step," said Sulzberger, because "what is a president expected to do with the nation's enemies? Go to war with them. Lock them in jail") — and given the Justice Department's seizure of phone and email records belonging to journalists from the *Times*, *The Washington Post*, and CNN in Trump's first term — Sulzberger knew that a second Trump administration might escalate its threats and go after the press "much more directly."

To prepare, Sulzberger and some of his colleagues interviewed journalists from Hungary, India, Brazil, and Poland — places with a free-press tradition that is being similarly eroded. What Sulzberger found was that the

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governments of those countries, forgoing the dramatic forms of press repression seen in China (imprisonment) and Russia (assassination), followed "a more technocratic playbook."

That playbook, said Sulzberger, consists of five steps: one, attack the legitimacy of the press by normalizing harassment, which can lead journalists to self-censor; two, weaponize the legal system by bringing resource-draining lawsuits that force news outlets to weigh the benefits of doing a story against the costs of defending it; three, use federal regulators to go after companies that control news organizations; four, downgrade serious news and elevate "journalism that is basically just an extension of a political apparatus"; and five, inspire citizens to carry out acts of intimidation or violence.



"I used to work in a building that did not have bombproof bollards, bulletproof doors, armed guards, and safe rooms on every floor," Sulzberger said. "Today, we have every one of those things."

One method of defense, Sulzberger suggested, is for press organizations to band together. "When our records were secretly seized," Sulzberger said, "*The Washington Post* and CNN immediately reached out to me and said, 'We're actually going to the Justice Department to give the attorney general a hard time, to demand answers and to push for reforms.' Sulzberger also pointed to the Pentagon Papers case of 1971: "When we were shut down from publishing the Pentagon Papers, who picked it up? It was *The Washington Post*. So the track record of news organizations coming together is really important and must continue."

When Cobb asked why other news organizations didn't leave the White House briefing room and Air Force One in solidarity with the Associated Press after Trump restricted AP access for refusing to write "Gulf of America" instead of "Gulf of Mexico," Sulzberger said that the *Times* put out a public statement in support of the AP. He then asked the audience to consider what things might look like if the *Times*, NBC, the *Post*, and others stepped aside, leaving Newsmax, *Breitbart News*, and *The Daily Wire* to fill the void.

Yet despite the harsh headwinds, Sulzberger noted, the American press has, in fact, been producing breaking-news stories and investigations at a dizzying pace. "I think there's a lot of great journalism being done in this country right now," he said, "and it's part of why I think we should plan and we should be prepared. We should not panic. We should keep doing what we're doing." — *Paul Hond*

LEFT: ANDREAS BERGERSTEDT / ALAMY

THE SHORT LIST



ROAR

Cheer on the Lions at **Homecoming 2025**, a weekend full of Columbia spirit and family-friendly activities, including a Saturday football game against Penn. From October 17 to 18 at the Baker Athletics Complex and Morningside Heights campus. *college.columbia.edu/alumni/events/homecoming-2025*

RIDE

Gear up for **Velocity**, the annual fundraiser for Columbia's Herbert Irving Comprehensive Cancer Center. Participate from any location with an exercise activity of your choice on or before October 5. *velocityride.org*

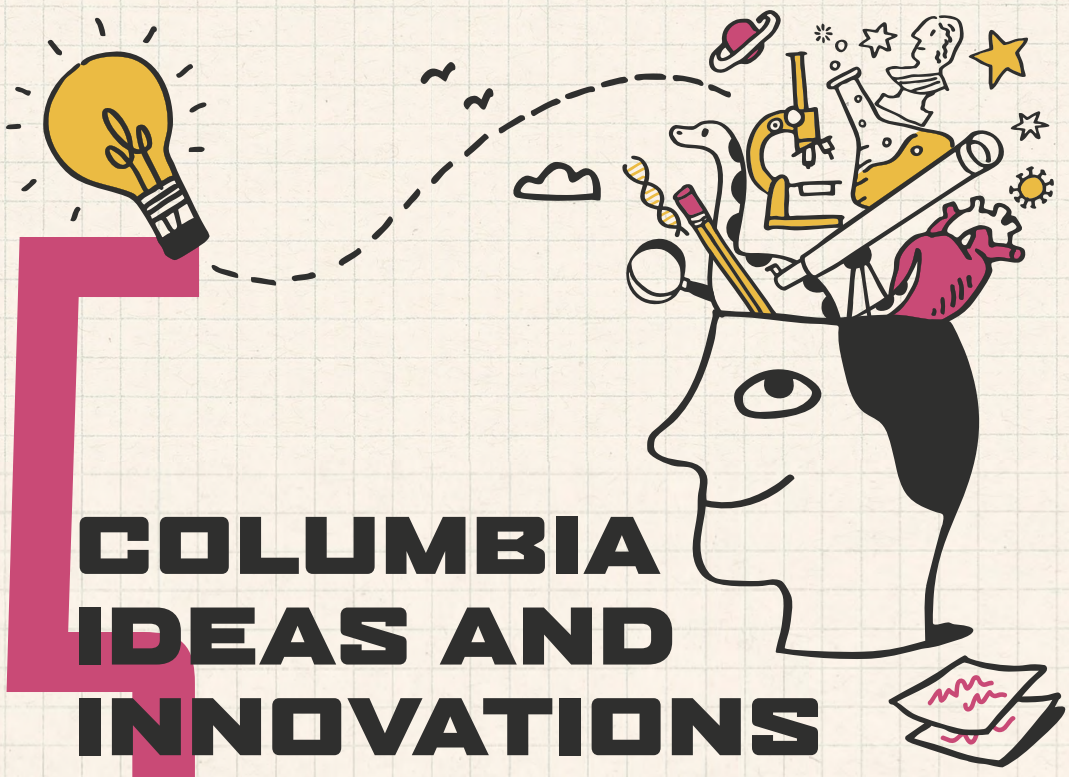


LISTEN

Miller Theatre presents a varied lineup this fall, including jazz performances from the Anat Cohen Quartet on October 4 and the Sean Mason Quartet on November 15. On October 9, the JACK Quartet performs the string quartets of Helmut Lachenmann, and from October 27 to 29, the theater will host free pop-up concerts from piano-percussion ensemble Yarn/Wire. *millertheatre.com*

SEE

Experience the work of Lotty Rosenfeld, a multimedia artist known for her politically charged installations created under the Chilean military dictatorship, at **Lotty Rosenfeld: Disobedient Spaces**. The exhibition, held from November 7 to March 15 at the Wallach Art Gallery, marks Rosenfeld's first solo retrospective in the United States. *wallach.columbia.edu*



25 COLUMBIA IDEAS AND INNOVATIONS THAT CHANGED THE WORLD

BY DAVID J. CRAIG

Like its Ivy League peers, Columbia started out as a sleepy institution focused on teaching history and literature to undergraduates — a model of higher education typical of eighteenth-century colleges on both sides of the Atlantic. But its location in New York City, the future industrial hub of America, soon pushed it to broaden its mission. In the early years of the republic, when the city needed physicians, lawyers, and other professionals to serve its rapidly growing population, Columbia expanded its curricula to train them. When, at the dawn of the industrial era, the US needed engineers to build the infrastructure for a modern economy — from bridges and railways to aqueducts and factories — the University established one of the country's first engineering schools. And when sanitation, infectious disease, labor conditions, and ethnic tensions became defining challenges for cities nationwide, Columbia launched new graduate programs in areas like political science, journalism, public health, and social work.

By the turn of the twentieth century, most Americans' lives had already been improved in one way or another by Columbians' ingenuity and idealism. DeWitt Clinton 1786CC, 1826HON, as governor of New York, was the driving force behind the Erie Canal, which opened the interior of the country to trade. Horatio Allen 1823CC, a Columbia-trained engineer, helped to create the nation's railways, and William Barclay Parsons 1879CC, 1882SEAS, a fellow engineer, designed the original New York City subway system, to name just a few examples.

ILLUSTRATIONS BY ROB WILSON

But even as Columbia alumni were shaping the nation's infrastructure and public institutions, something even more transformative was happening on campus. As sociology professor and former provost Jonathan R. Cole '64CC, '69GSAS writes in his 2009 book *The Great American University*, Columbia was becoming a new kind of institution — one that didn't just impart knowledge but generated it. To meet America's growing demand for scientific, technical, and policy expertise, Columbia and a handful of other US universities began to integrate research into the fabric of their institutions like no schools had ever done before.

The nature of the research they were supporting was distinct too. Whereas the German universities that had until then overseen the world's most accomplished research programs prioritized theoretical science at the expense of more practical inquiries, Columbia and its US peers pursued a mix of so-called pure science and applied research that aimed to solve real-world problems. So while graduate students at the University of Berlin in 1910 were refining chemical principles and pontificating about Max Weber's sociological theories, their counterparts at Columbia were just as likely to be testing drinking water and gathering evidence about the living conditions in Lower East Side tenements.

This new American model of higher education would by the mid-twentieth century emerge as the world's dominant system for producing all types of scientific research. After helping to secure the Allied victory in World War II with breakthroughs like radar, antibiotics, and the atomic bomb, science was newly recognized as a source of national power, and Washington quickly moved to solidify America's advantage by establishing a permanent system to fund it. From that point onward, the lion's share of US medical, scientific, engineering, and social-science research would be conducted not at government-run facilities but on university campuses, funded by a constellation of federal agencies. The reasoning, Cole writes, was simple: scientists working independently were most likely to generate the novel ideas that would keep Americans safe, drive economic growth, and improve lives around the world.



Over the past century, Columbia has consistently ranked among the top US universities in scientific productivity. In the past five years alone, nearly two thousand inventions have emerged from Columbia's labs, fueling the nation's information-based economy. Columbia's research priorities are always evolving, shaped by the challenges and tools of each era. But the biggest breakthroughs have stood the test of time and only seem more important with each passing year. What could be next?

COLUMBIA UNIVERSITY ARCHIVES

1. THE GENE

WHEN COLUMBIA BIOLOGIST Thomas Hunt Morgan began studying fruit flies in 1907, the scientific community was abuzz with speculation that cells might contain instructional codes capable of guiding an organism's development. But no one knew where those codes resided, what physical form they might take, or how to go about finding them. In a series of ingenious experiments, Morgan and his colleagues traced inherited traits like eye color, wing shape, and sex to specific locations on chromosomes — squiggly, thread-like structures that had been glimpsed inside of cell nuclei decades earlier but whose function had remained a mystery. In doing so, they launched the modern field of genetics.



Thomas Hunt Morgan

Over the next few decades, Morgan and his students went on to make many more important discoveries. They determined that genes are arranged on chromosomes like beads on a string, that they can be damaged by radiation, and that mutations can be passed on to offspring. Morgan and several of his students, including Hermann Muller 1910CC, 1916GSAS and Joshua Lederberg '44CC, would win Nobel Prizes. Their findings set the course for twentieth-century biology, laying the groundwork for everything from the discovery of DNA's double-helix structure to the development of lifesaving treatments for cancer and other conditions.

But Morgan's influence extended beyond biology. Writing in *Columbia Magazine*, Nobel Prize–winning neuroscientist and University Professor Eric Kandel once described how Morgan's unconventional approach to running his Schermerhorn Hall lab helped to transform how nearly all scientific research has been done in the United States since. In contrast to the hierarchical, insular German model that had long dominated — in which professors typically kept students at arm's length — Morgan fostered a collaborative, meritocratic environment that prized creativity and open debate. His approach was eventually adopted throughout Columbia and beyond, helping to entice many of the world's brightest students to enroll in US universities.

As Morgan's findings helped to shift "the center of influence in biology" from Europe to the United States, Kandel wrote, his lab's "fully democratic and egalitarian atmosphere … soon came to characterize the distinctively American atmosphere of university research."



2. EMBRACE OF CULTURAL DIVERSITY

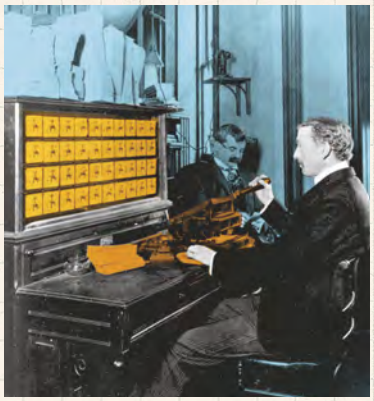
ONE HUNDRED YEARS AGO, many scholars gave intellectual cover to white Europeans and Americans who saw themselves as superior to other groups, claiming that intelligence, moral character, and nearly every other aspect of human potential was determined by race and ethnicity.

Franz Boas 1929HON, a cultural anthropologist who taught at Columbia from 1896 to 1936, did more than any other academic to dismantle that myth. Through his empirical studies of Indigenous peoples and immigrant communities in North America, he demonstrated that human behavior is shaped primarily by culture and environment, and that biological differences between groups have no significant bearing on how people think or act. At Columbia, Boas inspired a generation of anthropologists — including Ruth Benedict 1923GSAS, Zora Neale Hurston 1928BC, and Margaret Mead 1923BC, 1928GSAS, '64HON — who carried forward his vision of research grounded in cultural humility while also expanding the field's lens to include questions of gender, sexuality, and power. Boas and his students together helped to spearhead what the scholar Charles King called, in his 2019 cultural history *Gods of the Upper Air*, "the greatest moral battle of our time: the struggle to prove that — despite differences of skin color, gender, ability, or custom — humanity is one undivided thing."

"If it is now unremarkable … for a gay couple to kiss goodbye on a train platform," King writes, "for a college student to read the *Bhagavad Gita* in a Great Books class, for racism to be rejected as both morally bankrupt and self-evidently stupid, and for anyone, regardless of their gender expression, to claim workplaces and boardrooms as fully theirs — if all of these things are not innovations or aspirations but the regular, taken-for-granted way of organizing society, then we have the ideas championed by the Boas circle to thank for it."

3. THE ORIGINAL DATA PROCESSOR

AFTER EARNING A BACHELOR'S degree at Columbia, Herman Hollerith 1879SEAS, 1890GSAS took a job as a statistician for the 1880 US Census — at the time, the largest data-collection effort in history. The project gathered an unprecedented amount of demographic information on the nation's fifty million people and took seven years to complete, rendering its hand-sorted results outdated by the time they were published. Watching his colleagues toil away with pen and paper, Hollerith envisioned a better approach: census workers could record data by punching holes into paper cards and then processing the cards en masse, using new machines he would design with electrical contacts and mechanical counters. Hollerith's automated punch-card system, which he developed as part of his Columbia PhD dissertation, revolutionized data analysis. The Census Bureau adopted it, enabling the 1890 count to be completed in just three years. Soon insurance companies, railroads, accounting firms, and other businesses interested in sorting large amounts of data were lining up to use the technology, whose electric circuits and binary coding (holes were either punched or not) anticipated modern computing. In 1896, Hollerith founded the Tabulating Machine Company, which, after several mergers and name changes, became the International Business Machines Corporation, or IBM.



Census Bureau employees use a Hollerith tabulator in 1904.



A portable radio invented by Armstrong in 1923.

4. FM RADIO

IN THE GOLDEN AGE of radio, listeners could often expect to hear one thing, no matter where they turned the dial: static. That's because AM (amplitude modulation) transmission, the reigning technology in the early twentieth century, was highly sensitive to electrical interference from thunderstorms, household appliances, and even the sun. Experts insisted that nothing could be done. Weak, noisy reception, they said, was simply the nature of broadcasting.

Edwin Armstrong 1913SEAS, 1929HON, a Columbia professor of electrical engineering, proved them wrong by dreaming up an entirely different way of encoding sound in electromagnetic waves. Instead of adjusting the height of each wave, which is how AM transmission worked, he found a way to transmit sound by varying the frequency of the waves, or how tightly packed they were. Frequency modulation, or FM, proved to be almost entirely impervious to environmental disturbances, improving sound quality a hundredfold or more.

Armstrong's FM system, patented in 1933, went on to dominate the airwaves. Other inventions of his, like the superheterodyne receiver, influenced the development of nearly all modern wireless technologies.

TOP RIGHT: SCIENCE HISTORY IMAGES / ALAMY BOTTOM: FROM THE COLLECTIONS OF THE HENRY FORD



Charles R. Drew

5. BLOOD BANKS

EACH YEAR, MILLIONS of Americans receive lifesaving blood transfusions after surviving car crashes, workplace accidents, natural disasters, and other catastrophes. The ability to quickly deliver blood when it's needed can be traced back to Charles R. Drew '40VPS. As a medical student at Columbia, Drew conducted pioneering research on blood-preservation techniques and developed the first standardized procedures for collecting, storing, and distributing large quantities of blood. Upon finishing his degree, he was appointed to lead a US government effort to collect blood donations for wounded British soldiers and civilians in World War II; in 1941, the American Red Cross tapped him to direct its first national blood-bank program. Drew, who was African-American, eventually resigned that position to protest the organization's insistence on segregating blood donations by race — an unscientific policy that it finally lifted in 1950. But by then, he had laid the groundwork for America's entire blood-donating system.

6. BACITRACIN

ONE OF THE FIRST ANTIBIOTICS was discovered by accident in 1943, when CUIMC lab researcher Balbina Johnson noticed that a dangerous bacterium that she had cultured from a young girl's leg wound had been vanquished by another strain commonly found in soil. Working with Columbia surgeon Frank Meleney 1916VPS, Johnson soon purified the benevolent microbe's disease-fighting compounds to create bacitracin, an antibiotic whose lifesaving potential became evident when the researchers observed it kill certain pathogens that penicillin was powerless against.

Approved by the FDA for topical use in 1948, bacitracin quickly became a staple of Americans' medicine cabinets, reducing the chances that minor cuts, scrapes, and burns would lead to serious infections. Still widely used today, bacitracin is a key ingredient in ointments like Neosporin. And the soil-dwelling organisms that produce it may yet have more tricks to offer. In 2024, a team of Dutch, German, and British researchers proposed that these microbes' bacteria-killing secretions, if enhanced and made even more potent through genetic reengineering, could defeat many of the drug-resistant bugs now wreaking havoc on human health around the world.



Balbina Johnson

TOP LEFT: NEW YORK PUBLIC LIBRARY / SCIENCE PHOTO LIBRARY; BOTTOM LEFT: CUMC



7. THE SELF-FULFILLING PROPHECY

ROBERT K. MERTON '85HON, a Columbia professor from 1941 until his death in 2003, was arguably the most influential American sociologist of the twentieth century. A brilliant and prolific theorist, he gave the field many of its core concepts, including "role model," "reference group," "unintended consequence," and "deviant behavior." But it is his idea of the "self-fulfilling prophecy" that has had the broadest impact in academia and beyond.

The notion that our beliefs can bring about the very outcomes we expect is hardly new, of course. Literature is filled with characters, from Oedipus to Macbeth, whose fates are sealed the moment they imagine them. Merton's genius was to turn this literary motif into a sociological construct, revealing its power to explain why individuals, groups, and institutions often behave in ways that make their assumptions come true.

First articulated in 1948, Merton's theory has proved to be an unusually versatile analytic device. Scholars have used it to understand how consumer expectations can drive economic booms or busts; how teachers' perceptions of students' ability influence their performance; and even how world leaders' anticipation of conflict can make war inevitable. The beauty of the concept is how it shows that problems often contain the seeds of their own solutions: since behavior follows belief, a change in outlook can improve the outcome.

8. VALUE INVESTING



THINKING ABOUT BUYING STOCKS? Consider this approach: study a company's fundamentals — its past earnings, balance sheet, and tangible assets — and if its stock is trading below those of comparable companies, snap it up.

It may not sound exciting today, but this investment strategy was nothing short of revolutionary when Columbia business professor Benjamin Graham 1914CC introduced it in the 1930s. At the time, most investors assumed that market fluctuations were essentially inscrutable and that the best one could do was follow the herd, barring access to insider information. In his research, Graham demonstrated that investors could consistently beat the market if they examined publicly available financial information closely enough — and if they resisted the temptation to chase over hyped, speculative opportunities.

Graham's philosophy, which he called "value investing," eventually came to dominate US financial culture. Columbia became the intellectual heart of the movement, and Graham's disciple, Warren Buffett '51BUS, its most prominent champion.

In recent decades, the investment community has periodically embraced riskier approaches — especially during the 1990s and 2010s tech booms, when many startups without solid fundamentals became wildly successful — yet Graham's strategy of rigorously scrutinizing a company's intrinsic value remains a cornerstone of modern securities analysis.



An early recipient of bone-marrow transplantation.

9. BONE-MARROW TRANSPLANTATION

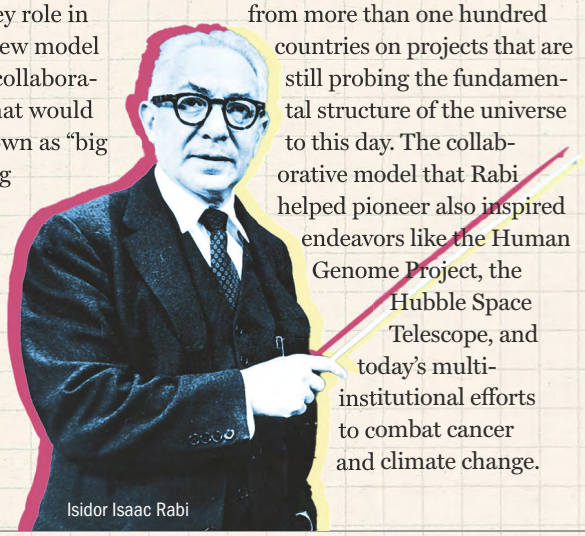
WHEN HE FIRST PROPOSED IT, Columbia physician E. Donnall Thomas's last-ditch plan to save terminal leukemia patients sounded almost unthinkable: he would bombard them with such high doses of chemotherapy and radiation that it would obliterate their bone marrow, leaving them unable to produce any new blood cells or fight infection. Then he would implant healthy bone marrow from donors, in the hopes that it would take root and start producing clean, cancer-free blood. His team's first human trial, launched in 1957 at the Columbia-affiliated Mary Imogene Bassett Hospital in Cooperstown, New York, failed tragically, with all six patients succumbing to infection or graft rejection. Critics called for an end to the research. But Thomas and his team persisted, learning how to match donors and recipients more precisely and to bolster patients' fragile immune systems. By the 1980s, bone-marrow transplantation had become a standard treatment for many leukemias and other cancers. Today, the procedure saves the lives of tens of thousands of people annually.

10. BIG SCIENCE

ONE OF THE GREATEST physicists of the twentieth century, Isidor Isaac Rabi 1927GSAS, '68HON, is best known for discovering how to measure the magnetic properties of atoms — a breakthrough that earned him the 1944 Nobel Prize in Physics. The Columbia professor's methods made possible a host of new technologies, including lasers, magnetic resonance imaging (MRI), atomic clocks used in GPS satellites, and even quantum computing.

Although he preferred the solace of his Pupin Hall laboratory, Rabi also possessed a gift for scientific leadership and played a key role in ushering in a new model of large-scale, collaborative research that would come to be known as "big science." During World War II, he helped lead America's all-hands-on-deck efforts to develop radar and the atomic bomb; after the war, he emerged as a scientific statesman of the highest order and devoted himself to championing similarly ambitious projects for peaceful purposes. Most notably, he was the driving force behind the creation of CERN, the Geneva-based research organization that now operates the Large Hadron Collider, the world's premier facility for particle physics.

To Rabi, CERN was as much a diplomatic enterprise as a research effort, a way of promoting peace by engaging scientists from around the world in shared intellectual pursuits. It succeeded on both fronts, bringing together tens of thousands of physicists from more than one hundred countries on projects that are still probing the fundamental structure of the universe to this day. The collaborative model that Rabi helped pioneer also inspired endeavors like the Human Genome Project, the Hubble Space Telescope, and today's multi-institutional efforts to combat cancer and climate change.



Isidor Isaac Rabi

TOP: COLINMTHOMPSON / SHUTTERSTOCK; CENTER: COURTESY OF FRED HUTCH CANCER CENTER; BOTTOM: COLUMBIA UNIVERSITY ARCHIVES



Virginia Apgar at Columbia's medical center in 1958.

11. THE APGAR SCORE

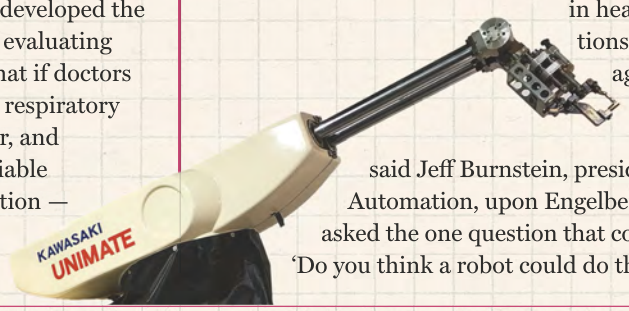
IN THE 1950S, after attending thousands of births and observing how physicians often struggled to identify newborns who needed urgent care, Columbia anesthesiologist Virginia Apgar '33VPS developed the first standardized system for evaluating babies' health. She showed that if doctors quickly measured heart rate, respiratory effort, muscle tone, skin color, and reflexes, they generated a reliable snapshot of an infant's condition — what became known worldwide as the Apgar score.

12. THE INDUSTRIAL ROBOT

BEFORE HAL 9000, before R2-D2, before the Jetsons' tin-can housekeeper, Rosey, there was Unimate — the first robot ever to clock in on a factory floor.

The brainchild of Joseph F. Engelberger '46SEAS, '49SEAS and his business partner George Devol, Unimate got its start prying hot metal plates out of a die-casting press at a General Motors plant in Trenton in 1961. By the end of the decade, it was performing other dangerous and repetitive tasks at GM, Ford, and Chrysler plants across the country — welding chassis, applying adhesive to windshields, spray-painting car bodies. A spoof résumé produced by Engelberger's company, Unimation, summed up his robot's strengths: it could work twenty-four hours a day, welcomed physical and emotional abuse, and was unaffected by heat, cold, fumes, or dust.

Engelberger, who had studied physics and electrical engineering at Columbia, sold Unimation to Westinghouse in 1983. He then consulted for NASA, pushing the idea that unmanned, remote-controlled vehicles could explore other planets. Eventually he turned his attention to developing robots for use in health-care settings; one of his inventions, HelpMate, was until a few years ago still serving meals to patients in hospitals around the world.

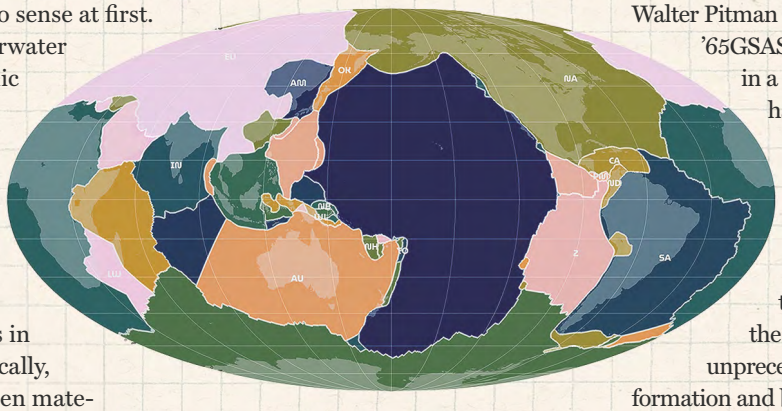


"He was years ahead of his time," said Jeff Burnstein, president of the Association for Advancing Automation, upon Engelberger's death in 2015. "Early on, he asked the one question that continues to transform the industry: 'Do you think a robot could do that?'"

13. PLATE TECTONICS

SINCE THE DAWN OF TIME, the earth was thought to be solid, fixed, permanent.

Then, in the 1960s, scientists at Columbia's Lamont-Doherty Earth Observatory used sonar imaging to peer deep beneath the oceans and noticed patterns on the seafloor that made no sense at first. They detected vast underwater mountain ranges, volcanic eruptions at their crests, and odd magnetic signatures in the surrounding rock. After years of analysis, the scientists reached the startling conclusion that the earth's surface is in constant motion. Specifically, they found that hot molten material is continuously welling up from within the mantle and bursting through at mid-ocean ridges to form new crust. This slow but unrelenting process pushes older crust outward — triggering earthquakes, giving rise to mountains, and over millions of years driving the movements of entire continents.



The Lamont team's findings provided the first definitive evidence for the theory of plate tectonics, building upon a decades-old, previously dismissed idea that the continents are adrift upon viscous layers of mantle. In doing so, the Columbia scientists — including Marie Tharp, Bruce Heezen '57GSAS, Walter Pitman '67GSAS, and Lynn Sykes '65GSAS, '18HON — helped usher in a paradigm shift that some have likened to the Copernican revolution. By revealing the tectonic forces that continually reshape the planet's surface, they gave other scientists the tools to reconstruct the earth's ancient past with unprecedented clarity, tracing the formation and breakup of the supercontinent Pangaea and charting shifts in ocean currents and atmospheric patterns that drove past ice ages and warm periods. The Columbia team also provided the scientific community a powerful new lens on the present: for the first time, researchers could view modern environmental conditions in the context of the earth's history, comparing them to earlier eras.

TOP: ARCHIVES AND SPECIAL COLLECTIONS, HEALTH SCIENCES LIBRARY, COLUMBIA UNIVERSITY; CENTER: MELONEE WISE; BOTTOM: FABIO CRAMERI

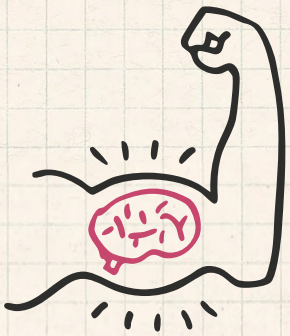
14. BIRDS ARE DINOSAURS

IF YOU WERE BORN BEFORE 1980 or so, it's likely that you were taught that dinosaurs were scaly, sluggish, dim-witted reptiles that had all gone extinct. That was before John Ostrom '60GSAS overturned nearly everything we thought we knew about them. The foremost dinosaur expert of his generation, Ostrom spent more than six decades arguing that other paleontologists had misclassified dinosaurs as oversized lizards. Despite superficial resemblances to crocodiles and other reptiles, he suggested, many species were probably agile, warm-blooded, and intelligent — more like mammals. Ostrom backed up his ideas with new fossil discoveries and rigorous reinterpretations of existing specimens. His coup de grâce was helping to prove that the birds outside your window represent a living group of dinosaurs descended from theropods like *Tyrannosaurus* and *Velociraptor*.



A Cretaceous Era dinosaur, *Deinonychus antirrhopus*, that John Ostrom discovered in 1964.

The field of paleontology, although famously slow to embrace new ideas, has in recent years accepted most of Ostrom's core conclusions. Visit any natural-history museum today and you're likely to see dinosaurs that look like they stepped right out of one of his papers: they may be depicted socializing, hunting in packs, and sporting vibrant plumes.



15. NEUROPLASTICITY

FROM DESCARTES TO WITTGENSTEIN, the great thinkers agreed on one thing: human consciousness was elusive. If it wasn't beyond the physical realm entirely, then it was so complex that no scientist could ever hope to explain it.

Eric Kandel wasn't so sure. As a young psychiatrist in the 1960s, he believed that advances in neurology would soon enable scientists to bridge the divide between mind and matter. Especially promising, he thought, were new techniques for recording the electrical impulses of brain cells. Whereas most researchers saw these tools as merely a way to describe how neurons communicate with each other, Kandel thought that by monitoring how their electrical chatter fluctuated over time, he might reveal how thoughts take shape.

Over the next four decades, Kandel succeeded in uncovering the biological roots of cognition. In a series of landmark studies on the California sea slug — a mollusk capable of simple feats of learning and memory — he and his colleagues discovered that the formation of short-term memories involves the strengthening of existing synaptic connections between neurons. The Columbia scientists then showed that forming long-term memories requires a cascade of genetic and molecular changes that trigger the growth of entirely new connections. To the surprise of many, Kandel's group and others demonstrated that the same mechanisms underpin the cognitive processes of more advanced animals, including humans.

Kandel's discovery that the brain transforms itself physically in the course of learning provided some of the strongest evidence yet for "neuroplasticity," or the idea that the brain is ever-changing and highly adaptable. This insight, which earned Kandel a Nobel Prize in 2000, is now a defining principle of neuroscience.

16. GLOBAL WARMING

THE BASIC SCIENCE BEHIND global warming is surprisingly simple — so much so that by the late 1800s, European scientists were already predicting that the burning of fossil fuels would cause atmospheric CO_2 levels to spike, trapping heat near the earth's surface and baking the planet. The harder part was recognizing when the warming had actually begun and how fast it was happening, since that required first understanding the earth's natural climate cycles.

Much of that understanding came from Columbia's Lamont-Doherty Earth Observatory, where, beginning in the 1950s, oceanographers, geologists, and atmospheric scientists set out to investigate the deep rhythms of the earth's climate. The first to grasp the meaning of their results was Wally Broecker '53CC, '58GSAS, a Columbia geophysicist who discovered how ocean circulation patterns influence global temperatures. In his landmark 1975 paper, "Climatic Change: Are We on the Brink of a Pronounced Global Warming?" he warned that the planet was about to heat up dangerously. Broecker observed that the earth was just emerging from a decades-long natural cooling cycle that had been obscuring the effects of rising industrial CO_2. Once the cooling cycle ran its course, he predicted, temperatures would rise more sharply than is usual in a phase change. He was right: global temperatures began to climb at an unnatural rate the very next year.

BOTTOM: VAC1 / SHUTTERSTOCK



Kenyan farmers have long benefited from Columbia's climate projections.

17. SEASONAL FORECASTS

CLIMATE SCIENTISTS AT COLUMBIA have long striven to turn their findings into tools that people can use to adapt to a changing world. One of their biggest successes has been the development of seasonal forecasts that help communities anticipate weather patterns months in advance. Columbia researchers Mark Cane and Steve Zebiak created the first of these forecasts in the 1990s, following their discovery that El Niño — a periodic warming of Pacific Ocean waters that influences global weather — could be reliably modeled and predicted. That breakthrough led Columbia to launch the International Research Institute for Climate and Society (IRI), whose scientists issue monthly forecasts in dozens of countries and help people integrate them into everyday decision-making. Today, tens of millions of farmers use the forecasts to guide planting decisions, while humanitarian agencies rely on them to position emergency supplies in areas most likely to experience drought, floods, or other extreme events.

18. MATERNAL HEALTH AS A HUMAN RIGHT

AT THE TURN OF THE TWENTY-FIRST CENTURY, women in many parts of the world faced a greater risk of dying in childbirth than women in the US and Europe had fifty years earlier. To a group of Columbia researchers led by public-health dean Allan Rosenfield '59VPS, that was a human-rights crisis with no end in sight. After years spent working in underserved regions, they believed that global health leaders were prioritizing the wrong solutions, building high-tech, Western-style hospitals in big cities while rural women lacked even basic care.

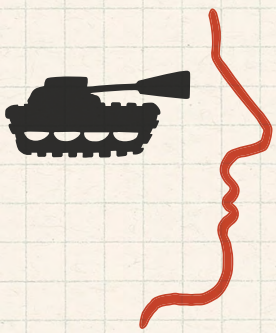


Pregnancy-related deaths in Malawi have plummeted, due in part to Columbia-led research.

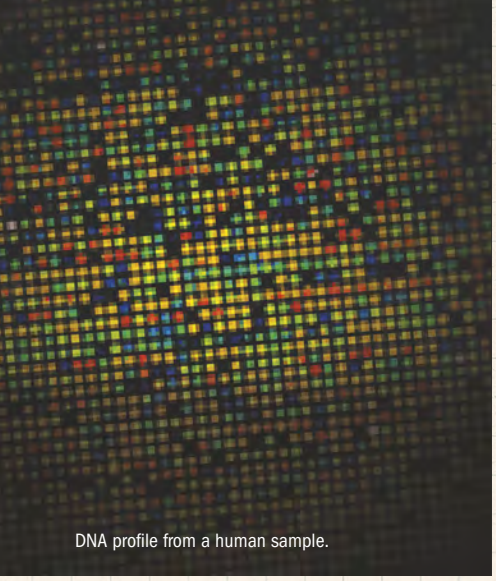
In response, in the early 2000s, the Mailman School of Public Health partnered with governments, NGOs, and local communities in more than a dozen countries to rethink maternal care from the ground up. Through its Averting Maternal Death and Disability (AMDD) program, the school trained nurses and midwives to spot complications early and equipped remote clinics to perform emergency procedures like C-sections. Columbia faculty also helped to expand the definition of who could provide such care if no obstetricians were available. These efforts helped set new international standards for maternal care and contributed to a 40 percent reduction in pregnancy-related deaths in low-income regions over two decades. In recent years, AMDD researchers have also exposed widespread mistreatment of women during childbirth throughout the world, helping to spark a global movement for respectful maternity care.

19. WARS OF MISPERCEPTION

GLOBAL CONFLICT ISN'T JUST ABOUT raw power and rational calculation — it's also driven by world leaders' cognitive biases and misreading of each other. This is the central insight of Robert Jervis, a Columbia political scientist who first applied psychological principles to the study of decision-making in matters of war, diplomacy, and nuclear deterrence. His scholarship, most notably his 1976 book *Perception and Misperception in International Politics*, influenced how a generation of foreign-policy experts viewed geopolitical competition and made the world a safer place. Washington policy analysts have for decades regularly invoked Jervis's writings when advising officials in times of international tension, reminding them of the natural tendency to view adversaries as more aggressive than they really are, to resist changing our minds when confronted with new information, and to underestimate the importance of factors that we don't control. Colin Kahl '00SIPA, a national-security adviser in the administration of President Barack Obama '83CC and undersecretary of defense for policy under President Joe Biden, said in a 2022 interview that there was "rarely a conversation" on national-security issues in the White House Situation Room when he and colleagues did not draw on Jervis's work.



TOP LEFT: JAMES WAKIBIA / SOPA IMAGES / LIGHTROCKET VIA GETTY IMAGES; TOP RIGHT: FIONA BASILE



DNA profile from a human sample.

20. FAST AND CHEAP DNA SEQUENCING

IF YOU'VE EVER TAKEN a mail-in ancestry test or had your genome analyzed to diagnose an illness, you've benefited from the work of Columbia biochemical engineer Jingyue Ju. In the 1990s, Ju and colleagues developed fluorescent imaging techniques for DNA sequencing, paving the way for the Human Genome Project. His laboratory at Columbia has since made further advances that power modern genomic research and precision medicine, making it possible to decode an entire human genome on a credit-card-sized chip for under $1,000. These technologies enable scientists to tailor cancer treatments based on tumor genetics, identify rare inherited diseases in children, and track the spread of viruses. Ju's team is now developing even faster, cheaper, and more accurate DNA-sequencing tools, which he says could make genetic analyses as common as blood tests. "Doctors will then be able to spot diseases in their earliest stages," he says, "and treat them before symptoms arise."

21. EMERGING DISEASES

AS RECENTLY AS THE 1980S, many scientists thought that humanity had conquered the microbial world and that infectious diseases would soon be eliminated by our growing arsenal of vaccines and antibiotics. Stephen S. Morse, an epidemiologist at the Mailman School, was among the first to recognize that the germs were mounting a comeback. His landmark book *Emerging Viruses* alerted the scientific community to the fact that growing numbers of infectious diseases were popping up every year, driven by human encroachment into wildlife habitats. And when zoonotic viruses did make the leap into humans, they were spreading farther and faster than ever before, largely because of global travel. In the 2000s, the Mailman School established itself as a hub of research aimed at combating future pandemics, with Morse, fellow epidemiologist W. Ian Lipkin, and others launching international efforts to improve early-warning systems and containment strategies. From 2009 to 2014, Morse helped lead USAID's Predict program, which developed a global surveillance system anchored in countries with large zoonotic reservoirs. Lipkin, as director of Mailman's Center for Infection and Immunity, is now widely known as the world's top virus hunter. Hopscotching the globe to detect novel diseases and contain outbreaks, he and his colleagues have discovered or helped identify more than 2,500 infectious agents. A few of them — West Nile virus, SARS, MERS, Zika virus — you may have heard of. But many you haven't, because the Columbia scientists stamped them out before they could spread.



First responders test a novel disinfectant that Columbia students created to clean hazmat suits.



22. RELIABLE INTERNET CALLS AND VIDEO

NEARLY EVERY INTERNET-CONNECTED product on the market today owes something to computational advances from Columbia researchers. Smartphone calls, as well as Zoom and FaceTime video chats, run on Voice over Internet Protocol (VoIP) technology, which is powered by algorithms developed by Columbia computer scientist Henning Schulzrinne. High-quality video streaming, meanwhile, is dependent on MPEG-2 and AVC/H.274 compression standards that Columbia electrical engineer Dimitris Anastassiou helped to develop. And if you're worried about hackers, you're likely already benefiting from digital safeguards inspired by the work of Columbia computer scientist Salvatore Stolfo, whose work in intrusion detection helped to lay the foundation for security systems built into countless connected devices.

TOP: THE LAB OF JINGYUE JU; CENTER LEFT: COURTESY OF FDNY; CENTER RIGHT: LUIS ALVAREZ / GETTY

23. REAL-TIME MONITORING OF BRIDGES, BUILDINGS, AND DAMS

AGING INFRASTRUCTURE IS A MAJOR PROBLEM in the US, with tens of thousands of bridges and dams showing signs of serious wear. But identifying which ones need to be replaced and which can get by with patchwork repairs is notoriously difficult. Columbia civil engineers Andrew Smyth, Raimondo Betti, Adrian Brügger '04SEAS, '17SEAS, and George Deodatis '87SEAS are helping to solve this puzzle. All have designed sophisticated methods of real-time infrastructure monitoring, often using remote-sensing networks, to estimate the risk that a bridge could buckle, a dam could crack, or a building could collapse. Working with public agencies in the New York City area, they've helped retrofit several major suspension bridges to make them more resilient to threats like hurricanes and earthquakes. Their techniques are now used by engineers around the world to observe everything from skyscrapers to tunnels.





Joseph Stiglitz

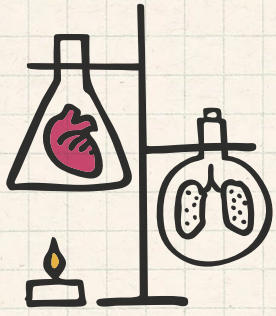
24. BEYOND THE GDP

IT IS TOO BLUNT A MEASURE of national prosperity. It rewards wasteful and even harmful economic activity. And it fails to account for health, education, inequality, and the environment. These criticisms have been leveled against the gross domestic product many times since its widespread adoption in the mid-twentieth century. But the hits never landed as hard as when they came from Columbia's Nobel Prize–winning economist Joseph Stiglitz, who fifteen years ago used his stature as a former World Bank chief economist to launch a global movement challenging GDP's supremacy. Heading up several international commissions on the topic, Stiglitz published influential reports outlining how nations could do better. He urged governments to promote dialogue about what truly matters to people, to develop new metrics that reflect those values, and to integrate the results into budgetary planning. Countries like New Zealand, Scotland, Wales, and Finland have since begun to implement such changes, and the European Union is now advancing proposals to incorporate a range of new well-being indicators into policymaking.

25. LAB-GROWN ORGANS

WE TEND TO THINK OF GENES as inert bits of information that determine whether our bodies run smoothly or fall prey to disease. But when Thomas Hunt Morgan and his Columbia students launched the world's first genetic studies more than a century ago, they were actually probing a deeper mystery: how do cells know how to assemble themselves into the diverse tissues that make up a whole organism?

Over time, scientists have learned that genes are only part of the answer, since they are continuously switching on and off in response to cues in a cell's environment — cues that ultimately guide a cell's development and role. Gordana Vunjak-Novakovic, a Columbia biomedical engineer, has done as much as any living scientist to uncover how cells are shaped by their surroundings and to harness that knowledge for therapeutic purposes. In her laboratory, she designs small biochambers that mimic the conditions found in different parts of the human body, right down to temperature, oxygen, nutrients, electrical activity, motion, and physical compression. She then seeds the containers with adult stem cells harvested from a patient. After a few weeks, a piece of living bone, heart, liver, or lung tissue — of any desired shape or size, and a perfect genetic match to the donor — is removed. The goal is to transplant the new tissues into an injured or ill person's body like spare parts. In 2023, the first clinical trial using Vunjak-Novakovic's methods was successfully completed, providing new facial bones to people who had been disfigured in car crashes or suffered bone degeneration. Other scientists are now using her lab-grown tissues to study how patients will respond to drugs and how cancer spreads between organs. Like so many Columbia breakthroughs over the past century, those in Vunjak-Novakovic's lab point the way toward more.



TOP: NICOLÒ CAMPO / LIGHTROCKET VIA GETTY IMAGES; CENTER: CHRISTOPHER TATTOLI / SHUTTERSTOCK

A FORK IN THE ROAD

OUR INDUSTRIALIZED FOOD SYSTEM IS HARMING OUR HEALTH AND WARMING THE PLANET. SO HOW DO WE CHANGE THE WAY WE EAT?

BY PAUL HOND

On July 16, 1976, as America celebrated its bicentennial year, a dozen farmers gathered at a parking lot at East 59th Street and Second Avenue in Manhattan to start a different sort of revolution. They lined up their trucks and unloaded wooden bushels of produce: tomatoes, radishes, carrots, rainbow chard. This was the city's first Greenmarket, which urban planner Barry Benepe had conceived as a way to bring fresh food to New Yorkers while allowing regional farmers to sell directly to customers, eliminating middlemen and saving small farms.

Adrian Benepe '81JRN, the founder's son, who was nineteen at the time, was visiting the market that day. "It was this amazing moment where people came out of the woodwork, five deep around all the stands, grabbing at the produce," says Benepe, who would eventually become New York City's parks commissioner and later president of the Brooklyn Botanic Garden. "There was this desperate yearning of people to physically connect with the food."

Barry Benepe had worked on his own father's two-hundred-acre farm on Maryland's Eastern Shore, and he knew the taste of a field-grown tomato. That's what he wanted to give New Yorkers — that connection to the earth in the form of Ulster County strawberries, Sullivan County cauliflower, and the intensely green greens of the Black Dirt Region in Orange County, with its rich, loamy soil. He knew that buried under the cans, boxes, plastic containers, and shrink-wrap of the American diet was a primal hunger for something real.

ILLUSTRATION BY DAVID PLUNKERT


HONEY
OLIVE OIL

The Greenmarket idea, conceived in the afterglow of the first Earth Day in 1970 and the publication in 1971 of Frances Moore Lappé's *Diet for a Small Planet* (which weighed the ecological and social costs of animal agriculture and endorsed a plant-centric, whole-foods diet), grew faster than wild arugula and helped seed the farm-to-table movement. Fifty years later, there are forty-eight Greenmarket locations in the city.

There are also twice as many humans in the world, and Lappé's small planet has become a hot one — due in significant part to how we feed ourselves.

"Global food systems generate about 30 percent of all greenhouse gases, mainly as methane emissions from cattle," says Jessica Fanzo, a professor of climate at the Columbia Climate School and the director of the Food for Humanity Initiative, a network of Columbia scholars working on food-systems research and pedagogy. "Industrialized food systems are the biggest users of freshwater resources and the number-one driver of deforestation and biodiversity loss, since you have to clear land to raise and feed billions of animals."

Most of these animals (cows, pigs, chickens, turkeys) live and die on factory farms, also known as CAFOs (concentrated animal feeding operations), and are turned into any number of nutritionally dubious food products. "Most people don't eat steaks and fresh chicken breasts," Fanzo says. "They're eating these processed meats — bacon, Spam, bologna, sausage — which are associated with heart disease and colorectal cancer." The journal *Health Affairs* says poor nutrition costs the US $1.1 trillion a year in health-care spending and lost productivity.

As for agriculture, Fanzo notes that more than half of all farmland in the US is devoted to commodity crops like corn and soy that are used to feed livestock, and that most of the grains and produce that Americans eat are grown on large-scale farms, where synthetic pesticides and fertilizers and exhaustive farming techniques result in soil degradation, water pollution, and habitat loss. The food system as a whole is caught in a cycle in which the warming produced by factory-farm emissions helps intensify climate-related weather events — heat waves, droughts, floods, wildfires, untimely frosts — that can result in crop failures. According to the American Farm Bureau Federation, farmers suffered $22 billion in crop and rangeland losses in 2023 due to severe weather and natural disasters.

"HOW DO WE PRODUCE FOOD FOR OURSELVES AND FOR EACH OTHER THAT'S ACTUALLY HEALTHY AND NOT DESTRUCTIVE?"

A nutritionist by training, Fanzo studies agricultural systems and how climate affects people's ability to eat healthily. Her research has taken her to impoverished rural regions in Africa and Asia — in Kenya, Uganda, Ethiopia, Nepal, Timor-Leste, Cambodia, Thailand, and Vietnam — where agriculture is most deeply affected by climate change. Even as she helps communities adapt their systems to provide healthy, sustainable food, Fanzo worries that rising global wealth could lead to the spread of an American-style model of more meat, more processed foods, and more intensive, damaging farming methods. And she thinks the US would do well to remember its own agricultural roots.

"Many solutions are already on the table," Fanzo says. "We know how to make agriculture more sustainable. Better soil management and organic practices have been tried and tested."

Fanzo sees government subsidies as a tool that could be used to promote cleaner, healthier farming methods on a mass scale. "The US government pays farmers to meet certain quotas for dairy and meat, which makes them affordable. Why not shift those subsidies to horticulture in the next farm bill?" The farm bill, a sprawling piece of legislation covering farming and food aid, is renewed roughly every five years. "Why not," says Fanzo, "give subsidies to organic farmers?"

Mark Bittman, a food journalist and lecturer at the Mailman School of Public Health, agrees that the federal government, to fulfill its fundamental purpose of advancing the public good, has a responsibility to act. "We need a food policy that changes the way land is distributed, changes the way farmers and workers are paid, and makes food better and more accessible," says Bittman, who is the author of thirty books, including the bestsellers *How to Cook Everything* and *VB6: Eat Vegan Before 6:00*. "How do we produce food for ourselves and for each other that's actually healthy and not destructive?

"The answer is that we need to see food differently — not as a profit source but as a nutritional source in every sense: food production should nourish the land and the people."

But with an administration intent on sidelining climate scientists, developing fossil fuels, subsidizing large farms at the expense of small ones, and speeding up production in meat-processing plants, where does that leave us? What can ordinary citizens do to transform a system that touches every part of human life?

Bittman, who improved his own health through his VB6 diet (plant foods by day, then anything you want in the evening), calls for the sort of local activism that makes food justice a central issue.

"Universal access to nutritious food should be seen as a fundamental right," Bittman says. "It's as important as anything else you can name, and understanding that, and acting on it, is central to our well-being."

Change always starts with a seed. In the case of Joan Dye Gussow '75TC, that seed was planted in her backyard, and from it sprang a garden of ideas that would nourish the "eat locally, think globally" sustainable-food movement, with its emphasis on organic practices (no synthetic pesticides or fertilizers) and the cultivation of nutrient-rich soil.

A longtime professor of nutrition education at Teachers College, Gussow grew vegetables at her home in Congers, New York, in the 1960s, and later in nearby Piermont. What started out as a money-saving alternative to the bland offerings at the grocery store led her to reflect on the shrinking number of small farms and the widening gulf — geographical, spiritual — between people and their food sources. Her ideal was for people to live in proximity to where their food was grown, so that they ate more healthily and thoughtfully, with an understanding of how food is produced.

Gussow, who died this past March at ninety-six, was one of the earliest critics of the modern food system and influenced a generation of food thinkers, including author Michael Pollan '81GSAS (Pollan credits his dictum "Eat food. Not too much. Mostly plants." to Gussow's inspiration). She insisted that real nutrition wasn't about percentages on a label; it was about eating whole foods grown in healthy soil.

"Joan believed that we need everyone to be 'food citizens' who understand where food comes from so that they can make informed decisions," says Pam Koch '00TC, an associate professor of nutrition and education at Teachers College and Gussow's former student. "Telling people about what nutrients are in food doesn't change eating habits. But if you help them understand the production side and why that matters, you can get them to change how they eat."

Koch took up that mantle. Her doctoral dissertation argued for more plant-based foods — vegetables, whole grains, beans — in school meals. Her experiment, which she implemented in two New York City schools, was to have kids cook recipes in the classroom, learn about the history of the food and why it's healthy, and then serve it for school lunch. "We basically found that the kids who cooked the food were the ones who ate it when it was served in the cafeteria," says Koch. "Joan had predicted, correctly, that if kids cook food, they'll eat it, because they're more connected to it."

Today, Kate MacKenzie '02TC is putting Gussow's legacy into action. As executive director of the New York City Mayor's Office of Food Policy, MacKenzie oversees the food systems in city institutions, including hospitals, prisons, shelters, senior centers, and schools. "Our objective is to deliver healthy, delicious, culturally appropriate meals to New Yorkers," MacKenzie says. That means limiting red meat and introducing whole-food proteins and more plant-based options. "No one likes government telling them what to do," says MacKenzie. "So you nudge. You offer choices."

Wanting to develop a culture of healthy eating, MacKenzie's office created a "food education road map," a plan to give city students access not just to healthy food but also to programs that teach them about the entire food system — production, processing, distribution, marketing, consumption, waste — and its effects on the environment and communities. To close the sustainability loop, MacKenzie and her team are working with New York farmers to procure locally grown food — apples, potatoes, carrots, corn, beans, and more — for city institutions, including schools.

At Columbia, Vicki Dunn, the assistant vice president of dining, is proud that Columbia was the first organization to take up the Plant-Powered Carbon Challenge, which MacKenzie's office launched in 2023 to help private institutions lower their food-related carbon emissions. A student-led study at Columbia that year showed that while red meat made up 13.4 percent of Columbia Dining's purchased products, it accounted for 72 percent of its carbon footprint. So the University committed to reducing its food emissions by 25 percent by 2030. Instead of beef Bolognese, says Dunn, there is now mushroom-and-lentil Bolognese. There are butternut-squash-and-portobello quesadillas. There is chickpea tagine with apricots. And oat milk is the default at the coffee stations. No one, says Dunn, is complaining.



Experts agree that large institutions are a good vehicle for driving societal change. "We need to be thinking about the purchasing decisions that all of our institutions make," says Anna Lappé '01SIPA, the daughter of Frances Moore Lappé and the executive director of the Global Alliance for the Future of Food, a group of philanthropies working toward food-system reform.

Anna Lappé's food education started early, at home — though it didn't necessarily take place in the kitchen. "While

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food was my mother's life's work, it was always more about the politics of food than any culinary practice," Lappé says. "My memories aren't of cooking with her; they're of her taking me to protests in San Francisco to hear farmworker advocates, or of stuffing envelopes to fundraise for her nonprofit."

You might say that the Lappé didn't fall far from the tree. Lappé *fille* is the author of *Diet for a Hot Planet: The Climate Crisis at the End of Your Fork and What You Can Do About It*, published



Heirloom tomatoes at the Columbia Greenmarket.

in 2010, when "there was very little conversation at any level — municipal, state, national, or global — on the connections between the climate crisis and our food system," Lappé says. Taking up her mother's ecological themes, Lappé examines the greenhouse-gas footprint of processed foods (including the packaging) and busts a few myths, such as that industrial farming methods are necessary for feeding the world (she provides examples of high-yield organic farms and their community benefits) and that a whole-foods diet is a pricey luxury. "I showed that a diet of beans and grains and leafy greens, even if they're organic, can be much more affordable than eating packaged foods," Lappé says. "The bigger issue is having access to fresh foods — and then having the time to cook."

As Lappé notes, some twenty million Americans live in so-called "food deserts" — low-income areas that lack fresh, healthy, affordable food options. But even at megastores like Walmart or Target, or supermarket chains like Kroger or Publix, where most Americans shop for food, unhealthy choices and deceptive labels ("all-natural," "farm-fresh") abound. The stores decide what to carry on their shelves based not on what's healthy or sustainable but on what's profitable.

Jonathan Rubin '20SIPA knows the game firsthand. At Columbia, he studied vertical farms — indoor structures that cultivate produce without soil, mostly using water and artificial light — and later ran his own vertical farm in Florida. He sold his hydroponic leafy greens through the biggest food distributors and supermarket chains in the country.

"The supermarket will say to a local distributor, or to the farmer in California, 'We want your product in Fort Lauderdale within forty-eight hours. We want it in New York City. We want it in Chicago,'" Rubin says. "That's nice, but the problem is that it takes time for food to grow — and things grown in soil are seasonal. So the system has created these high demands that are not natural.

"That means that the supermarket chains want products that will look nice, smell nice, and ship well after three months. You could have the most beautiful strawberries, but if they're going to go bad in two weeks, the supermarket won't want them, because they can't get them to stores in time. And if you as a small grower can't keep up with demand, you typically won't get a contract. Being a small farmer is a very difficult game to play."

And that's apart from the weather.

On April 4, 2022, climate scientist Peter Kalmus '08GSAS and three colleagues, all wearing white lab coats, chained themselves to the entrance of the JPMorgan Chase bank in downtown Los Angeles. They were protesting that institution's massive funding of new fossil-fuel projects.

"We were trying to draw attention to how it's not just the fossil-fuel industry that's destroying our planet — it's also this network of supporting industries, including banks," Kalmus says.

The LAPD arrived. Kalmus, who studies how ecosystems and humans will respond to rising temperatures, recalls helicopters and a lot of police in riot gear. Video of the arrests got millions of views online.

"To me, the science suggests we need really urgent action," Kalmus says. "I don't understand how anyone can do the science, or even just know the science, without trying to pitch in and do something. So that's why I'm an activist."

For years, Kalmus had focused on how his own daily activities meshed with food, transportation, and clothing systems to form his personal carbon footprint. This led to his 2017 book *Being the Change: Live Well and Spark a Climate Revolution*. "But then I realized that while it was fun for me to change how I interacted with those systems, it wasn't going to help very much." So Kalmus started helping other scientists organize to do direct action, which he has found to be "a more impactful way to approach the problem."

The climate clock ticks loudly in Kalmus's ears, and he sees the food system — far beyond the transportation sector — as offering the clearest opportunities for meaningful emissions reduction. "As a global society of humans who care about having a livable planet, probably the easiest thing we could do, essentially overnight, to help stop or reduce irreversible planetary overheating would be to eliminate the beef industry."

Kalmus concedes that it's radical and that people don't want to hear it because they love eating beef. "I don't blame them," he says. "But the fact is, if we stopped beef production, nobody would die. Nobody would starve. In fact, more people would eat. Some people would have to find different jobs, but we would

LEN SMALL

be better positioned to feed the global population, because it takes an incredible amount of primary production to feed those cattle and then for people to eat that cow."

While the experts concur that the government must act, and that the onus for changing the food system cannot lie with consumers — "We are not going to shop our way out of a thorny, systemic global crisis like climate change," says Lappé — no one denies the power of individuals to make a dent.

"I was raised on *The Lord of the Rings*," says Zoe Adamopoulos, a graduate student in sustainability at the School of Professional Studies, "and I very much believe that no matter how big or small you are, you can make an impact." Five years ago, Adamopoulos watched a documentary about CAFOs that exposed the conditions of the animals confined in factory farms and the health problems of humans who lived near them. Moved, she embraced veganism, a philosophy that seeks to avoid harming animals and excludes animal-based foods. Before entering Columbia, Adamopoulos, who is twenty-six, spent four years as business-development manager for TiNDLE, a food-tech company that makes plant-based meat alternatives.

Last spring, Adamopoulos took Fanzo's Food Systems and Climate Interactions class, and over the summer she worked with Fanzo's Food for Humanity Initiative. "The faculty want to investigate alternative proteins — everything from plant-based fermentation to cultured cell-based meat," Adamopoulos says. "I'm helping to figure out what the landscape is and how Food for Humanity can fit into it and develop more sustainable proteins."

Adamopoulos acknowledges the inherent privilege of her position. "Millions of people don't have access to plant proteins or produce," she says. "That's a terrible problem. But for people like me, who live in the heart of Manhattan, it's much easier to find plant-based options. In my worldview, having privilege means having a moral responsibility to look at your consumption habits and say, 'Maybe I can just eat a little less meat.'"

"Our choices do add up," says Lappé. "Are they everything? No. But are they something? Yes. If I have access to food that is better aligned with the climate and biodiversity, then sure, I want to make those choices. It's also better for my body, and it's better for my kids."

"Choosing what to eat is one thing many of us can control," says Fanzo. "You can make choices based on your values. If you care about your health, if you care about animals, if you care about the environment, if you care about small farmers, and you have the ability to make a choice based on that, then you have power. And if everyone takes that power into their own hands and votes with their forks, it does add up. It matters."

> "OUR CHOICES DO ADD UP. ARE THEY EVERYTHING? NO. BUT ARE THEY SOMETHING? YES."

Every Thursday and Sunday, farmers drive their trucks and vans to the Columbia Greenmarket, which stretches along the east side of Broadway between 114th and 115th Streets. There, under white canopies, the farmers set out their goods: New York blueberries and cherries, squashes of gold and pale green with fun variety names (Eight Ball, Zephyr, and pattypan), bunches of Tokyo bekana cabbage, boxes of shishito peppers, purple Italian eggplants, bulbous spring onions, carrots like thick orange fingers, a half dozen kinds of apples (Melrose, Braeburn, Pink Lady), pink and purple potatoes, and bright red radishes.

When Barry Benepe started the Greenmarket program, his main environmental concern, according to son Adrian, was to preserve the land that would inevitably fall to developers if a farm were to fail. But Barry, who, like Joan Gussow, died this year at ninety-six, happened to conceive of a food model for the climate-change age. It's worth remembering that in 1975, a year before the first Greenmarket, Columbia geochemist Wally Broecker '53CC, '58GSAS published his seminal paper "Climatic Change: Are We on the Brink of a Pronounced Global Warming?," in which he presciently described how trapped gases in the atmosphere would raise global temperatures.

Half a century later, farmers face the ravages of global warming as well as hundreds of billions of dollars in cuts to the Supplemental Nutrition Assistance Program (SNAP), which more than forty million Americans rely on — including the many Greenmarket customers who buy produce with SNAP coupons.

Tough times, to be sure. And it's here, at the market, with a farmer behind a table, that the power of one becomes evident: each customer's purchase helps keep a farm alive.

One farmer, from Kinderhook, New York, sets out a box of red-and-green McIntosh apples. Asked what the hardest part of farming is these days, he doesn't hesitate: "The weather."

The apples are juicy, a tangy blend of sweet and tart, fragrant of the orchard.

Food, as Fanzo often says, is both a victim and an instigator of climate change. But here, under the canopies on upper Broadway, piled high in wooden crates, it bears the seeds of a solution.

SIGRID NUNEZ GOES FOR A WALK

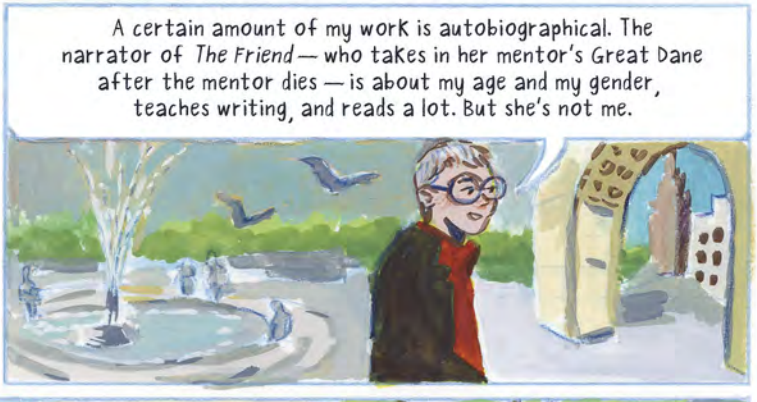
A COMIC BY JESS RULIFFSON

Sigrid Nunez '72BC, '75SOA is having a moment. After publishing nine novels over the last three decades, she's just seen two of her books adapted into films. Pedro Almodóvar's English-language debut *The Room Next Door*, based on Nunez's 2020 book *What Are You Going Through*, was released last December. *The Friend*, based on her 2018 National Book Award-winning novel, opened in March. A lifelong New Yorker, Nunez says she draws inspiration from her frequent walks around the city. She invited us to join her for one of them.

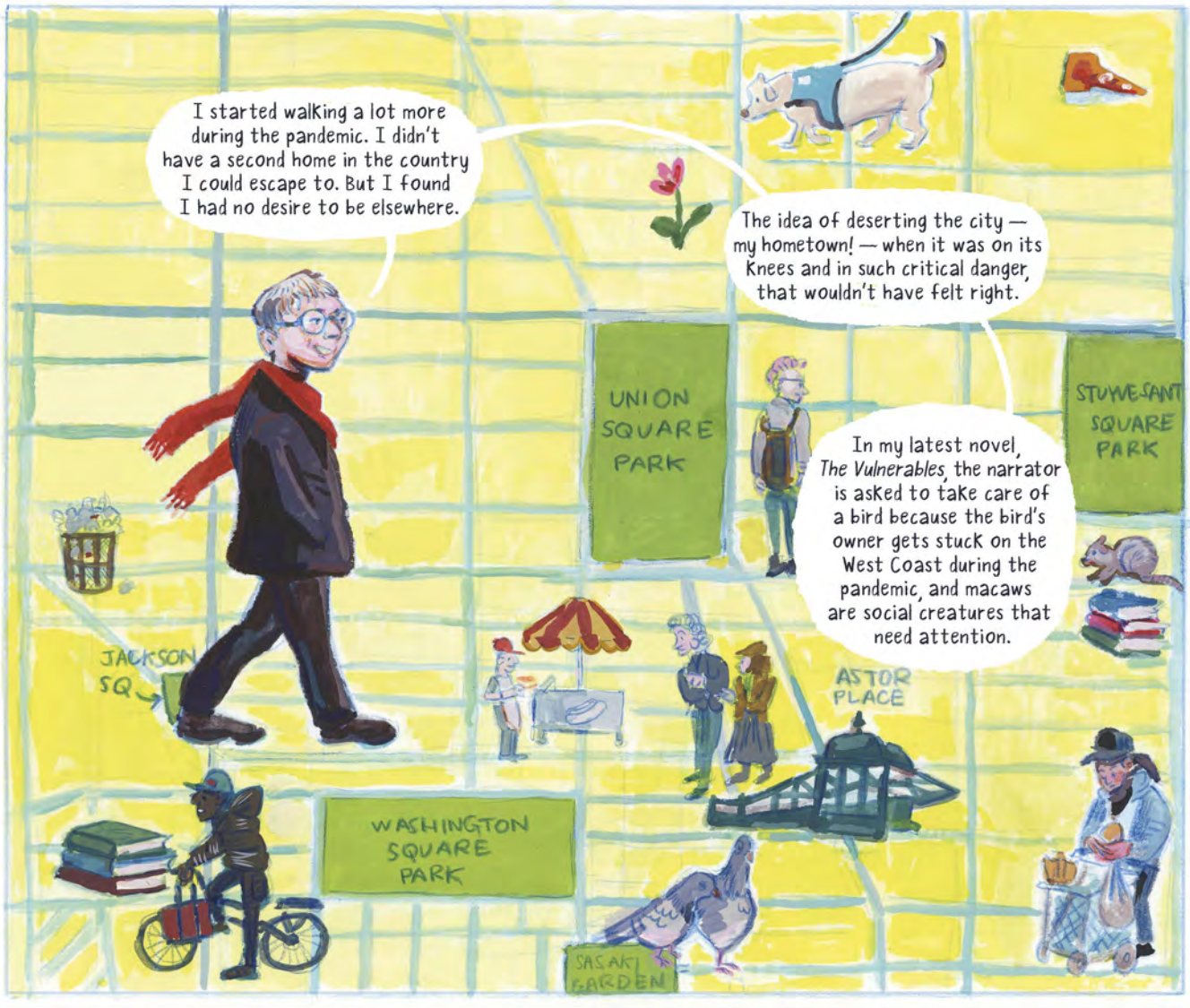












You know what they say: when you're depressed, which she certainly is, find someone who needs your help. It just so happens that there isn't any human who particularly needs her help, but the bird — who is beautiful and entertaining — becomes a lifeline.



I like bringing animals into my books as characters, because these books are about some heavy things: aging, dying, suicide, cancer. When you introduce an animal, you have the opportunity for warmth and humor and lightness.




This is where they shot a scene from *The Room Next Door.*
That's where Tilda Swinton and Julianne Moore were sitting discussing Dora Carrington and Virginia Woolf.
The lead role is played by Julianne Moore, who is 64. Naomi Watts, the lead actress in *The Friend*, is 56. They can be very glamorous, of course, but they were perfectly willing to make themselves look tired and older for these roles.


That wouldn't have happened years ago. So I think that's a sign of progress.


The success of *The Friend* brought more attention to my writing, and it led to many foreign translations. Before 2018, my work had been published in seven countries: now it's around thirty-five and growing. That's how Almodóvar came across it.


Seeing my work onscreen was an unusual experience, because when you're writing a book, you're not thinking that it's going to become a movie.
I'm a huge fan of Almodóvar's films. And those two actors, how they embody those characters, it was very familiar. There was a certain melancholy to it. It felt kind of natural to me.
You'd have to be very foolish to expect a movie to be a faithful adaptation of your work. It's been such a pleasure to see both of these movies, even though there were surprises when I saw them.
It never occurred to me that they'd be identical to the book. A faithful adaptation: who needs it?


I once heard someone say that watching someone close to you die is like falling in love. In *The Room Next Door*, you see that.
It's not about their shared past, it's about that house and what's going on between them there. When strangers are thrown together because of some emergency, they bond in very intense ways.
FDNY


I often get asked, Why are you so drawn to mortality? Or, Why are you so interested in death? At 74, I'd say it's more like, Why is death so interested in me now?


I was thinking about what time does to us: it takes so much away. As time passes, we lose parts of ourselves.


People die on us, but they also move away. We lose possessions all the time.
We lose dreams, too. With age, we lose our strength and our health and certain skills and abilities.


Everything changes, like the city.

A Life After Death

New York City death investigator Barbara Butcher '83PH spent two traumatic decades working behind police tape, examining bodies. Now she's learning to live.
By Paul Hond

"We all have one life — long, short, whatever it is," says Barbara Butcher '83PH, seated in a green vinyl booth in a busy Greenwich Village restaurant. "And if someone comes and takes that life away for no reason, it is so fundamentally unfair. It's random, it's senseless. There's so much about a violent, sudden death that I can't begin to comprehend."

Butcher's thoughts on death should be required listening. She knows its riddles well, having grappled with it thousands of times in the homes, streets, and tunnels of Manhattan. From 1992 to 2015 she worked on death investigations for the New York City Office of Chief Medical Examiner, where she probed the circumstances of some 5,500 deaths. Her job was to figure out how the deceased ended up that way — by homicide, suicide, or accident — and determine if the case warranted further inquiry. She has inspected the grisly results of stabbings, shootings, strangulations, leaps from buildings, and falls from the tops of subway cars ("When someone is killed while subway surfing, it takes a long time to pick the person up"). She's knelt before the bodies of men, women, and children, trying to construct a narrative of the scene. Every dead body tells a tale, and each has left a mark on Butcher's psyche.

"There was a case I did years ago," she says. "A young woman is out with her dad for dinner. She comes home and she's sitting in an overstuffed easy chair, smoking a cigarette and drinking beer. She's a little high, and then she goes into her room to write at her computer. What she doesn't realize is that her cigarette ember has fallen into the chair. The chair doesn't burst into flame, it just smolders, and the smoke rises straight up to the ceiling and then crawls along the ceiling until it hits the back room and just comes down and suffocates her. She doesn't smell it or feel it, because that's how fire works: the carbon monoxide produced by a smoldering fire is colorless, odorless, and deadly. When I arrived, she was lying on the floor, covered in fine black soot. Here was an intelligent, successful, nice young woman, and it was so stupid. She had taken the battery out of her smoke alarm because it went off when she cooked. So she died.

"That's what I mean when I talk about senselessness."

Butcher is one of those rare people whose intellectual and verbal gifts fuse so completely with their work that they become prophets of their profession. Her 2023 memoir *What the Dead Know* revealed her as an avatar of New York noir, both as a writer and a character: smart, droll, wise, and hard-boiled, with a heart as big as a lion's. More recently, she appeared in the 2024 Netflix docuseries *Homicide: New York*, in which she and other investigators broke down some of their most notorious murder cases.

But her main job in retirement has been learning to live with her own trauma, and by extension shining a light on the mental-health needs of her fellow death-scene responders. "If you are a cop, a fireman, a death investigator, a paramedic, you see some of the worst things in the whole world, things that tell you that life is evil and people are evil: murder, suicide, hideous accidents," she says. "It becomes the norm, and you start to think that that's how life is. Of course that's not true, but when you see it all day, it's a lot to overcome."

AUDIOCHUCK



Butcher knows this, and in writing her book, she wanted to edify others. "These jobs are so emotionally crippling and damaging that something has to be done," she says. "Families need to know: how do you treat Dad when he comes home from a triple homicide and he's quiet and sullen and angry and he doesn't want to play with you? Everyone needs to understand the toll."

Butcher works every day to manage the aftereffects of a career in public service, where she examined gored, bruised, shattered bodies, some of them decomposed ("the worst smell in the world, and you never forget it"), bodies that had belonged, she emphasizes, to real people. There was the Carnegie Deli massacre, in which five victims were shot, four execution-style, in an apartment above the famed New York City restaurant during a drug deal; the stabbing murder of Michael McMorrow, a real-estate agent whose mutilated body was found in the Central Park Lake (his killers were two baby-faced teenagers, Daphne Abdela and Christopher Vasquez); the rape, murder, and immolation of a nineteen-year-old computer-science student, Johalis Castro, in the stairway of her East Harlem apartment building, at the hands of serial killer Arohn Kee; and many more. Then there was the biggest crime scene of all — the seething mountain of rubble in Lower Manhattan after the terrorist attacks of September 11, 2001. Butcher's department led the effort to recover remains.



Butcher gives Mayor Bloomberg a tour of the 9/11 remains recovery operation.

"With 9/11, there were very few whole bodies, and so it was hard to identify with the victims," Butcher says. "You'd find personal things, like a wedding ring with an inscription or a desk calendar with a golf ball in it, so strangely squashed, and papers everywhere — memos, doodles. That was hard, but I was fairly detached — that is, until the families came along. Once the families came in with their shattered hearts, with their overwhelming grief, with their raging anger, then it was a whole other ball game."

In *What the Dead Know*, Butcher explains how she first became fascinated with forensics. As the oldest of nine children growing up in Massapequa Park, Long Island, Butcher was obsessed with dead animals. When neighborhood kids found a dead frog or cat, they brought the corpse to Butcher. Her parents had bought her a microscope and a chemistry set, and at age ten, Butcher was a little scientist. When kids presented roadkill to her for inspection, she would point out the tire marks, the bleeding lungs. The clues to what happened to the animal were there, visible, and Butcher loved finding them and piecing them together.

With her father, a New York City cop, at work at the 77th Precinct in Brooklyn and her mother busy at home with Butcher's younger siblings, Butcher was something of a loner, bored and restless. Fortunately, there was a mobile-library van that came around the neighborhood, and that's where Butcher found refuge. Books! She fell hard for reading. The van's librarian, seeing Butcher's interest, began choosing titles for her. "I think she saw something in me," Butcher says. "She was very kind, and I just loved reading. It was a real education."

Being a bookworm helped her develop an eye for detail and an ear for description and informed her humanistic approach to her work: "It's important to see not just how people died but also how they lived," she says. In her investigations, she would search death scenes for medications, personal notes, pictures, jewelry, and scan the shelves and the walls and the counters for clues to the lost lives. She applied the same scrutiny to the bodies: taking the temperature of each subject to estimate the time of death, noting the neck contusions caused by tightening fingers or the hilt mark in a stab wound that told her what sort of knife was used.

But more than anything, Butcher wanted justice for the victims and looked forward to testifying in court. She learned the ropes fast and savored the high-wire perils of cross-examination. And then, too, there were the visceral thrills of the job — that rush she got whenever she jumped into a car and sped off to a major case, with that galvanizing moral sense of being part of the justice system. Invariably dressed in a sharp business suit, she would display her badge and enter the cordoned-off theater of death, where she joined that exclusive, close-knit society of cops, firefighters, paramedics, detectives, and people like herself, the "last responders," who come to take samples and measurements before the bodies are removed.

The prevailing attitude in this male-dominated world was one of dispassion and off-color jokes meant to deflect the horror, and Butcher, who was just the second female death investigator in Manhattan, kept up her own facade of toughness. As the daughter of a cop, she knew the style, could take barbs and dish them with equal aplomb, and earned passage into the fraternity. But for the most part, she was alone with her feelings, and that's when the demons called.

Butcher's demon was the bottle. After getting her master's in public health from Columbia, she had a string of demanding jobs — hospital administrator, physician's assistant in surgery, health-care provider in a prison. She was prone to depression, and drinking helped temper the stress. But soon it got out of control. One night, in the grips of despair, she

COURTESY OF BARBARA BUTCHER

put a gun to her head and was saved only because she'd drunk so much that she passed out. After hitting rock bottom, she decided to go to a program to get sober. "I did everything I was supposed to do, and the compulsion to drink was lifted. I felt great peace. I felt freedom. Falling apart just means that you can put yourself back together."

A career counselor at her program suggested that Butcher, based on her background and interests, look into becoming a veterinarian or a coroner. Butcher was intrigued. She cold-called New York City's chief medical examiner, Charles Hirsch, to request an informational interview. Hirsch granted a meeting and was so impressed that he hired Butcher on the spot. "Dr. Hirsch was my mentor, friend, and father, a very humble man and a great gentleman," Butcher says. But neither Hirsch nor anyone else could shield her from the temptation of alcohol.

"There were times when I saw things so awful that I tried desperately to unsee them," Butcher recalls, her blue eyes awash in feeling. "One night I came home, stripped off my clothes, got into bed, pulled the sheet over my head, and just shook and cried and thought, 'Please, God, please take this vision out of my head. I can't bear it.' I wanted to go outside myself in some way, and drinking would be an easy way to do it, wouldn't it?"

Yet Butcher, time and again, found the strength to resist. Others did not. This was especially evident after 9/11. Butcher's descriptions of the remains found in the ruins of Ground Zero (or, as the responders mordantly called it, the Pile) — a jawbone inside a rib cage, bodies "compressed into unrecognizable matter" — only hint at the hell that the responders faced. "There was so much dysfunction, because people were in so much pain," Butcher says. "They were drinking, drugging, gambling, having affairs. They needed relief."

Concerned, Butcher went to Hirsch and said, "Chief, people are drinking too much and carrying on. They need help." Hirsch disagreed. "Barbara," he said, "we are very strong people. We do this job because we can." It was one of the few times Butcher had ever known her boss to be wrong.

And yet what helped people get through the ordeal, says Butcher, was the potent sense of mission that Hirsch instilled in everyone. "Dr. Hirsch said we will do whatever it takes for as long as it takes, until we identify every single victim." It was an impossible goal — many victims were pulverized without a trace — but it set the tone.

"The victims had been tied up face down in a line and shot in the head one by one. I saw the pools of blood. I smelled the iron." More than twenty years later, Butcher was in a television studio talking about it. One of the victims, Anthony Veader, a hairdresser, was also there. He had survived the shooting.

"Anthony was shot in the back of the head, but by some accident of physics, the bullet curved in his skull and it didn't kill him," Butcher says. "So I went over and introduced myself, and I said, 'I was there at the scene. I feel strangely close to you.' And he said, 'I understand that. I feel a sense of having been saved.' And I said, 'I didn't save you,' and then we just both started crying and hugging each other. That was powerful for me. It was a reminder that not everybody dies. Sometimes people live."

"Then I remembered that rage and anger are so much easier than grief. I told myself: just feel the grief."

Still, Butcher was haunted, and after the site was cleared and rebuilt with a giant tower and a vast memorial fountain and museum, she avoided the area. Even to look at the sky from that vantage was too much. But her therapist kept encouraging her to go down there, and eventually she did.

"I walked around the memorial where all the victims' names are etched in bronze," Butcher says. "I sobbed and sobbed. I sobbed hysterically. Then the tourists started looking at me. I didn't care. I just let go, for the first time in years."

At one point, she noticed tourists putting drinks and ice-cream cups on the memorial, violating what for Butcher was sacred space. "I was so furious that I started to go up to someone. Then I remembered that rage and anger are so much easier than grief. I told myself: just feel the grief. Let the tourists alone."

Such flashes of insight feed her both as a writer and as a voice for responders and victims alike. Butcher never tires of communicating her experiences, and the more she talks, the more she learns. Another breakthrough came while she was filming *Homicide: New York*. The episode was on the Carnegie Deli massacre. "Oh, that was awful," says Butcher.

Sometimes people live.

In the years since she worked as a death investigator, Butcher has slowly begun to master the art of living. "I decided I wanted more creativity, more connection, more life," she says. She has taken acting classes and piano lessons, and she's writing a novel based on one of her unsolved cases. "I refuse to be shut down anymore. I want to feel things. I cry all the time. There's plenty to cry about. So I'm going to live and learn and understand everything I can, and I'm going to feel it."

One thing she'll never understand, of course, is the senselessness of violent death. It will always be a mystery to her. And that only makes her more grateful for every moment she's alive.

"I operate on a principle of gratitude," she says. "So yeah, I pray. I wake up each day and just look out the window and say, 'Thank you.' And the gifts just keep on coming."





Would You Want to Know If Alzheimer's Were in Your Future?

New AI-based screening tools could help people who are falling through the cracks

By David J. Craig

Illustration by Valeria Petrone

One evening in the spring of 2021, Maryam Zolnoori, a data scientist and assistant professor of health-sciences research at the Columbia School of Nursing, settled into her office and pressed play on a series of quiet, intimate recordings of elderly New Yorkers speaking with the visiting nurses who cared for them. The audio had been gathered by the nonprofit nursing agency VNS Health, which had invited some of its nurses and home-care recipients to wear small microphones clipped to their clothing while they interacted. Zolnoori planned to transcribe the recordings and feed the resulting text into an artificial-intelligence program that she and her colleagues were developing to spot early signs of illness in older adults.

"Our models had previously identified people at risk of infections, adverse drug reactions, and other problems by analyzing medical records and clinical notes," says Zolnoori. "We thought that everyday conversations might teach us even more."

That evening, while listening back to the recordings, Zolnoori had a realization. "It dawned on me there might be valuable data not only in the words exchanged between caregivers and patients," she says, "but also in the sounds of their voices." The thought struck her while listening to the speech of some of the oldest study participants, which was marked by odd pauses, abrupt tonal shifts, and rough, garbled noises — like their mouths were struggling to form words. Curious, Zolnoori dove into the scientific literature. She discovered that such vocal distortions can result from damage to the brain's motor-control systems, which are located next to its memory centers and are responsible for the complex muscular coordination required for fluent speech. Reading on, Zolnoori learned that Alzheimer's disease and other forms of dementia can ravage these networks in the earliest stages of decline, before memory problems became obvious.

"So that made me wonder: how early do these vocal changes begin?" she remembers. "Might we be able to detect them months, perhaps years, before dementia is diagnosed?"

To find out, Zolnoori soon undertook an ambitious study aimed at identifying

people at risk of developing dementia. With $1.2 million in support from the National Institute on Aging, she set about building an AI model to analyze both the linguistic content and acoustic properties of a person's speech — looking not only for signs of forgetfulness and confusion but also for unusual sounds that indicated the brain was losing its grip on the diaphragm, larynx, mouth, and vocal cords. Her algorithm, trained on thousands of hours of publicly available recordings from cognitively healthy and impaired individuals, learned to detect the tiniest differences in their speech patterns. "Many of the differences the model picked up on are imperceptible to humans," says Zolnoori. "We're talking about rhythmic inconsistencies on the scale of milliseconds, involving the pacing of syllables within words or how long vowel sounds get drawn out." As the brain starts to lose control over motor functions, she explains, the cadence of speech becomes irregular in ways that the AI model can recognize — like a conductor noticing an orchestra falling out of sync.

Zolnoori's findings, published in a series of papers over the past two years, suggest that the model can predict whether people are at risk of developing dementia up to a decade in advance. In one experiment, the algorithm identified those with mild cognitive impairment — a precursor to Alzheimer's disease — with 90 percent accuracy. In another, it correctly flagged people with an even subtler form of memory loss that tends to emerge five to ten years before the onset of dementia. "It did so after listening to them speak for just thirty seconds," Zolnoori says. Neurologists, on the other hand, had to conduct lengthy examinations of the same people to detect their emerging cognitive issues.

The new Columbia technology, which Zolnoori and several colleagues are now fine-tuning to test in a clinical study, is part of a broader scientific push to revolutionize how and when Alzheimer's disease is diagnosed. Many scientists, armed with powerful new AI tools and a deeper understanding of the condition's wide-ranging neurological effects, have been racing to detect early warning signs of dementia by analyzing people's everyday activities. Sharon Di, a Columbia transportation engineer, has developed algorithms that assess driving behaviors recorded by in-vehicle sensors — like sudden braking or rapid acceleration — to spot emerging cognitive issues. Researchers at Ireland's Maynooth University and University College Dublin, meanwhile, have devised methods of tracking people's banking transactions for signs of cognitive decline, which they say can include missed payments and unusual spending patterns. Other scientists have explored monitoring people's sleep patterns, physical movements, and keyboard strikes for hints of trouble.

As the brain starts to lose control over motor functions, the cadence of speech becomes irregular in ways that the AI model can recognize.

These techniques, which to date have been used only in research settings, aren't intended to replace traditional cognitive assessments. Rather, they're meant to serve as preliminary screening tools, flagging people who might benefit from further testing. (A full workup for dementia typically starts with a memory test in a doctor's office and, if results warrant, is followed by a neurological exam including brain scans, blood analysis, and in some cases genetic tests.) Proponents say a key benefit of AI-based screening tools, which are designed to be used only with explicit consent, is their ability to detect neurological issues in people who haven't noticed any changes in themselves and therefore wouldn't think to seek a memory test. Widespread use of such tools, they argue, could help close a critical diagnostic gap in the US, where nearly half of people with Alzheimer's disease go undiagnosed, and most diagnoses come only in the disease's later stages.

"The reality is that most cognitive assessments don't happen unless a patient or family member raises concerns, and that often doesn't happen in the beginning," says James Noble '08PH, a Columbia neurologist and dementia expert who is helping Zolnoori prepare her technology for clinical study. He points out that memory tests take upwards of ten minutes to administer, which is a considerable amount of time in a primary-care visit, so they're not routinely done, even though Medicare reimburses physicians for conducting them annually for patients over 65. "If you could identify people who ought to be tested just by listening to them talk during a checkup, that would obviously make a big difference."

Driving the push for earlier detection of Alzheimer's risk is a growing awareness that the disease's underlying pathology begins long before symptoms are noticeable. A recent study by researchers at Columbia's Mailman School of Public Health adds weight to this idea, showing that people with well-known Alzheimer's risk factors — including poor cardiovascular health and chronic inflammation — exhibit slight declines in memory and cognition as early as their twenties and thirties. Notably, they also tend to have elevated levels of the brain proteins amyloid and tau, which have been implicated in neurodegeneration. The study, led by epidemiologist Allison Aiello '03PH, is the first large-scale US analysis ever to tie these biomarkers to cognitive performance so early in adulthood. "I was very surprised by our findings," says Aiello, who notes that she initially had trouble securing funding for the research because prevailing wisdom held that Alzheimer's pathology began in middle age. She says the discovery suggests that encouraging healthy habits in young people is crucial for preventing Alzheimer's disease. "To date, prevention efforts have focused on older adults — encouraging them to do crossword puz-

zles, stay socially connected, and exercise and eat well. But these conversations really need to start much earlier."

If we can spot the signs of Alzheimer's earlier, do we have tools to help? There is growing optimism that we might. The FDA recently approved two drugs, lecanemab and donanemab, that are the first ever to alter the underlying disease process in Alzheimer's, clearing away the sticky amyloid plaques that build up in the brain and damage neurons. The drugs are not curative, and they carry serious risks — including brain swelling and bleeding — but they appear to slow the disease's progression by as much as 25 percent. That represents a major advance over traditional Alzheimer's medications, which merely ease symptoms temporarily, often for just a few months. Clinical trials are now exploring whether the new anti-amyloid drugs might have an even greater impact if administered earlier, to people who have elevated levels of the protein and other biomarkers of the disease but no overt symptoms.

"There's a lot of excitement in the field right now," says Noble. "Many of us believe that even if these particular drugs don't prove to be the answer, earlier diagnosis is still the way forward, and that eventually we're going to find medications that can stop the disease before it takes hold."

Yet the prospect of widely deploying risk-assessment tools like Zolnoori's raises tricky ethical and logistical questions. Some experts fear that telling people they're at risk of developing Alzheimer's disease may simply provoke anxiety and feelings of helplessness. Others are concerned that searching for cognitive issues too aggressively and too early will lead to excessive testing and flood neurologists' offices with patients who may never develop dementia.

Meanwhile, public interest in early detection is soaring, driven in part by a recent boom in direct-to-consumer tests that claim to be able to assess Alzheimer's risk. Noble says he's seen a surge of patients worried about their memory. "Many arrive with test results from commercial labs in hand — blood panels, genetic readouts from companies like 23andMe," he says. "We're also seeing younger patients coming in now with milder symptoms." While some of the commercial tests have scientific validity, Noble warns that their marketing materials often gloss over limitations. "The biggest issue is that no single test can tell you very much on its own." He notes that even the gold-standard diagnostics for dementia, including spinal-fluid analyses and MRI scans, are imperfect and must be interpreted cautiously within the broader context of a neurological evaluation. "The thing to remember is that everybody experiences a degree of age-related memory loss," says Noble, who is the author of *Navigating Life with Dementia*, a practical guidebook for patients and families. "It's when you see a sharp drop in your cognition, or when it impairs your ability to function in daily life, that it becomes a serious concern."



Maryam Zolnoori

Even as millions of Americans are fretting over their potential risk, Noble says, many more remain unaware they're even vulnerable. "People who receive cognitive assessments and timely diagnoses of dementia tend to have more resources," he says. "They may have more education, time, money, access to health care, and family and friends who notice they're changing." An AI-enhanced system that passively monitors people's speech, he believes, could help secure care for people who might otherwise slip through the cracks.

Zolnoori, Noble, and several other colleagues are now preparing to put her technology to the test in the real world. With a new grant from the National Institute on Aging, the team is recruiting three hundred New Yorkers over the age of sixty who receive home care — none of whom have been diagnosed with dementia — along with their visiting nurses and primary-care physicians to participate in a study. "Our goal is to figure out exactly how the speech-analysis system can be integrated into the clinical workflow," Zolnoori says, noting that participants will agree to have their conversations with clinicians recorded in a variety of settings, including in their homes, in office visits, and on the phone. The Columbia researchers will then work with doctors to develop clear protocols for what to do when the software raises a red flag; this will mean teaching them how to interpret the risk scores and talk patients through the findings. Afterward, the researchers will interview patients about whether learning the results was helpful or distressing, and what, if anything, they decide to change in their lives as a result.

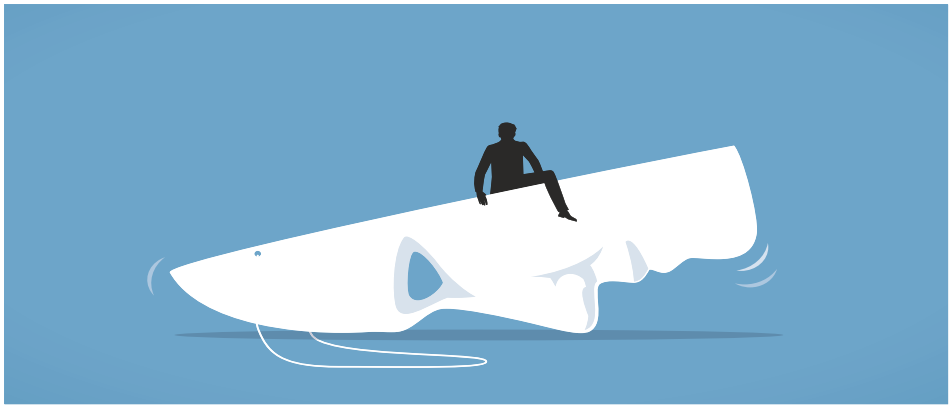
Zolnoori is confident that most people who learn they're at risk for dementia will use the information not only to consider medical options but to plan their care and future living arrangements, talk to their families, and put their affairs in order. "Even just having time to emotionally prepare can be huge," she says.

She has seen what happens when people don't have that opportunity. Back in Tehran, where she was born and raised, Zolnoori watched an aunt slip into dementia, oblivious to what was happening to her. "Over the course of several years, she became more confused and forgetful, which was terrifying to her and a source of endless humiliations," she says. "By the time she was finally diagnosed, she was too far gone to understand."

For Zolnoori, that memory is never far from her work. "If people want to know if dementia may be in their future and prepare for it," she says, "they should have that choice."

LEN SMALL

FRONTIERS OF RESEARCH AND DISCOVERY



Rethinking authenticity

Just be yourself! The advice echoes through classrooms, workplaces, and therapists' offices everywhere. And for good reason: studies have shown that being genuine boosts happiness, reduces anxiety, and improves overall well-being.

But authenticity is easier for some people than others. And psychologists aren't entirely sure why. They know that people with high self-esteem are more likely to feel confident revealing their true selves, but they suspect that larger social forces are also at play — factors like power, status, and cultural norms that dictate who gets to be themselves without fear of judgment.

Now social psychologists at Columbia Business School have identified one factor that stands out above the rest: social status, or the amount of respect and admiration that a person commands among their peers. In a series of studies involving thousands of participants, the researchers found that people who are widely admired feel freer to express themselves in a variety of settings.

"Our findings suggest that social status may be as important as self-esteem in increasing authenticity, which is surprising," says Erica R. Bailey '23BUS, who conducted the research with James T. Carter '23BUS and professors Adam Galinsky and Sheena Iyengar.

In workplaces, social status matters even more than formal authority, the researchers found. This was also unexpected, as previous studies had treated power and status as interchangeable. Bailey and her coauthors discovered that while both power and status can afford workers the freedom to relax and be themselves, those who are held in high regard enjoy the greatest latitude. Just think of Jim Halpert on *The Office* — a low-ranking employee whose popularity earns him the freedom to pull pranks, flout the dress code, and generally act as he pleases, while his boss, Michael Scott, is forever putting on airs in a desperate bid for respect.

The good news is that it may be easier to raise your social status than you think. Another recent paper by Galinsky and Maren Hoff '25BUS identifies a surefire way to do it: give credit to others. Across several large studies, Galinsky and Hoff found that people who feel insecure about their standing at work can bolster their reputations by publicly acknowledging how colleagues contribute to their own successes. Such "status sharing," the researchers write, enhances the standing of both giver and recipient.

Of course, inner strength is still essential for authenticity. But Bailey's work suggests that courage alone isn't always enough, and that our social and professional networks can either invite or inhibit genuine behavior. "Ideally, you want to seek out situations where, instead of having to forcibly push your authenticity out into the world, other people are helping to coax it out of you," Bailey says.

DANE_MARK

The secret science behind feeling great

Do you wake up most mornings feeling truly well-rested, with your mind clear and calm, your body strong, and a sense of boundless energy carrying you out the door? If so, you could be in even better shape than your doctor gives you credit for. Studies have shown that how healthy we *feel* is often a surprisingly good predictor of how long we'll live — sometimes even better than clinical tests. That's led scientists to suspect that behind our gut instincts are real biological signals that modern medicine just hasn't learned to detect yet. If researchers could identify the factors that give rise to these feelings of vitality, they say, it could change how we take care of ourselves.

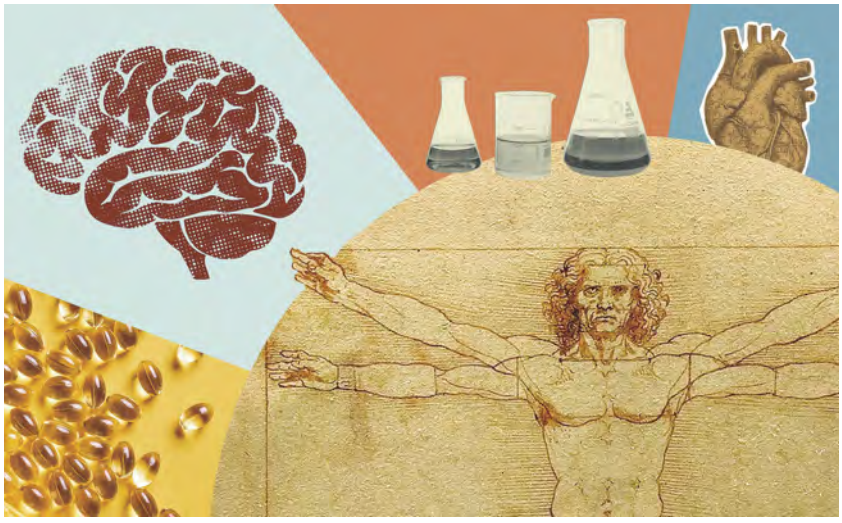


PHOTO ILLUSTRATION BY COLUMBIA MAGAZINE (SHUTTERSTOCK / WIKIMEDIA)

Until recently, the prospect of defining and measuring health as a distinct biological state — rather than merely inferring it from the absence of disease — was seldom discussed in medical circles. Doctors have long focused on what goes wrong in the body, because dysfunction is easier to quantify than well-being. But advances in data science are now beginning to illuminate how complex physiological systems work together in healthy organisms, inspiring a growing number of researchers to believe that health itself can finally be studied objectively. At the forefront of this emerging "science of health" are several faculty members at Columbia University Irving Medical Center who have spent years investigating the biological factors that allow our bodies to function smoothly. In a new paper in *Science Advances*, they lay out the most detailed framework to date for understanding optimal health — or "intrinsic health," as they call it — offering both a conceptual foundation and a road map for how scientists might learn to measure it.

The authors, led by integrative biologists Alan A. Cohen and Martin Picard, propose that intrinsic health is a "field-like state," a kind of emergent property that arises from the dynamic interplay of systems involved in energy processing and communication across all levels of physiology — from molecular signaling within cells to coordination among organs. When energy is flowing freely and metabolic pathways are buzzing with cross talk, they argue, we enter a state of "dynamic equilibrium" that enables our bodies to adapt seamlessly to changes in our environment — whether we're encountering microbes, toxins, predators, or extreme temperatures. To illustrate, the authors offer the metaphor of a tightrope walker: just as balancing on a high wire requires constant, finely tuned muscular adjustments working in harmony throughout the body, they say, maintaining great health depends on continuous dialogue among our organ systems, so that their responses to ever-changing conditions can be coordinated. When these adjustments are well-integrated and efficient, we feel good. When they falter, so does our health.

One of the most important insights in biology over the past couple of decades is that communication between cells, tissues, and organ systems is a key driver of health and disease. Cohen and Picard, whose new paper is coauthored by Linda Fried, John Beard, Daniel Belsky, and several other faculty members at Columbia's Mailman School of Public Health, have helped to shape this evolving view. Picard's team, for example, has shown that our immune, nervous, cardiovascular, and muscular systems are more closely intertwined than previously thought, and that when communication among them breaks down, our chances of developing conditions like cancer, heart disease, Alzheimer's, and chronic fatigue increase. Similarly, Cohen's group has found that when regulatory networks governing inflammation and metabolism fall out of balance — a shift he calls homeostatic dysregulation — we become more susceptible to a whole host of chronic diseases.

The human body, seen through the eyes of these Columbia scientists, is breathtakingly complex. And yet Cohen and Picard say that with recent breakthroughs in AI and new methods of collecting molecular data, it's also decodable. Their teams, which frequently collaborate, have already learned to spot signs of discord among organ systems that may portend disease

years, or even decades, in advance. Picard and his team members can do this by analyzing the integrity of mitochondria, tiny organelles best known as our cells' energy producers, which the Columbia researchers have discovered also play critical roles in biochemical signaling throughout the body. Cohen's group, meanwhile, can identify signs of decline in the body's overall capacity for self-maintenance by statistically analyzing large pools of routine health data like levels of blood sugar, cholesterol, inflammatory proteins, and liver and kidney function.

Identifying the root causes of these regulatory imbalances isn't Cohen's and Picard's immediate goal. Rather, they are focused on building the scientific foundation that will one day enable researchers and clinicians to detect when the body's networks start to go awry, long before symptoms appear, and to subsequently trace such disruptions back to their source. They say that health-care workers might then be able to help patients course-correct before illness sets in. Even now, though, potential causes are starting to surface. Cohen's statistical models suggest that early-life adversity like emotional trauma and poverty, as well as unhealthy behaviors like smoking and poor diet, can undermine the body's capacity for self-regulation, setting the stage for illness much later in life. Likewise, Picard's work suggests that psychological stress plays a major role in impairing mitochondrial function, which in turn can disrupt energy flow and intercellular communication within the brain and between it and other organs. His findings have been widely credited with deepening our understanding of mind-body links — helping to explain, for example, why people with severe anxiety and depression are prone to other diseases. "How mind and body communicate to shape our long-term health remains one of the biggest mysteries in medicine," Picard said in a recent TEDx talk on the subject. "And that's not a problem of genes but one of energy and communication."

Eventually, Cohen and Picard hope to find ways of tracking a person's intrinsic health with nothing more than a wearable device or a standard blood test. "The goal is to create a simple, affordable snapshot of your body's resilience, one that could be repeated over time to assess how well your diet or lifestyle choices are working for you," says Cohen. This could enable preventive care to go beyond a one-size-fits-all approach, he says. "It would also allow us to shift the conversation away from disease altogether and focus instead on how well we're building, maintaining, and restoring health."



Tim Friede

Snakebite solution

Scientists are developing what could become the world's first universal snakebite therapy with help from an unlikely collaborator: a snake enthusiast who over the course of two decades allowed dozens of his poisonous pets to bite him repeatedly. Hoping to build up a natural immunity, Wisconsin-based reptile fan Tim Friede began by injecting himself with small, gradually increasing doses of venom before inviting rattlesnakes, cobras, mambas, coral snakes, and taipans to sink their fangs into him. Physicians have called Friede's at-home experiment reckless, yet remarkably, it appears to have worked.

In a recent issue of the journal *Cell*, Columbia biologist Peter Kwong '95GSAS and several colleagues report that a therapeutic cocktail they created with antibodies from Friede's blood and an anti-inflammatory agent can neutralize the venoms of many of the world's deadliest snakes. Kwong and his coauthors, who include scientists at the biotechnology startup Centivax and the National Institute of Allergy and Infectious Diseases, tested their novel therapy on mice. They soon plan to work with veterinarians to see whether it can save dogs and other pets that have been bitten.

The research team, which now also includes Columbia scientists Henry Colecraft and Lawrence Shapiro '96GSAS, is studying additional antibodies extracted from Friede's blood in hopes of developing an even more powerful and broadly effective treatment. The need is urgent, as snakebites kill or permanently disable more than half a million people each year, and existing antivenoms work only for individual species or closely related groups of snakes.

Kwong says that creating a truly universal therapy appears achievable, as there are only about a dozen types of toxins found in all six hundred venomous snake species. "I think in the next ten or fifteen years, we'll have something effective against each of those toxin classes," he says.

CENTIVAX

Why US cities are sinking



Houston is one of the fastest-sinking cities.

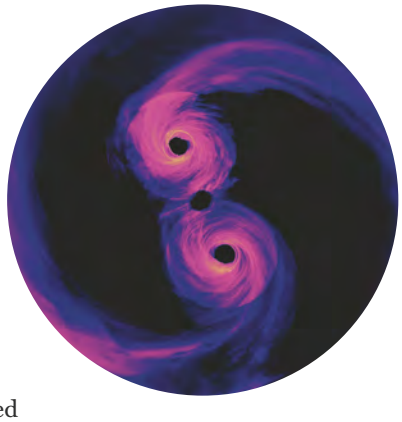
A study of twenty-eight big US cities finds that all are sinking — largely because of groundwater extraction for drinking and for industrial uses — and that this is making them more vulnerable to flooding and building collapses.

The researchers, led by Columbia postdoctoral scientist Leonard Ohenhen, used satellite data to map out vertical land movements down to the millimeter in all US cities with populations exceeding six hundred thousand. They found that in twenty-five of the cities, two-thirds or more of their land is sinking, with some areas going down as much as two inches per year.

Most concerning, the scientists say, is that cities are sinking at different rates in different spots, potentially destabilizing buildings, bridges, and other infrastructure. Particularly fast-sinking zones include areas around New York's LaGuardia Airport and parts of Las Vegas, Washington, DC, and San Francisco.

The authors say that cities susceptible to tilting hazards can retrofit existing structures and limit new building in the areas of greatest risk.

Last dance



Like two spinning tops in a salad bowl, the pair of black holes drifted closer and closer together, began to orbit one another at dizzying speeds, and then, in a moment of unimaginable violence and beauty, merged — causing disturbances in the fabric of space-time that rippled through the universe.

The echoes of that ancient collision — which occurred billions of light-years away — were recently detected by an international team of scientists that includes Columbia astronomer Maximiliano Isi and PhD student Harrison Siegel. The scientists' observations have raised profound questions, in part because the black holes that merged were each so massive that their existence challenges prevailing theories about how such objects form in the first place.

"To me, this discovery highlights that gravitational-wave astronomy is a field that is full of surprises, interesting puzzles, and open questions," Isi says. "We are at the frontier of the unknown."

TOP: WIN MCNAMEE / GETTY IMAGES; CENTER: THECRIMSONMONKEY; BOTTOM: NASA'S GODDARD SPACE FLIGHT CENTER

STUDY HALL
RESEARCH BRIEFS

Hey, how'd I get here? You almost certainly possess memories from infancy that you can't retrieve, possibly because babies' brains are not yet capable of storing memories in an organized fashion, according to new research by Columbia postdoctoral researcher Tristan Yates.

Life's code, repurposed
Columbia engineers led by Oleg Gang have found a way to build nanomaterials out of DNA. The DNA they use is synthesized, not from living organisms, but it can assemble itself into extremely strong, flexible three-dimensional structures with applications ranging from medicine to electronics.



Soft-serve therapy Using yogurt byproducts, Columbia biomedical engineers led by Santiago Correa have developed an injectable gel that mimics living tissue and supports healing. In mice, the gel promoted blood-vessel growth and reduced inflammation, essential steps in tissue recovery.

AI's sinking street cred Researchers at Columbia Journalism School report that all major AI chatbots, including ChatGPT, Perplexity, DeepSeek, and Gemini, continue to be plagued with serious problems, including a propensity to fabricate answers. Premium chatbots are in some ways more misleading than their free counterparts, the authors write, because they respond more confidently even when wrong.

When phone fixation spells trouble
A new Columbia study finds that it's not how many hours kids spend on their phones but how compulsively they use them that's linked to mental-health problems. Tracking 4,300 children over four years, the researchers found that nearly half of young people show signs of screen addiction — avoiding activities and feeling distressed without their devices — and that they are two to three times more likely to experience suicidal thoughts.

Rant and let go Writing negative customer reviews online is good for your health, so long as your reviews are objective and evenhanded, according to Columbia business professor Vicki Morwitz and Alisa Wu '24BUS. Their research shows that airing frustrations after a bad shopping experience provides not only emotional relief but measurable physiological benefits.



The Little Rooms Upstairs

Tenement Museum president Annie Polland ’04GSAS opens doors to the immigrant past

On a sunny Wednesday afternoon on the Lower East Side, in front of the nineteenth-century brick tenements at numbers 97 and 103 Orchard Street, schoolchildren, tourists, and an office worker on lunch break gather on the sidewalk. They have all come to visit the Tenement Museum, which since 1988 has been telling the stories of the working families, most of them immigrants, who once lived in these buildings. In a moment, the museum’s tour guides will lead guests through the doors, up the dark, narrow staircases, and into small dwellings containing meticulously curated period furnishings (beds, basins, antique sewing machines), objects (thimbles, scissors), and heirlooms (books, framed photographs). Here, in these tiny, cramped spaces, Jewish, Italian, German, Greek, Irish, Chinese, Puerto Rican, and other families established footholds in the city.

“There’s a dynamism here,” says Tenement Museum president Annie Polland ’04GSAS. “Standing in these rooms, you can connect the dots between history, people, primary sources, and objects, and between the past and the present.” Using archival records, letters, interviews, and photographs, the museum’s historians have interpreted the living conditions of tenants in a period spanning the 1860s to the 1980s.

“You’re hearing family stories,” Polland says, “but you’re also hearing about moments of history that you thought you knew — the Draft Riot of 1863, the Panic of 1873, the kosher-meat boycott of 1902 — but which you are now seeing through the perspective of people who could have been your grandparents or great-grandparents. What do families do in adverse situations? How do they cope? People relate to that today, regardless of their background.”

CLÉMENT PASCAL

Polland arrived in New York in 1996 to get her PhD in Jewish history at Columbia. For her oral exams she had to read all eighteen volumes of *A Social and Religious History of the Jews*, by Columbia historian Salo Wittmayer Baron '64HON, who founded the field of Jewish studies in the US.

Needing a job, Polland heard about Big Onion Walking Tours, founded by Seth Kamil '24GSAS and Edward O'Donnell '95GSAS. Big Onion hired graduate students to lead historical walking tours of New York neighborhoods, and Polland, who grew up in Milwaukee, applied. She got what would be a destiny-shaping gig: leading a walking tour of the Jewish Lower East Side. The tour started at the Tenement Museum.

Polland recalls how nervous she was before her first tour and how relieved she'd been when she emerged from the F train at Delancey Street to find that it was raining. "I thought, 'Oh, good, maybe it'll be canceled.' But then I turned the corner and saw all these bobbing umbrellas." So Polland did the tour — and loved it.

"People were so excited to learn," she says. "They brought pieces of paper with addresses where their great-grandparents had lived. They might have been from Texas or Ohio, but they felt a direct connection to the neighborhood."

Upon graduating, Polland worked at the museum at the Eldridge Street Synagogue, built in 1887 and one of the first Eastern European Jewish synagogues in the US. In 2009 she joined the Tenement Museum, where she served as director of education for nine years and worked to expand the mosaic of immigrant stories.

"Even as we were adding the Puerto Rican story and the Chinese story," she says, "we realized that the diversity of students who were coming through wasn't fully represented by the limited number of apartments we had." To address this, Polland's team created Your Story, Our Story, a website where people could tell their own stories by writing about a special object in their home or a cherished family tradition. The website now boasts more than sixteen thousand stories.

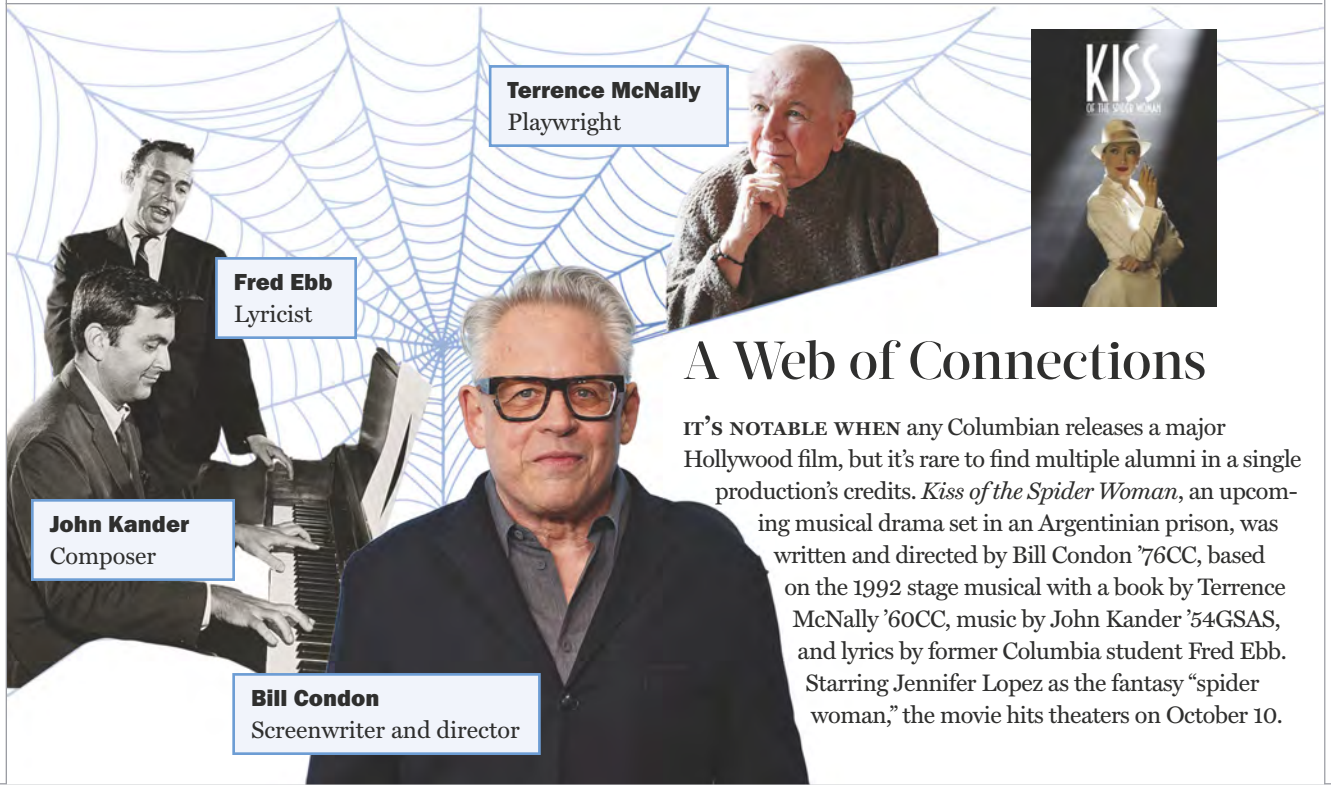
Polland left the Tenement Museum to lead the American Jewish Historical Society on West 16th Street, then returned as president in January 2021. Her first task, aside from reopening from the pandemic, was to add the story of a Black family, the Moores, who lived in a nearby tenement during the Civil War. Like the other apartments, the Moores' re-created dwelling brings the visitor into new proximity with history and the ordinary people who made it.

"I cannot think of a better way to put my training to use — bringing scholarship to the public to help us collectively broaden our understanding of the past," Polland says.

For Polland, the museum, which draws 225,000 visitors a year, also speaks to what it means to be a New Yorker today — and an American.

"We want to keep highlighting the stories of the real people who lived here, and through them try to understand the complex history of the nation," Polland says. "I think this museum is a haven — a haven for an expansive American identity."

— Paul Hond



CONDON: AFF / ALAMY; KANDER & EBB: THE NEW YORK PUBLIC LIBRARY; MCNALLY: AL PEREIRA

A Web of Connections

IT'S NOTABLE WHEN any Columbian releases a major Hollywood film, but it's rare to find multiple alumni in a single production's credits. *Kiss of the Spider Woman*, an upcoming musical drama set in an Argentinian prison, was written and directed by Bill Condon '76CC, based on the 1992 stage musical with a book by Terrence McNally '60CC, music by John Kander '54GSAS, and lyrics by former Columbia student Fred Ebb. Starring Jennifer Lopez as the fantasy "spider woman," the movie hits theaters on October 10.



ASK AN ALUM: HOW TO DINE LIKE A RESTAURANT CRITIC

Bao Ong '10JRN spent over a decade as a New York food columnist before relocating to Texas in 2022. Earlier this year, he became the *Houston Chronicle*'s restaurant critic.

How did you land this amazing job?
During my senior year at the University of Minnesota, I did an internship at a local St. Paul newspaper and realized you can eat and write for a living. I wanted to make that my career. My parents were immigrants from Vietnam living in the Midwest with four children, and we couldn't afford to dine out. So the experience has always had an allure. I moved to New York in 2008 and attended the French Culinary Institute, started blogging about food, and worked as an assistant to legendary restaurant critic Gael Greene. The economy was bad at the time, and it was hard to get a job, so I enrolled at Columbia's Graduate School of Journalism, where I learned how to think more deeply about topics and experienced the kind of close editing you don't always receive in newsrooms today. I ended up writing my thesis on Spam. I eventually found my way to the dining section of *The New York Times*, followed by periods at *Bon Appétit*, *Time Out New York*, *Eater*, and now the *Houston Chronicle*.

What's unique about Houston's restaurant scene?
Houston is the fourth-largest city in the US by population. It's sprawling and diverse — the Vietnamese and Nigerian populations are huge — and that's reflected in the restaurants. There are all types of cuisine beyond barbecue and Tex-Mex, and people love to dine out. Barbecue is actually evolving here in Texas because of the diversity of the population; you can find a lot of Asian takes on it. I also see a lot of younger chefs opening restaurants here, because it's more affordable than New York or San Francisco.

How exactly do you assess a restaurant?
I go to each restaurant a minimum of three times before I write a review. For a new business, I wait at least a month after it opens. I try to order as much food as I can, assessing each dish's taste and execution. Fifteen years of writing about food, plus traveling and attending culinary school, have given me a deeper understanding of not only food but the overall restaurant experience: What's the vibe and decor? Who is the chef or owner, and what story are they trying to tell? The critics I enjoy reading the most put everything in context.

Do you try to stay anonymous?
I try to be low-key. I always make reservations under different names, and I often have friends make reservations for me. It's difficult to be anonymous these days. I try not to show my face too much on social media. When restaurant staff recognize me, they will sometimes go overboard with service — checking in every five minutes or refilling my water when I've barely drunk from it. It can be overbearing and awkward. Sometimes they will try offering me free food, which as a critic I can't accept. (We pay for our meals and any extra food that may be sent out.)



Bao Ong

What's the hardest thing about your job?
There are a lot more middle-of-the-road meals than there are memorably good or bad ones. It's easier to write about a really good restaurant that you loved. It can also be difficult to write a negative review, because you don't want to totally pan the people who are making their livelihoods out of these restaurants. You also have to establish a voice and a relationship with readers as they learn your tastes. Not everyone's going to agree with you, and you have to be OK with that.

What's trending in the restaurant scene, and what's falling out of style?
The era of fancy hours-long tasting

TOP: BRETT COOMER / HOUSTON CHRONICLE; BOTTOM: KAREN WARREN / HOUSTON CHRONICLE

menus is ending. We're starting to see a lot of shorter, more affordable tasting menus for under $100. I think that's great. Seed oils have become controversial; I recently reviewed a restaurant that's entirely seed-oil-free and renders its own beef tallow each week. Omakase sushi restaurants are becoming very big in Houston, following in the footsteps of other big cities. They feel like the new steakhouse here. Social media tends to drive a lot of buzz around some restaurants, but personally I'm turned off by places that feel designed for Instagram, where the food is often an afterthought.

Restaurant critics have a reputation for being snobby. How do you try to counteract that stereotype?
I make it a priority to review outside of Houston's "inner loop," where most upscale and trendy restaurants are located. I like to seek out places that most people don't know about, whether food trucks or suburban strip-mall restaurants. I recently reviewed a dim sum place inside a Courtyard by Marriott. One of my favorite meals I've had in this job was at a small soul-food restaurant next to a gas station. I had oxtail with sweet yams and cabbage — simple food that was executed really well. It wasn't fussy in any way, but so delicious. To be able to find such a hidden gem and write about it, that's what I love most about this job.

— Julia Joy

The Road Less Touristed

Entrepreneur Charles Conconi '92CC is driving ethical tourism in rural Sri Lanka



The Pekoe Trail.

When Charles Conconi '92CC fell in love with Sri Lanka back in 2001, he fell hard. An international-development worker from Washington, DC, he visited the small island nation off India's southeast coast for a short-term project on export competitiveness. "I was drawn to the people, the weather, the stunning beauty of the place," says Conconi. He ended up staying for a couple of years. In 2004, when the country was struck by the devastating Indian Ocean tsunami, Conconi returned to help with relief efforts. This time, he found a way to keep coming back. "I developed a fantasy of going up into the highlands and doing a tourism venture," he says.

Today, Conconi is living his dream life in Sri Lanka's Uva Province, a mountainous southern region known for its lush scenery, national parks, and historic tea plantations. As a cofounder and co-owner of Amba Estate, a revived nineteenth-century tea farm and guesthouse, and as a cofounder of the Pekoe Trail, a two-hundred-mile hiking trail that passes nearby, among other projects, Conconi is helping lead Uva's transformation from a historically impoverished agricultural region into a destination for economically sustainable tourism.

Amba Estate, which supplies tea leaves for the American brand Harney & Sons and other companies, employs approximately sixty workers from surrounding villages. "Our staff have been an important part of our development and helping us figure out new ideas," says Conconi, who has lived in Sri Lanka full-time since 2017. Those new ideas include ways to help drive Uva's tourism sector so that the region is less dependent on the tea industry, which is gradually waning due to global competition from cheaper sources. Traditional tea production in the highlands takes years, and harvesting the leaves is an arduous process, Conconi explains. "My grandfather was a coal miner, and he never wanted his son to be a coal miner. No mother wants her daughter to be a plantation tea plucker."

The Pekoe Trail, which was built with funding from the European Union and USAID and completed this past March, has enabled the rise of dozens of new businesses and created hundreds of jobs along its route. "It's giving people a lot of opportunities to get involved in tourism," says Conconi, who says that locals have transformed homes into lodgings, opened restaurants and shops, and started businesses offering guided tours along the trail.

THE PEKOE TRAIL ORGANIZATION

Snaking through hills, forests, farmland, and towns, the Pekoe Trail serves to bring travelers out of over-touristed coastal areas and into the countryside. "Sri Lanka is stunningly beautiful, but people tend to hit the same five or six places — mainly beaches and cultural sites," says Conconi. "The rest of the country doesn't benefit from the tourism dollars coming in. Seeing Sri Lanka on foot gives you an entirely new relationship with communities, and it supports businesses along the way. Ninety percent of the money spent in rural areas stays within ten kilometers."



Charles Conconi

For Conconi and his peers in development and tourism, including his wife, Orzu, the tourists with the highest value are not necessarily those with the most money to spend but rather curious people who, like Conconi, are drawn to new discoveries off the beaten path. "We're looking at hikers, adventure seekers, birders, and people who enjoy tea and walking," says Conconi. "They aren't just looking and taking pictures but immersing themselves in a local and authentic experience." — *Julia Joy*



10 Green Buildings from Columbia Architects

To earn a LEED rating — the coveted certification for sustainable design granted by the US Green Building Council — a project must meet rigorous standards for energy and water efficiency, indoor air quality, and the incorporation of sustainable materials. These eco-friendly projects from alumni architects have all made the grade.

DENVER UNION STATION

As a principal architect at Skidmore, Owings & Merrill specializing in transportation hubs, Derek A. R. Moore '88GSAPP led the transformation of Denver's historic Union Station rail yards into a modern, open-air terminal (above) connected to the original Beaux-Arts train hall. The project, completed in 2014, received a LEED gold certification.



THE MUSEUM OF MODERN ART

Diller Scofidio + Renfro, founded by Elizabeth Diller '18HON and the late Ricardo Scofidio '60GSAPP, and currently led by Diller, Charles Renfro '94GSAPP, and Benjamin Gilmartin, designed the 2014–2019 renovation and expansion of the Museum of Modern Art. The project, which reduced water use and integrated a temperature-control system that automatically adjusts based on foot traffic, earned a LEED platinum rating — the highest possible sustainability score.



ONE VANDERBILT

As a LEED-accredited principal architect at Kohn Pedersen Fox (KPF), Charles Ippolito '88CC managed the design of One Vanderbilt, which landed not only a platinum rating but also the honor of being Midtown's tallest office tower. The seventy-three-story skyscraper, which

LEFT: CHARLES CONCONI; UNION STATION: SOM; MOMA: MUSEUM OF MODERN ART; ONE VANDERBILT: PERCIVAL KESTRELTAIL / WIKIPEDIA

was completed in 2020 and is known for its popular observation deck, was designed to maximize the flow of natural light and has a combined heat and power plant and a rainwater-collection system.



THE HOUSE AT CORNELL TECH

Deborah Moelis '94GSAPP, a principal and founding member of Handel Architects, is a certified architect of passive houses — buildings designed to use as little energy as possible through insulation and innovative construction. Moelis's design for the House at Cornell Tech, a passive-house apartment tower on Cornell Tech's Roosevelt Island campus that was completed in 2017, holds a LEED platinum certification.



MIMA AND YOTEL

Known for its bold modernism and innovative use of materials, Arquitectonica, a Miami-based firm cofounded by Laurinda Spear '75GSAPP, designed New York's MiMA apartment building and adjoining Yotel hotel, which opened in Midtown in 2012. With a LEED gold rating, the complex is considered one of the most energy-efficient high-rise developments in the city.

BARCLAYS CENTER

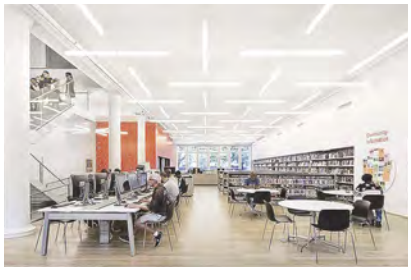
SHoP Architects — a firm founded by Gregg Pasquarelli '94GSAPP, Kim Holden '94GSAPP, William Sharples '94GSAPP, Coren Sharples '94GSAPP, and Christopher Sharples '90GSAPP — helped conceive the unique look of Brooklyn's Barclays Center. The sports arena was designed to be one of the most sustainable in the United States and ultimately achieved a LEED silver rating after its 2012 completion.





NATIONAL MUSIC CENTRE

Brad Cloepfil '85GSAPP, founder of the firm Allied Works, based in Portland, Oregon, led the design of Canada's National Music Centre, a museum, concert hall, and recording studio completed in 2016. The building, which consists of nine interconnected towers and an attached auditorium in downtown Calgary, received a LEED gold certification as well as a 2022 Prairie Design Award of Excellence.



WOODSTOCK LIBRARY

Rice + Lipka, a New York–based architecture firm founded and led by Lyn Rice '94GSAPP and Astrid Lipka '00GSAPP, works primarily on public and cultural spaces. The firm's gold-rated renovation of the New York Public Library's Woodstock branch in the Bronx increased the flow of sunlight while giving the original 1914 building a contemporary makeover.



UNIVERSITY OF CHICAGO KELLER CENTER

Farr Associates, a Chicago-based architecture firm founded and led by Doug Farr '87GSAPP, specializes in sustainable design. The firm's LEED platinum-rated renovation of the University of Chicago Keller Center, home to the public-policy school, made the building one of the most sustainable in US higher education.



JAVITS CENTER

WXY, a firm co-led by Columbia associate professor Adam Lubinsky '01GSAPP, was selected to design the Javits Center's 2021 expansion. The project, which added an event space and an extended rooftop farm to the Hell's Kitchen convention complex, earned a LEED gold rating for its incorporation of solar panels, a rainwater-collection system, and other green features.

THE HOUSE AT CORNELL TECH: HANDEL ARCHITECTS; MIMA: COMPASS; BARCLAYS: BARCLAYS CENTER; NATIONAL MUSIC CENTRE: STUDIO BELL; WOODSTOCK LIBRARY: RICE + LIPKA ARCHITECTS; KELLER CENTER: THE UNIVERSITY OF CHICAGO; JAVITS: WXY STUDIO

Voice Assistant

Sara, an app co-created by Jiaxin Zhang ’25BUS, brings AI to children’s speech therapy

For Jiaxin Zhang ’25BUS, who emigrated from China to Florida at age nine, mastering English pronunciation didn’t come easily. “I was made fun of because of my accent,” she says. Years later, while working in consulting, Zhang met Jonathan Shi, a computer scientist and fellow Chinese immigrant who had once struggled with a childhood speech disorder. Shi was studying how AI can support kids’ health and wellness for his PhD at the University of Southern California. Bonding over similar experiences, Zhang and Shi joined forces to design an innovative product: an AI-driven app that helps kids ages four through twelve overcome problems with speech articulation.

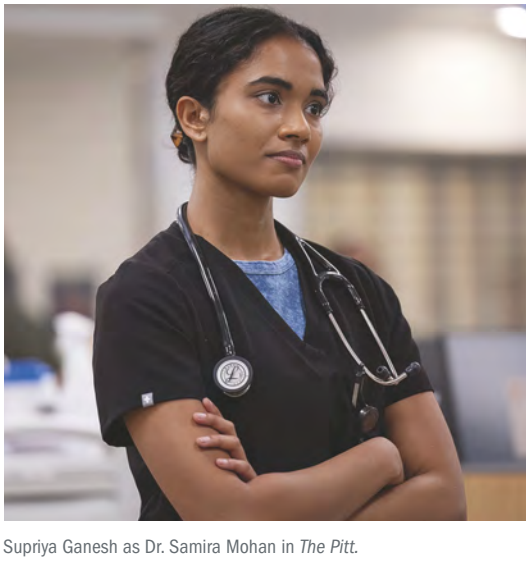


Jiaxin Zhang and Jonathan Shi

Sara Technology (an acronym of “Speech Articulation Reinforcement App,” as well as a reference to Saraswati, the Hindu goddess of speech) officially launched this past summer after winning first place at the 2025 Startup Columbia entrepreneurship challenge — an honor that came with a $25,000 prize. The app, which guides kids through audio-based activities designed with input from speech pathologists, is meant to be as fun as it is helpful. “The technology detects children’s speech errors, such as issues with the r sound, and provides personalized feedback to help them pronounce words and sounds correctly,” explains Zhang, who recently finished her MBA at Columbia Business School.

Like other AI systems, Sara improves as it accumulates large quantities of data over time. “Most speech-recognition technology works on a word level, but our AI model needs to have advanced sound and phoneme-level recognition,” says Shi. “As more children use the app, and with permission from parents to collect data, the model will become more and more accurate and continuously adapted to the child’s speech pattern.”

For many families, working with a speech therapist can be prohibitively expensive or difficult to schedule, especially if the problem isn’t severe. Zhang and Shi hope that Sara will help bridge that gap, making articulation therapy more accessible to the masses.



Supriya Ganesh as Dr. Samira Mohan in *The Pitt*.

The Resident

Fans of *The Pitt* — a TV medical drama that follows a group of ER doctors through the course of one very eventful shift — know Dr. Samira Mohan as a dedicated and empathetic resident, as well as a bit of a workaholic. What they might not know is how close actress Supriya Ganesh ’19CC, who plays Mohan on the show, came to becoming a doctor herself. A former neuroscience major at Columbia, Ganesh scored in the ninety-ninth percentile on her MCATs but decided to put her plans for medical school on hold to pursue an acting career. When she read a script for *The Pitt*, she was attracted to the accuracy of the science and the realistic, often harrowing portrayal of daily life in a modern trauma center. *The Pitt*, which stars *ER* veteran Noah Wyle, has earned rave reviews from critics and audiences alike since premiering on HBO Max earlier this year and has opened enough new doors for Ganesh that she’s recently quit her day job — as an MCAT tutor.

TOP: COURTESY OF JIAXIN ZHANG; BOTTOM: HBO MAX / WARRICK PAGE

NEWSMAKERS

● At the 2025 Pulitzer Prizes, **Leah Binkovitz '11JRN** and her colleagues at the *Houston Chronicle* won the award for editorial writing for a series on dangerous local railroad crossings, while **Kavitha Surana '11CC** and her team at ProPublica were honored for public-service journalism for covering the impact of abortion bans. In the poetry category, **Marie Howe '83SOA** won for her *New and Selected Poems*. (See page 60 for an excerpt.)

● **Aldo Cugnini '77SEAS, '79SEAS**, a veteran broadcast engineer who holds fourteen patents, received the 2025 Bernard J. Lechner Outstanding Contributor Award from ATSC, the broadcast standards association, for his work on digital television technology.



● Several alumni-affiliated movies hit theaters this summer, including *Superman*, an action blockbuster written, directed, and produced by DC Studios cofounder **James Gunn '95SOA** (above, at right). Indie rom-com *Materialists*, the second film by writer-director **Celine Song '14SOA**, premiered in June.

● **Talia Rosenberg '25SIPA,** who worked in the office of Manhattan borough president Mark Levine while studying at Columbia's School of International and Public Affairs, was selected for the New York State Department of Public Service's 2025 cohort of Excelsior Fellows, a two-year program for recent graduates starting government careers.



● Kenyan-born social worker **Ruby Okidi '24SW** (above) was a finalist in this year's Miss Africa USA pageant, which recognizes young African women involved in advocacy and public service.

● *Gardens of Renewal*, an installation by landscape artist **Lily Kwong '12GS**, was on display in Madison Square Park from April through August. Featuring a spiral pathway, the exhibition encouraged reflection on urban ecology and awareness of endangered plant species.

● The 2025 James Beard Foundation Journalism Awards, which recognize achievements in food and beverage journalism, honored **Grey Moran '18JRN** for a *Civil Eats* article on the banning of heat protections for Florida farm workers. **Adam Iscoe '22JRN** was a finalist for his *New Yorker* feature on the rise of impossible restaurant reservations.

● Columbia alumni contributed to several Tony-winning Broadway productions this year, including *Maybe Happy Ending*, which was coproduced by **Ali Daylami '24SOA** and swept six awards including best musical. **Jamie Forshaw '09SOA**, **David Manella '18SOA, '18LAW**, and **Kate Cannova '13SOA** served on the producing team for *Sunset Boulevard*, which won the award for best musical revival.

● **John Zeisel '65CC, '71GSAS**, founder of the I'm Still Here Foundation, which supports lifestyle-enrichment programs for people living with dementia and Alzheimer's disease, received a 2025 Thought Leader Award at the McKnight's Pinnacle Awards, honoring professionals in senior care.

● *Extremist*, a short film written and directed by **Alexander Molochnikov '25SOA** and produced by **Jean Chapiro '22JRN, '25SOA**, won the live-action and special jury awards at the 2025 British Academy of Film and Television Arts (BAFTA) Student Awards.



● Hot Rize, a band cofounded by banjo player **Pete Wernick '66CC, '73GSAS** (right), was inducted into the Bluegrass Music Hall of Fame in Owensboro, Kentucky. As a Columbia student, Wernick started WKCR-FM's *The Moonshine Show*, which is still active today.

● Nine graduates and current students of Columbia Journalism School received Pulitzer Center fellowships to pursue projects on underreported global issues: investigative reporters **Michele Calamaio '25JRN, Chris Caurla '25JRN**, **Mariana Hernández Ampudia '25JRN**, **Anna Oakes '25JRN**, **Deep Vakil '25JRN**, and **Johnny Sturgeon '25JRN**, as well as documentary filmmakers **Luisa Barone**, **Iona Horton**, and **Claudia Rosel**.



● Mocel, a brand of craft mezcal cofounded by **Elizabeth Mendoza '14LAW**, received gold medals at the 2025 San Francisco World Spirits Competition and Agavos Awards, two of the most prestigious blind-judging events in the spirits business.

LEFT: JESSICA MIGLIO / WB; CENTER: COURTESY OF RUBY OKIDI; TOP RIGHT: WILL WERNICK; BOTTOM RIGHT: MOCEL

BULLETIN

UNIVERSITY NEWS AND VIEWS



COLUMBIA REACHES AGREEMENT WITH US GOVERNMENT TO RESTORE RESEARCH FUNDING

On July 23, Columbia announced that it had reached an agreement with the US government to resolve multiple federal agency investigations into alleged violations of antidiscrimination laws. As part of the resolution, the University will pay a $200 million settlement over three years to the federal government. In addition, the University agreed to settle investigations brought by the US Equal Employment Opportunity Commission for $21 million. The investigations stemmed from allegations that the University had violated federal antidiscrimination laws by not adequately addressing antisemitism on campus following October 7, 2023.

Under the agreement, the vast majority of the $400 million in federal research grants that were terminated or paused in March will be reinstated, and Columbia's access to billions of dollars in current and future grants will be restored. The University pledged to follow through on commitments it made earlier this year to reduce campus unrest and to implement a range of policies to combat antisemitism, as well as continuing to abide by laws banning the consideration of race in admissions and hiring.

The agreement preserves Columbia's independence and authority over all faculty hiring, admissions, and academic decision-making. "This was our north star, and we did not waver from it," said acting president Claire Shipman '86CC, '94SIPA in a statement announcing the agreement. "Columbia's governance remains in our control. The federal government will not dictate what we teach, who teaches, or which students we admit."

As part of the settlement, the University has not admitted to wrongdoing or to violations of Title VI of the Civil Rights Act. "We are not, however, denying the very serious and painful challenges our institution has faced with antisemitism," Shipman wrote. "For these reasons, we took several important corrective steps in March, many of which are in this agreement, including a new provision for a liaison to the Jewish community, situated in University Life. … I announced additional measures to combat antisemitism last week. We know there is still more to do. We will work on multiple fronts to combat all forms of hatred and intolerance at Columbia, and you will see more efforts to that end in the coming months."

The agreement also establishes a jointly selected independent monitor whose sole focus is assessing the implementation of the resolution, through regular reports provided to the monitor by the University. "The success of the agreement requires that both parties honor it, and commit to the processes laid out in the event of disputes," Shipman wrote. "The agreement allows us

EILEEN BARROSO

to hold the government to that process with respect to any concerns about compliance. This predictable structure is far preferable, in our view, to piecemeal scrutiny, and will allow us to focus on long-term progress for our institution."

Her letter continues: "For months, Columbia's discussions with the federal government have been set up as a test of principle — a binary fight between courage and capitulation. But like most things in life, the reality is far more complex. … In the end, we have arrived at a carefully crafted agreement that protects our institution and our values, and that will allow us to move forward, with strength, resuming the vital work we do in service to the nation and to humanity. … My hope is that the Columbia University community is ready to reset, to focus again on academic rigor and respectful debate, and to use this moment of challenge as a chance to imagine and build a stronger institution than ever."

For updates, visit president.columbia.edu.

ALUMNI INVITED TO "TAKE ACTION" FOR COLUMBIA

A new "Take Action" initiative was launched this spring aimed at encouraging advocacy and support for the University. A video message from acting president Claire Shipman '86CC, '94SIPA encourages alumni to continue serving as ambassadors for the institution while staying current on the latest Columbia news, helping to counter misinformation, and recruiting fellow alumni, donors, and friends to do the same. "Now is the time for all of us to stand together in support of Columbia," said Shipman in the video. "As a proud member of our community, you are uniquely positioned to help tell our story and reclaim the narrative of this great institution. Together, we can support our students, our faculty, and the life-changing research that has made Columbia University a beacon of knowledge, inquiry, and service for nearly three centuries."

To learn more and to sign up, visit alumni.columbia.edu/takeaction.

JEH JOHNSON NAMED CO-CHAIR OF BOARD OF TRUSTEES

Jeh Johnson '82LAW, an attorney with a long history of public service, has been elected co-chair of the Columbia University Board of Trustees. He now shares that role with David Greenwald '83LAW, who became co-chair in 2023.

A graduate of Morehouse College and Columbia Law School, Johnson held senior roles in the Obama administration, including as general counsel of the Defense Department from 2009 to 2012 and as secretary of Homeland Security from 2013 to 2017. Earlier in his career, he was general counsel of the Air Force and a federal prosecutor in Manhattan. This past June, Johnson retired as a partner from the law firm Paul, Weiss, Rifkind, Wharton & Garrison.

"Columbia is in my bloodstream," Johnson said in a statement. "Four generations of my family have degrees from Columbia University. As co-chair of the Board of Trustees, I will work to preserve and promote the greatness and values of our University and will be committed to the welfare and safety of all our students."



Said Greenwald: "There's no one better suited to co-chair the Board of Trustees right now than Jeh Johnson, a leader who has spent his career in public service and in private practice navigating some of the most complex and consequential issues imaginable. I'm grateful to him for stepping up, for marshalling his expertise and experience in the service of Columbia and its incredible community."

KEVIN HOVDE RETURNS TO COLUMBIA AS HEAD BASKETBALL COACH

Kevin Hovde has been hired as the new head coach for the Columbia men's basketball team, a job that he begins this season. Hovde, the twenty-fourth head coach in the program's history, arrives at Columbia after three years at the University of Florida, where, as an assistant coach, he helped the Gators win an NCAA National Championship and achieve an average score of 84.8 points per game (the second best in the country) during the 2024–25 academic year. No stranger to the Lions and New York City, Hovde previously served on the Columbia basketball staff as the operations director and an assistant coach from 2011 to 2016.

In his previous stint at Columbia, Hovde worked under then head coach Kyle Smith, whose hyper-analytical approach to basketball strategy has been nicknamed "Nerdball." Hovde, who considers Smith a mentor, says he will follow a similar playbook in his own coaching of the Lions. "Offensively, we'll be up-tempo, data-driven and concept-based, rather than relying on set plays," he said at an April news conference. "We want to dictate pace — to keep opponents on their heels and play with purpose."

COURTESY OF THE OFFICE OF THE SECRETARY



FARAH JASMINE GRIFFIN NAMED UNIVERSITY PROFESSOR

Farah Jasmine Griffin, the William B. Ransford Professor of English and Comparative Literature and an influential scholar of African-American studies, has been named a University Professor, the highest academic distinction for a Columbia faculty member.

Since 2019, Griffin has served as the inaugural chair of Columbia's Department of African American and African Diaspora Studies, which brings together scholarship in history, literature, social sciences, and the arts to study Black culture and experience in the United States and beyond.

Griffin, who played a pivotal role in shaping the department, has written and edited eight books on subjects ranging from African-American migration to the legacy of Billie Holiday. Her recent books include *Read Until You Understand: The Profound Wisdom of Black Life and Literature*, from 2021, and a compilation of new and selected essays, *In Search of a Beautiful Freedom*, in 2023. A jazz enthusiast, Griffin is the co-creator of two stage productions with the late composer Geri Allen and director S. Epatha Merkerson, including *Conversations with Mary Lou*, a 2014 musical about jazz artist Mary Lou Williams that has been performed at the Kennedy Center.

University Provost Angela Olinto observes that Griffin "is a visionary and pioneering scholar and an outstanding member of our Columbia community. Her work has impacted multiple fields and areas of focus and exemplifies the sort of pathbreaking, interdisciplinary scholarship that we seek to honor in our University Professors."

A native of Philadelphia, Griffin holds a bachelor's degree in history and literature from Harvard and a PhD in American studies from Yale. Since arriving at Columbia in 2000, she has earned a reputation as an exceptional instructor, winning a Great Teacher Award from the Society of Columbia Graduates in 2020.

COLUMBIA LAUNCHES PHD PROGRAM IN AFRICAN-AMERICAN STUDIES

Columbia has announced the creation of a PhD program in African-American and African-diaspora studies, which will allow graduate students of Black history, culture, and intellectual traditions to take their scholarship to the next level. The highly interdisciplinary program, which is the first of its type in New York City, builds on the success of Columbia's master's degree program in the field. It will combine courses in African-American and African-diaspora studies with opportunities for specialized research in a range of related areas. The program is now welcoming applications for its inaugural cohort, which will start classes in fall 2026.

ELFQUEST CREATORS DONATE $500,000 FOR COMIC PRESERVATION

Columbia University Libraries recently received a $500,000 gift from Wendy and Richard Pini, creators of the independent comic series ElfQuest, to support Columbia's growing archive of comics and graphic novels.

The gift, which nearly doubles the libraries' previous funding for comics preservation, comes more than a decade after the Pinis donated their complete ElfQuest materials to Columbia. Now the couple's monetary gift will help conserve that collection, which includes thousands of original hand-drawn storyboards as well as fan mail and art, while supporting other comics archives held at Columbia's Rare Book and Manuscript Library, such as the papers of *Mad* magazine cartoonist Al Jaffee.

ElfQuest, a fantasy saga about a community of elves on a fictional planet, was originally self-published by the Pinis in 1978 under the brand WaRP Graphics and later reached a broader audience through Marvel and DC Comics. The series is widely credited for helping to bring underground comics into mainstream culture.

The ElfQuest archives and other comics materials are viewable by appointment at the Rare Book and Manuscript Library inside Butler Library.



Wendy Pini's cover art for a 1978 *ElfQuest* comic.

TOP: JAMALL CALLOWAY; BOTTOM: WENDY AND RICHARD PINI PAPERS, RARE BOOK AND MANUSCRIPT LIBRARY

COLUMBIA | Office of Gift Planning



Plan Beyond

Design the Future You Envision

Guests attend the 2023 Columbia MFA Thesis Exhibition at the Wallach Art Gallery at Columbia University Lenfest Center for the Arts. Photo Credit: Sirin Samman

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We Survived the Night

By Julian Brave NoiseCat '15CC (Alfred A. Knopf)

In Secwepemctsín, the northern Interior Salish language spoken by the Secwepemc or Shuswap First Nations peoples, who live in British Columbia, a typical morning greeting is *Tsecwíncuw-k*: you survived the night. Julian Brave NoiseCat '15CC learned this phrase from his *kyé7e*, or grandmother — one of the last remaining fluent native speakers of their tribal language — while studying with her on the Canim Lake Reservation during his first two summers off from Columbia.



"I often wonder what it meant for our people to greet one another and the day with the simple but profound acknowledgment that we are still here," NoiseCat, a member of the Canim Lake Band of the Secwepemc and descendant of the Lílwat Nation of Mount Currie band of the St'at'imc, writes in his first book, *We Survived the Night*. That survival, despite centuries of attempted erasure by the settlers of North America, has been hard-won. Its personal, historical, and contemporary dimensions form the foundation of NoiseCat's inquiry, which he approaches by weaving together *lexéy'em* (oral histories), *tspetékwil* (legends), memoir, and on-the-ground reporting to create a work as intricate as the baskets his great-grandmother once crafted. The result is a multifaceted restoration of Native history and a celebration of contemporary Native life that rejects romanticization in favor of more honest, complex truths.

We Survived the Night opens with a moment of Native survival significant to NoiseCat's own life. In August 1959, a night watchman at the Catholic-run Indian boarding school at St. Joseph's Mission in British Columbia heard a cry coming from the garbage incinerator. Amid the soot and trash, he found a newborn boy: NoiseCat's father. He had escaped not only imminent death but a systemic, continent-wide scheme to kill Indigenous peoples' cultures.

Kyé7e and her siblings had been sent to St. Joseph's in the 1940s when an Indian agent and the Royal Canadian Mounted Police came to collect the children from Canim Lake. When Kyé7e later got pregnant out of wedlock, she knew that "illegitimate" babies born at the mission were routinely disappeared to the incinerator.

NoiseCat's family had long avoided talking about their painful pasts at Indian boarding schools, including his father's birth and improbable survival. But in 2021, when news broke that ground-penetrating radar had found what appeared to be 215 unmarked graves at the site of the Kamloops Indian Residential School — where Kyé7e finished high school — he felt that "the spirits of our missing children … were coming home. And their truths could not be hidden, suppressed, or ignored any longer."

NoiseCat first exposed these truths in his 2024 Oscar-nominated documentary *Sugarcane*, for which he won the directing award at the 2024 Sundance Film Festival along with codirector Emily Kassie. *Sugarcane* follows NoiseCat and his father, Ed Archie NoiseCat — a renowned traditional carver whose work is featured in the Smithsonian — as they confront the grievous abuses perpetrated against Indigenous children for more than a century at St. Joseph's, which closed in 1981.

In *We Survived the Night*, NoiseCat widens his lens far beyond the history of how Indigenous peoples have persevered despite the horrors they endured at residential schools in Canada and the United States, where stealing Native children was a means to expropriate land. He structures the book around a cycle of "Coyote Stories," drawing on the often-told supernatural stories of his people's forefather, an immortal trickster sent by the Creator with immense powers of transformation — precisely the powers

that have enabled their survival. "Colonizers tried to remake us in their image or kill us — physically, legally, and culturally — countless times by countless means," NoiseCat writes. "To survive, we remade ourselves and the world around us in whatever way we could — often and especially by getting into trouble like Coyote."



NoiseCat doesn't shy away from that trouble, because Coyote stories also "get at hard and often unflattering realities." He meditates on "the choice our ancestors had to make in the face of colonization: resist or cooperate," a conundrum still very much alive in the Indigenous world today. He grapples with the damage wrought by his father's preferred coping mechanisms — abandonment, alcohol, and womanizing — and how those same tendencies live within him, too.

NoiseCat faces these unflattering realities because, as he writes, "That's what it means to *know* someone. And that's what it means to love them — all of them — too." *We Survived the Night* is a love letter to the First Nations, which were long deprived of love by the people who sought to erase them, and to "the legends indigenous to this place," which NoiseCat has preserved for readers to learn from.

— Kristen Martin '16SOA

A Training School for Elephants

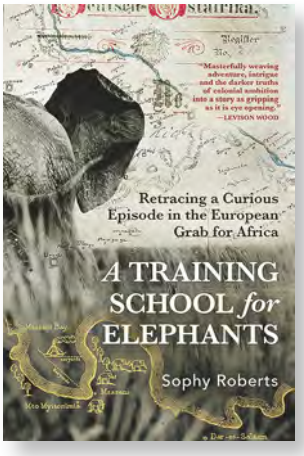
By Sophy Roberts '97JRN (Atlantic Monthly Press)

If you're in the mood for a stirring tale of heroic adventures, want to be inspired by a dreamy sojourn in the lush heart of Africa, or simply love all things elephant, do not read this book. Or rather *do read this book* and let author Sophy Roberts '97JRN expand your horizons as she offers a master class in the challenges and complexities of contemporary travel writing.

A Training School for Elephants tells the little-known story of an ill-fated 1879 expedition organized by Belgian king Leopold II. At that time, greedy colonial powers were laying the foundation for the "Scramble for Africa," and Leopold set his sights on the Congo Basin, which was rich in rubber and ivory. Anticipating the need for a reliable system to transport plundered resources off the continent, he commissioned Frederick Carter, an ambitious Irish "fixer," to ship four tamed Indian elephants to East Africa, march them hundreds of miles from Zanzibar to Lake Tanganyika, and use them to train African elephants to become beasts of burden. Even as harebrained ideas go, it was a doozy.

Roberts sets out on her own expedition to retrace this journey, hoping to examine "how nineteenth-century European expansionism remains tightly bound with topics of enduring consequence: racism, resource extraction, wildlife extinction." She will sleep under the stars, blend contemporary voices with voices from the archives, and try to understand how history has been shaped and silenced. As book concepts go, this is also a doozy. And yet Roberts pulls it off.

Roberts, a smart and empathetic British author, is a feted and persuasive travel writer (full disclosure: I recently took a trip to a remote lodge in the Himalayas inspired solely by one of her magazine articles). She is also a dogged researcher who happily digs through the archives for tiny details that will help bring Carter's journey to life (the book contains more than a hundred pages of footnotes). Roberts shows enormous sensitivity to her Indigenous sources and to the cultures of ethnic groups in the region, past and present. She even makes a study of elephant husbandry, voyaging to Pune, India, where she visits "the post office where Edward



Lear had drawn Pune's elephants in the shade of the banyan trees." Roberts's curiosity is insatiable. If there's a rabbit hole, she will go down it.

Contemporary travel writing can be full of clichés and superficial observations, with some authors clinging to a redemptive narrative arc and delivering neat endings on demand. Sophy Roberts is not one of these authors. She lives in the world of nuance and has an almost pathological commitment to telling the whole truth and nothing but the truth. Her journey is difficult, frustrating, even disappointing. Place names have changed with

EMILY KASSIE

urbanization, and what was dense jungle in Carter's day is now denuded land, decimated by climate change and empty of wildlife. As for her protagonist: Frederick Carter may have been an adventurer, but he was no hero. Prone to tantrums and plagued by insecurity, he was eager for fame and recognition at any cost. The elephants were sorely mistreated and suffered terribly at his hands.



Roberts has said that she wants "to write books that allow me to interrogate 'big history' through a contemporary quest." She did this in her debut book, *The Lost Pianos of Siberia*, which details Roberts's quixotic pilgrimage east of the Ural Mountains in search of a Russian piano with a significant provenance. Spoiler alert: she never finds the piano. And in *A Training School for Elephants*, her journey is similarly thwarted. This is a tale of greed, hypocrisy, cruelty, and folly. But for readers willing to watch an author grapple with an unwieldy and complex subject with integrity and grit, it's worth coming along for the ride.

— *Sally Lee*



Exhibitionist

Peter Mendelsund '91CC is not new to the artistic process: an award-winning book-cover designer, he has also performed as a classical pianist and written several books, and he currently serves as the creative director of *The Atlantic*. But during the pandemic, his mental-health struggles took him down a new path — to abstract painting. Nearly paralyzed by depression, Mendelsund spent his days isolated in a barn, teaching himself to paint while agonizing over his inability to write or even read. He tormented and wrecked his canvases, searching for a way back to his creative nature. The result was his new book, *Exhibitionist*, a memoir of this time, featuring one hundred of his paintings. In it, Mendelsund recalls a conversation with his mother, who was skeptical of the genre. "Why go on about yourself, about your past?" she said. "Memoirs are so exhibitionist." Mendelsund's book both challenges and embraces that notion. A blunt and starkly honest account of a difficult time in his life, it also serves as a poetic meditation on art and expression.

Postscript

By Marie Howe '83SOA, winner of the 2025 Pulitzer Prize for Poetry

What we did to the earth, we did to our daughters
one after the other.

What we did to the trees, we did to our elders
stacked in their wheelchairs by the lunchroom door.

What we did to our daughters, we did to our sons
calling out for their mothers.

What we did to the trees, what we did to the earth
we did to our sons, to our daughters.

What we did to the cow, to the pig, to the lamb,
we did to the earth, butchered and milked it.

Few of us knew what the bird calls meant
or what the fires were saying.

We took of earth and took and took, and the earth
seemed not to mind,

until one of our daughters shouted: *It was right
in front of you, right in front of your eyes*

and you didn't see,
The air turned red. The ocean grew teeth.

Excerpted from New and Selected Poems.

TOP: FROM *EXHIBITIONIST*, BY PETER MENDELSUND © 2025 CATAPULT BOOKS. REPRINTED WITH PERMISSION; POSTSCRIPT: © 2024, 2017, 2008, 1998 BY MARIE HOWE. USED WITH PERMISSION OF THE PUBLISHER, W. W. NORTON & COMPANY, INC. ALL RIGHTS RESERVED

READING LIST

New and noteworthy releases

VERA, OR FAITH

By Gary Shteyngart

Judging by the chapter titles of Columbia writing professor Gary Shteyngart's latest novel, the book's ten-year-old protagonist, Vera, has weighty responsibilities on her mind: "She had to survive recess," "She had to hatch a plan," and of course "She had to hold the family together," to name just a few. That family consists of her Russian-immigrant dad, her WASP stepmom (whom she calls "Anne mom," in contrast to her estranged Korean birth mom, known as "mom mom"), and her younger brother. Set in a dystopian near-future full of self-driving cars, authoritative AI bots, and a troubling political climate, Shteyngart's latest is a smart satire with charm to spare.

JUST PILLS

By Rebecca Kelliher '13BC, '21JRN

The development of the abortion pills mifepristone and misoprostol in the 1970s and 1980s was in many ways a medical miracle, providing millions of women often lifesaving ways to end pregnancies. In her first book, science journalist Rebecca Kelliher delves into their invention, the battle for their legalization, and their adoption around the world, talking to more than two hundred people who have used, administered, and advocated for the pills. In a post-*Dobbs* America, the fight for abortion rights has become increasingly urgent, and Kelliher's project is ambitious and timely.

THE ETERNAL FOREST

By Elena Sheppard '20SOA

Before Fidel Castro seized power in 1959, Elena Sheppard's grandparents, Gustavo and Rosita, were raising their two girls in idyllic Cifuentes, Cuba. But when Gustavo was placed on a list of political undesirables, the family left for the US, taking only one suitcase and five American dollars. Elena arrived nearly three decades later; she was the first American-born in her clan, but she was raised on her family's memories of "that crocodile-shaped island fueled by God and music and sugar money and rum." She tells those stories warmly and elegantly here, weaving together family lore and Cuban history to create a vibrant portrait of exile and repatriation.

AN ORAL HISTORY OF ATLANTIS

By Ed Park '95SOA

Technology is seeping into every corner of our lives, and the AI revolution threatens to upend the way our world works. So how, in this robot-run society, do we retain our humanity? That question is central to Pulitzer Prize finalist Ed Park's latest work of fiction — a quirky, Barthelme-esque story collection. In one piece, a man contemplates his life via a series of password-recall prompts. In another, a hacker figures out how to make an e-reader splice the texts of books together, creating a disorienting (but maybe revolutionary?) new way to read. Together, the stories are an amusing look at our new normal.



THE UNBROKEN COAST

By Nalini Jones '01SOA

In a small Catholic enclave of Mumbai, Francis Almeida, a retired history professor teetering on the brink of dementia, runs his bike into Celia D'Mello, a feisty eight-year-old from the nearby fishing village. Missing their globe-scattered grown children, Almeida and his wife take Celia under their wing, and two families' lives become intertwined in unexpected ways. Nalini Jones's debut novel, which follows the Almeidas and D'Mellos through three decades and countless tragedies, is a lovely and often heartbreaking portrait of a community barreling into modernity.

NO ORDINARY BIRD

By Artis Henderson '10JRN

When Artis Henderson was five years old, she boarded a small plane piloted by her father, Lamar Chester. Moments later, it crashed, leaving Artis injured and her father dead. For the rest of her childhood, it was referred to as "the accident." But decades later, she learned that it hadn't been an accident at all, and that her beloved father wasn't who she thought he was. Oddly, this is Henderson's second memoir about a devastating crash — her first book, *Unremarried Widow*, chronicled life after her husband was killed in a helicopter accident in Iraq. There's more drama to her new book, a stranger-than-fiction story packed with sabotage, betrayal, and international intrigue. But at the heart, both books are about gut-wrenching grief, which Henderson writes about with remarkable grace.



Between Two Rivers

By Moudhy Al-Rashid '05CC (Norton)

For those who associate Mesopotamia with slogging through two weeks' worth of dry-as-dust chapters from a sixth-grade history textbook, *Between Two Rivers*, by Oxford historian Moudhy Al-Rashid '05CC, will come as not merely a pleasant surprise but a rare treat. This is due in no small part to the personal warmth and enthusiasm that infuse Al-Rashid's writing as she relates the history of ancient Mesopotamia (from the Greek for "between the rivers" — in this case the Tigris and Euphrates) by examining the masses of what today we would call "data" that appear on cuneiform tablets discovered at excavation sites throughout what is now mostly southern Iraq.

Al-Rashid's love affair with Mesopotamia began two decades ago when she impulsively signed up for a weeklong seminar on ancient books led by a curator at the British Museum. She had been applying to law schools, but from her first glimpse of cuneiform — the intricate system of wedge-shaped symbols carved into clay that ancient Mesopotamians used to record every aspect of their lives — she was mesmerized.

Cuneiform, originating around 3350 BC, is recognized as the world's earliest writing system, and it adapted and endured to represent the different languages of the different empires that ruled Mesopotamia for nearly four millennia, including Sumerians (the first to use the script), Akkadians, Assyrians, and Babylonians. Because writing granted people for the first time the miraculous means to record their thoughts and activities, the birth of cuneiform is widely considered the birth of history. With these clay documents as her primary lens, Al-Rashid guides us through the life and times of generations of Mesopotamians, from the lowliest have-nots to the loftiest gods and royals.

We learn about the calculations of brilliant proto-mathematicians who intuited pi and the Pythagorean theorem a thousand years before Pythagoras drew breath. We get a fresh take on Gilgamesh, the Sumerian-king-turned-epic-hero whose legendary quest for immortality imparts some pertinent lessons about leadership to modern readers. We see, too, that this extraordinary civilization, renowned for its firsts — writing, math, urbanization, irrigation, the wheel — also fought the first known war (a border conflict five thousand years ago). An early archaeological find, the mace — essentially, a piece of granite mounted on a stick and used to club the enemy — is a fixture in the iconography of every period of ancient Mesopotamia, inspiring poetry of grief, glory, and, often, shockingly brutal imagery.



Ultimately, however, the most resonant cuneiform objects in Al-Rashid's compendium are the voluminous records kept by the ordinary citizens who formed the backbone of Mesopotamian society. The ins and outs of their daily lives include tabulations of the amount of beer a merchant bought and sold, loan repayment plans detailing principal and interest, documents showing taxes owed and sometimes (ingeniously) evaded, even the occasional errant paw print of a local dog. Rising out of these quotidian details are indelible portraits of resourceful men, women, and children whose stories reverberate down the millennia. The schoolboys hunched over tablets of wet clay with bamboo styluses in hand, smudging the surface to erase and then correct a homework mistake. Their teacher, picking up on the students' anxiety, who urges them, "Do not constantly be afraid." The desperate new mother, crooning a beautiful lullaby that has been etched into a clay tablet. The overburdened working mom struggling to do it all. (Women were always a vital part of the workforce, Al-Rashid tells us, performing nearly every task that men did, though rarely for equal pay.) Ancient folks: they're just like us!

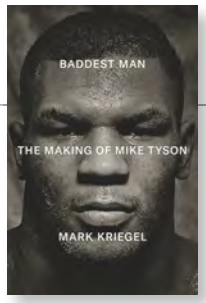
And that, in a nutshell, is the theme Al-Rashid returns to repeatedly in this eye-opening book. These "little wedges pressed into clay," she writes, "let the people of ancient Mesopotamia speak." And when we hear them, the seemingly intractable barriers that divide us — time, nationality, wealth, poverty, religion, race, gender — fall like dominoes, reminding us (and, alas, we seem always to *need* reminding) of "all the big and little things that go into our shared humanity."

— Lorraine Glennon

DAVID LANCASTER

Writers and Fighters

For *Baddest Man: The Making of Mike Tyson*, Mark Kriegel '86JRN had to revisit his own past as a sportswriter





MIKEY WILLIAMS

Columbia Magazine: You began covering Mike Tyson in 1988 as a young reporter at the *Daily News*, two years after Tyson became the youngest-ever heavyweight champion. Did you imagine at the time that someday you'd write a book about him?
Mark Kriegel: No. When I do a biography, I have to fall in love with the subject, and I was definitely not in love with Tyson. I knew my task as a tabloid columnist was to supply red meat. And Tyson became my designated villain, not without some justification.

CM: What changed?
MK: In 2012, I saw his one-man show, *Undisputed Truth*, in previews, before it went to Broadway. You get older and have your ass kicked a couple times in life, you become more tuned in to things. Watching Tyson onstage talking about getting *his* ass kicked, I found myself holding back tears. After the show, I met with him and asked him if something bad that I had once written about him was true. He admitted it was. Then he looked at me and said, "How did that make you feel?" I thought, *Who's asking the questions here?* I told him about the adrenaline rush of covering a big, fast story for a tabloid paper, how it was like a drug. And he nodded. And I thought, This is a different guy. It's not the monster. I can empathize with this guy.

CM: Your book covers Tyson's early life in Brooklyn and in Catskill, New York, where he lived with his trainer, Cus D'Amato, and ends in 1988 with the Tyson–Spinks fight, when Tyson was twenty-two. Did you intend for this to be a single volume?
MK: The truth is, I didn't want to write a biography. I wanted to write a slim, elegant book about writers and fighters. But Tyson generates so much damn story. I had three hundred manuscript pages, and Tyson was seventeen.

CM: Your book is still about writers and fighters, and about how journalists you admire, including Norman Mailer, Gay Talese, and Pete Hamill, contributed to the Tyson myth. Why are so many writers drawn to boxing?
MK: Any story begins with a need for conflict, and boxing is ritualized, stage-managed conflict. Your themes are explicit and your protagonists are naked metaphorically and almost literally. And chances are that whatever made these two fighters goes back to some dysfunction in their backstory. Each protagonist carries his story into the ring with him that night, and when they confront the other, it's a perfectly set up drama.

CM: One of the main dramas in the book is between Tyson and D'Amato.
MK: Cus had taken this kid in from juvenile lockup, and all he was asking of Tyson was, *Make me live forever*. It's a Faustian bargain: *You can have anything you want, Kid, but you have to be the greatest, the youngest, the baddest. You have to make me live forever*. When I posed that to Tyson, his response was, "Well, didn't I?" And my question is, "Yes, but at what price?"

CM: What separated Tyson from his competition in the 1980s, when he was knocking everyone out in the first or second round?
MK: In addition to his physical gifts, his real genius was his ability to refract his own fear onto his opponent. Guys were scared to come out of the dressing room. Tyson was scary to begin with, but the *idea* of him — and the way that he exploited this in an opponent's mind — was infinitely more terrifying.

CM: Your book ends in Atlantic City at Tyson–Spinks: there's Tyson, Don King, Spinks's manager Butch Lewis, and, front and center, Donald Trump.
MK: It's like a grand Sabbath of narcissists. When I look back on the Tyson of '88, I see the genesis of 1990s tabloid culture. The latter section of Tyson's career, when he was declining emotionally and physically, gets so much attention because he played the villain to such great mass delight. The idea of Tyson as the scary guy was so lucrative that he was obliged to be that guy.

CM: How has your own idea of Tyson changed over time?
MK: I realized that it's much better to judge him by what he survived: a broken mother who died young, an absent father, Brownsville, molestation, incarceration, boxing itself, an all-consuming fame, Don King — the list goes on. Typically, the third act in a fighter's life is the tragic one. Tyson's has been the most unlikely triumph.

— Paul Hond

Saturday Night Dive

Doug Hill '76JRN went deep to capture the definitive history of *SNL*

On October 11, 1975, as the clocks of New York struck 11:30 p.m., a new show debuted on NBC. Produced by Lorne Michaels and featuring a ragtag cast of sketch-comedy guerrillas with no television experience, *NBC's Saturday Night* (the *Live* would come later) was a flaming comic canister tossed into the yawning darkness of late-night weekend programming — the network's attempt to snag the elusive and coveted 18–34 demographic.

Doug Hill '76JRN, a Kansas-born child of the television age, was pretty much the target audience. At twenty-five, he had been to college on the West Coast, wrapped himself in the counterculture, and arrived at Columbia Journalism School with a lot of talent and little direction. He did not watch the first *SNL* episode that October night (few did). Probably he was downtown at CBGB, the music club that became the subject of his J-school thesis. "I had nothing but contempt for TV," Hill says. "I didn't even own a set."



And yet, after graduating, Hill found work writing for the TV journal *Broadcasting*. That's how he met Jeff Weingrad, a writer who had covered *SNL*. Hill and Weingrad became friends, and in 1983, with *SNL* still running and Michaels's number still in Weingrad's Rolodex, they had an idea to cowrite a history of the show, which, by virtue of the stars it had launched (Chevy Chase, John Belushi, Bill Murray, Eddie Murphy) and the cultural currency it supplied (the Coneheads, the Blues Brothers, noogies), was already an institution.

"We went to Lorne with our proposal, and he said yes," says Hill. "That opened all the doors for us." Over the next two years, the pair interviewed more than two hundred people, from the top brass at NBC to the show's directors, production staff, and writers (Al Franken and Tom Davis were especially helpful). Just two of the original cast members, Chase and Laraine Newman, agreed to talk — Belushi had died in 1982, and the others had left the show in recent years and were still recovering from it. But the authors gathered a mountain of untapped material, and from it they fashioned a kind of bible of the show's first decade: its genesis (NBC president Herb Schlosser wrote a memo in early 1975 outlining the idea for a live late-night weekend show); exoduses (a burned-out Michaels left in 1980, followed by the entire cast, though he would return five years later); and revelations (read the book).

Hill and Weingrad divided the workload: they both conducted research, and then Hill wrote and Weingrad edited. The finished product, titled *Saturday Night: A Backstage History of Saturday Night Live*, was published in 1986 — a smart, compelling, richly detailed page-turner about, as the authors write, "highly creative and consciously eccentric people" who were operating in a pressure cooker of fast fame, drugs, and old-guard network politics.

Critics adored the book, but among *SNL* insiders, opinions varied. Michaels questioned the veracity of certain anecdotes, and Chevy Chase expressed a wish to meet the authors in a dark alley with a pair of pruning shears. At 30 Rockefeller Center, from which *SNL* airs, NBC's then president Brandon Tartikoff and others praised the book, and the AP's verdict that it "may be the best book ever written about television" has proved as durable as the show. Last year, Histria Books published a new edition to mark *SNL*'s fiftieth anniversary.

After the 1986 publication, Hill mostly unplugged from *SNL*. He spent ten years writing for *TV Guide*, then, as he describes it, "kind of wandered off into the wilderness." He got hooked on the French philosopher Jacques Ellul's writings on technology and society, and in 2016 the University of Georgia Press published Hill's second book, *Not So Fast: Thinking Twice About Technology*.

Hill intermittently checks in on *SNL* — his favorite performers have been Phil Hartman and Tina Fey — and he credits the show's success to its authenticity. More than anything before it, he says, *SNL*, in its attitude and its chaos, reflected reality.

"All the time I was growing up, television was telling lies," he says. "We had *Ozzie and Harriet* and *Leave It to Beaver*, and they just weren't honest. *Saturday Night Live* came on and told the truth." — *Paul Hond*

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A dendrochronologist at Lamont-Doherty Earth Observatory examines a tree core sample under the microscope to learn about past climate. (Photo Credit: Brandon Vallejo)

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