AI CHALLENGES IN THE CLASSROOM / LONDON'S BIG DATA DETECTIVE

PRINCETON ALUMNI WEEKLY

NOVEMBER 2025

MADE IN PRINCETON

An instrument on NASA's newly launched IMAP spacecraft was built by the Space Physics group, which is leading the mission

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PRINCETON UNIVERSITY ART MUSEUM

Free to all.

Photo: Richard Barnes.

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An editorially independent magazine by alumni for alumni since 1900

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Lauren Sager Weinstein ’95 aims to keep Londoners on time as the chief data officer of Transport for London. *See page 32.*

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ON THE COVER

A technician watches as IMAP and two smaller spacecraft are encapsulated inside a SpaceX Falcon 9 rocket in advance of the launch on Sept. 24 in Florida.
Photography by BAE Systems/Benjamin Fry

DAVID WOOLFALL

Princeton Alumni Weekly (I.S.S.N. 0149-9270) is an editorially independent, nonprofit magazine supported by Princeton University and paid advertising. Its purpose is to report with impartiality news of the alumni, the administration, the faculty, and the student body of Princeton University. The views expressed in the *Princeton Alumni Weekly* do not necessarily represent official positions of the University. The magazine is published monthly with a combined July/August issue. *Princeton Alumni Weekly*, 194 Nassau Street, Suite 38, Princeton, NJ 08542. Tel 609-258-4885; email paw@princeton.edu; website paw.princeton.edu. Printed by Fry Communications Inc., Mechanicsburg, Pa. Annual subscription: $30 ($34 outside the U.S.), single issue: $2. Periodicals postage paid at Princeton, N.J., and at additional mailing offices. **Postmaster:** Send Form 3579 (address changes) to PAW Address Changes, 194 Nassau Street, Suite 38, Princeton, NJ 08542.

The President's Bookshelf: Two selections for this fall

As the fall semester began, a Princeton junior emailed asking whether I might recommend books to him. His message reminded me of how special Princeton students are; some people worry that young people no longer read books, but this Tiger wanted suggestions to supplement his already heavy classroom assignments.

Princeton alumni also ask me for book recommendations occasionally, so I thought that I would pass along the two that I offered to our student. Both books make valuable arguments not only about the specific topics they address, but also about the mission of research universities and a liberal arts education.

***In Covid's Wake: How Our Politics Failed Us*, Stephen Macedo *87 and Frances Lee (Princeton University Press, 2025)**

In Covid's Wake, coauthored by two Princeton politics professors, is a scathing critique of America's response to the pandemic. Macedo and Lee demonstrate how groupthink—and sometimes outright censorship—led policymakers and academics to make bad choices with lasting costs to the country.

In Covid's Wake is essential reading for many reasons, including the light it sheds on arguments about the conditions required for robust, truth-seeking scholarship and debate at universities. Too often, people who talk about "viewpoint diversity" in higher education assume that it means having a balance of liberals and conservatives, or that it requires universities to mirror disagreements from the political realm.

That is the wrong way to think about scholarship. Macedo and Lee, who describe themselves as "liberal democrats," have harsh words for "the Blue-state policy orthodoxy" about masking, school closures, and other nonpharmaceutical interventions.[1] Their argument defies categorization as "progressive" or "conservative": they are skeptical about masks but bullish about vaccines, for example.[2]

Macedo and Lee warn us against "the premature moralization of disagreements," and they insist on "the willingness to entertain doubts, listen to other points of view, and revise our own commitments."[3] That—not some sort of statistical liberal/conservative balance—is exactly what "viewpoint diversity" ought to mean in the context of a great research university.

I am persuaded by much of *In Covid's Wake* but disagree with aspects of it. You might too. Good: thoughtful—and evidence-based—argument about what worked during the pandemic, and what did not, is exactly what America needs. We need to identify our mistakes now and correct them, before another virus engulfs the globe.

George Will *68 wrote in *The Washington Post* that *In Covid's Wake* represents "social science at its finest."[4] I concur enthusiastically.

***Book and Dagger: How Scholars and Librarians Became the Unlikely Spies of World War II*, Elyse Graham '07 (Ecco, 2024)**

PAW's loyal readers may recognize Elyse Graham as the author of lyrical, illuminating essays about Princeton's history that appear regularly in these pages. Her recent book tells an amazing story: how humanists from America's research universities rebuilt the nation's espionage operations and helped win World War II.

Book and Dagger introduces some fascinating characters, like Joseph Curtiss, a young Yale English professor who becomes agent 005 (I'm not kidding) based in Istanbul for the Office of Strategic Services.[5]

More generally, it describes how modern intelligence operations draw on core humanistic skills: the abilities required to translate, interpret, and find meaning in reams of text drawn from newspapers, dispatches, and other messages. No wonder the American and British governments recruited agents from universities and libraries.

While reading Graham's book, I could not help but recall that when General Mark Milley '80 visited Princeton during his service as Chair of the Joint Chiefs, he met with Professor Ekaterina Pravilova, a specialist on the Russian Empire and early Soviet history, so that he could learn more about how Russians viewed their history.

I remembered, too, that General Christopher Cavoli '87, who served as Supreme Allied Commander Europe (and, like Milley, is a recipient of Princeton's Woodrow Wilson Award) has a graduate degree in Russian and East European Studies and speaks four languages: English, French, Italian, and Russian.

As Graham notes, American lore, including movies like *Oppenheimer*, gives bomb-making scientists credit for winning World War II. She argues persuasively that humanists deserve far more credit than they get.

Book and Dagger is also a potent antidote to noxious claims that describe universities or professors as hostile to our country. The vast majority of the students and professors I meet on the Princeton campus love America and want to make it the best it can be. As Graham reminds us, we need their talents, not only in the STEM disciplines but also in the humanities, to build the future that our children deserve.

I'll conclude (self-indulgently!) by mentioning one more book: my own ***Terms of Respect: How Colleges Get Free Speech Right*** (Basic Books, 2025). I'll be talking about the book with Princeton alumni at events around the country during the year ahead.

[1] Stephen Macedo and Frances Lee, *In Covid's Wake: How Our Politics Failed Us* (Princeton University Press, 2025), 26, 18.
[2] Macedo and Lee, *In Covid's Wake*, 143-145.
[3] Macedo and Lee, *In Covid's Wake*, 18.
[4] George F. Will, "How the coronavirus sparked an epidemic of intellectual malpractice," *The Washington Post*, July 11, 2025, https://www.washingtonpost.com/opinions/2025/07/11/covid-coronavirus-pandemic-response/
[5] Elyse Graham, *Book and Dagger: How Scholars and Librarians Became the Unlikely Spies of World War II* (Ecco, 2024) xi, 74-78.

INBOX

YOUR THOUGHTS ON THE LATEST ISSUES

HARBISON'S LECTURES

I was delighted to read the story about E. Harris Harbison 1928 (Princeton Portrait, June issue). I was a student in Harbison's "Ren and Ref" course (Renaissance and Reformation) in the fall of 1962, and I was even in his precept. This may well have been the last time he taught undergraduates. He was visibly ill and lectured sitting.

E. HARRIS HARBISON 1928

Harbison was also a playwright of sorts. At our last class he read us a short play he had written. Luther, Calvin, and Loyola were being tried in a heavenly court for the crime of shattering the "medieval synthesis of faith and reason." The prosecuting attorney was Dante. I don't remember the outcome, but I do remember this. At one point Loyola yells "ad majorem Dei gloriam," and Calvin yells back, "That's heresy. God is perfect, and perfection cannot be increased." There was more in this vein. At the end of the class, we all were eating out of his hand, and we gave him a rousing round of applause. It was richly deserved.

MICHAEL MINI '65
Kennett Square, Pa.

THE VON LAUE LETTERS

Thank you so much for the great article, "Why a Father in Nazi Germany Sent His Son to Princeton" (September issue). It was a gripping account of how a Princeton family was affected by Hitler's takeover of Germany. Although I also enjoyed the cover article, "The Fall Guy," the lessons from the article on Nazi Germany are so relevant to President Donald Trump's attack on freedom of speech and thought, it seems *that* should have been the cover story!

I hope you'll find and print more stories on how we can fight back against the attack on our democracy and protect Princeton's independence.

BILL CARPENTER '73
Del Mar, Calif.

In the first paragraph of the Elyse Graham '07 article on the von Laue letters, if one were to advance the date by 90 years and substitute names and places, we would have an apt description of what's happening in current day America. As Theo von Laue is quoted as saying, referring to his father, Max von Laue, "He did not want me growing up in a country run by gangsters."

Those of us who are fathers who love our children want the same. Can Princeton and like institutions continue as strongholds of ideals, as described by Ms. Graham, or will the damage being inflicted become unrepairable?

GEORGE GRIGGS '59
Kennebunk, Maine

I had not known that Theodore von Laue had been at Princeton. There is an anecdote about Max von Laue in the wonderful and rather unknown chronicle of Albert Einstein's science by his former assistant, Cornelius Lanczos, *The Einstein Decade 1905-1915*:

"[Max von] Laue was a man of absolute integrity, who behaved most wonderfully when so many colleagues failed during the emergency created by the Nazi era. He refused to accept a position abroad, because his own life was not endangered and he did not want to take away the opportunity for somebody who might need it more than himself. Thus, he preferred to stay in Germany and do the utmost possible (often with disappointing results) for those colleagues who came into difficulties. Einstein was tremendously impressed with the unbending honesty of his friend. Years after the Second World War an eminent physicist from Germany visited him in Princeton. As he was about to leave, he asked Einstein whether he wanted to send greetings to his old friends in Germany. 'Grüssen sie Laue,' was Einstein's answer: Greetings to Laue. 'Yes,' said the visitor, 'I shall be happy to convey these greetings. But you know very well, Professor Einstein, that you have many other friends in Germany.' Einstein pondered for a moment, then he repeated: 'Grüssen sie Laue.'"

DAVID DERBES '74
Chicago, Ill.

TSURKOV'S RELEASE

In what is literally a miracle, Princeton graduate student Elizabeth Tsurkov has been released from more than two years of terrorist captivity in Iraq (On the Campus, October issue), thanks to pressure from President Donald Trump and the State Department. As President Trump noted, "I am pleased to report that Elizabeth Tsurkov, a Princeton Student, whose sister is an American Citizen, was just released by Kata'ib Hezbollah (MILITANT Hezbollah), and

DANIEL HERTZBERG

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is now safely in the American Embassy in Iraq after being tortured for many months. I will always fight for JUSTICE, and never give up. HAMAS, RELEASE THE HOSTAGES, NOW!"

Ironically, although President Eisgruber has been styled as "The University President Willing to Fight Trump" (*The New York Times*), Tsurkov is in fact the *second* Princeton graduate student that Trump has had to help release from an Islamist tyranny.

The University's indifference to its Jewish students is appalling. It is time for Princeton to apologize to Tsurkov for approving a dangerous trip to do her graduate work, even though her advisers knew well she was both Jewish and an Israeli citizen. If the precedent holds for the last graduate student Princeton lost to 40 months of captivity in Iran, Xiyue Wang, the University might have to pay a significant sum to resolve claims over its negligence and indifference to putting its students in danger.

MICHAEL GOLDSTEIN '78
Encino, Calif.

NEW ART MUSEUM

As a member of the greater community outside the University, I can tell you that the excitement about the opening of the new art museum (President's Page, September issue) is palpable!

Having seen presentations about the progress of building and now of the galleries themselves, having a world class museum within walking distance for most of us sets a standard for our community that reinforces why so many of us live in town. We, like the University, have been waiting a long time for the opening. There is no question that this addition to the University will elevate community relationships to an even stronger position and give us one more reason to visit the campus.

STEPHEN T. SCHREIBER
Princeton, N.J.

In response to James G. McCulloh '56 *65's Vitruvian lament (Inbox, September issue), I would say that I'm willing to wait to judge the *venustas* of the art museum until I've visited it, but also to give it time. Campuses change. Tastes change.

My concern is more catholic: that construction on the campus has become metabolic, as if to stop would kill the place. And the amount of carbon that the University has wasted in its insistence on demolition is stunning. Some enterprising senior should do an accounting of it as the basis for a thesis.

JIM MOSES '88
Greenfield, Mass.

NUCLEAR FISSION

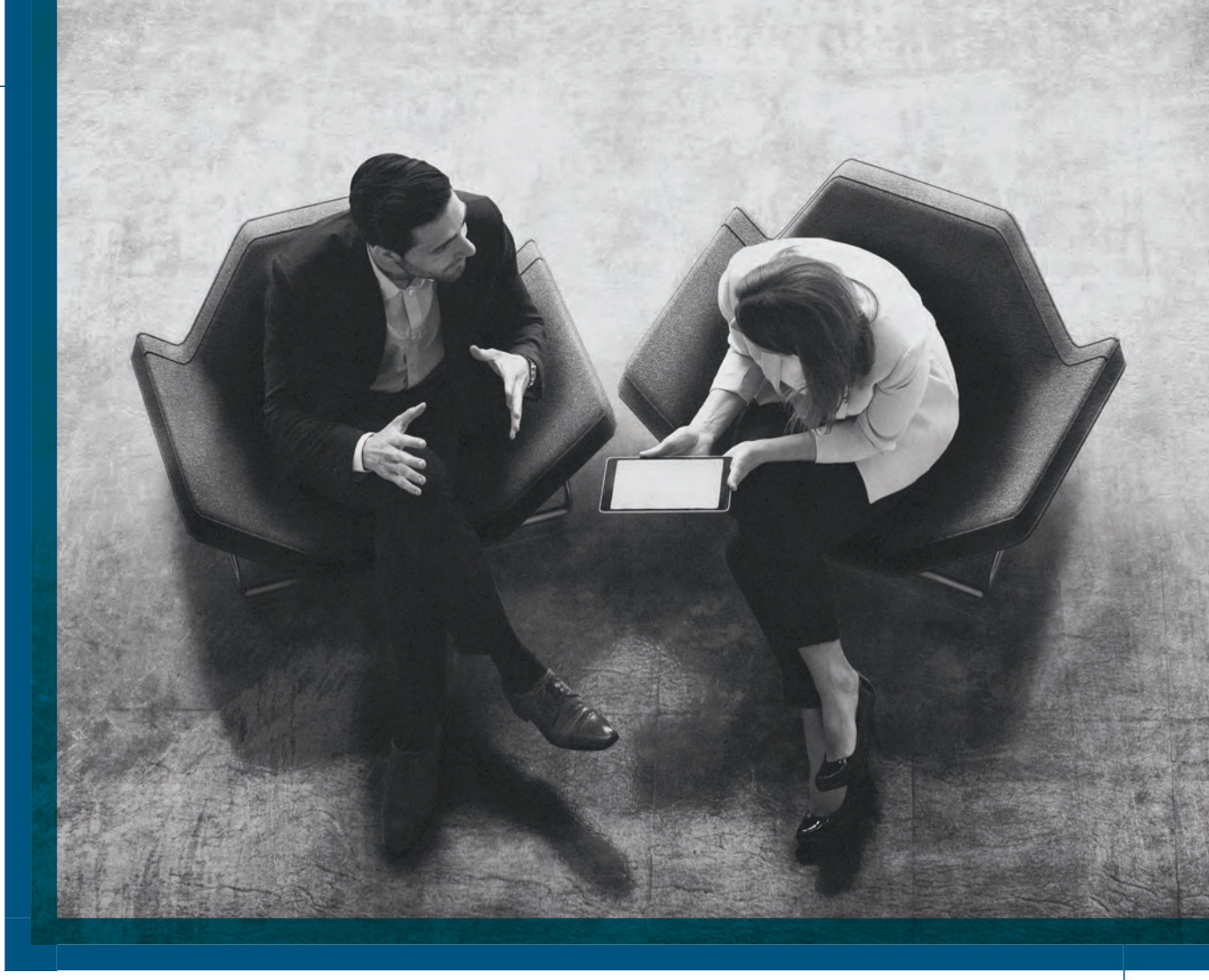
There's an interesting follow-up to the Smyth Report, published under the title *Atomic Energy for Military Purposes* (Princeton Portrait, September issue). My father, Bernard Goodman, was then a graduate student and the youngest member of a group of physicists from the University of Pennsylvania who were curious to understand the physics details behind the Smyth Report. The group, led by assistant professor William Stephens, had been part of the wartime efforts to develop radar and sonar, but not the bomb. They held a series of seminars and compiled their notes into a book-length manuscript, *Nuclear Fission and Atomic Energy*. They submitted it for publication in 1946, but security concerns delayed its publication until 1948. While they were not censored, the authors were persuaded to drop the discussion of implosion, which was at the time considered one of the most sensitive secrets of the Manhattan Project. You can find the full published version online and an article about it in the May 2012 issue of *Physics Today*.

MARK GOODMAN *86
Bethesda, Md.

RELATIVITY AND BASEBALL

The letter about Einstein, Yogi Berra, and misquotation (Inbox, September issue) brings to mind another story, and another MLB catcher: Princeton's own Moe Berg 1923.

In Berg's recollection of a meeting with Einstein, which appears in Nicholas Dawidoff's *The Catcher Was a Spy*, Einstein told him, "Mr. Berg, you teach



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me baseball and I will teach you the theory of relativity," and then, after a pause, decided, "No, we must not. You will learn relativity faster than I will learn baseball."

ROB SLOCUM '71
Ocean View, Del.

PRINCETON TIES

I read with interest the story in your September edition (Princetonians) on Virginia Maloney '10, a distinguished graduate who is set to become a member of the New York City Council, following her mother, who has served in public office for 40 years.

But nowhere in the article is any mention of her father, Clifton H.W. Maloney. Clif was a member of the Class of 1960 who died tragically and far too young while mountain climbing. Our 25th Reunion Book includes a lovely picture of a very young Virginia in the arms of her father, Clif.

HARRY P. MEISLAHN '60
Charlottesville, Va.

YOUR PERSPECTIVE

Let us know what you think

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ONLINE

EXCLUSIVES

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PAWCAST

Mental Health

Student journalist **Raphaela Gold '26** spent a year and a half reporting for *The Daily Princetonian* on how the University handles the most severe student mental health crises — the kind that might need a hospital stay or a leave of absence. On the latest PAWcast, she explains what she found. Listen at paw.princeton.edu or wherever you get your podcasts.

GOLD '26

SCOTUS

Toys and Tariffs

The U.S. Supreme Court has agreed to take up toymaker **Rick Woldenberg '81's** tariff case against the Trump administration. Woldenberg argued in an April filing that the administration's tariffs would be disastrous for his fourth-generation family business, which mainly outsources the manufacturing process of its toys to China.

WOLDENBERG '81

ADMISSIONS

Return of the SAT

Princeton is once again requiring undergraduate applicants to take the SAT or ACT, starting in fall 2027. A test-optional policy was put in place during the pandemic in June 2020, but data showed that students who submitted test scores fared better academically at Princeton than those who didn't.

PAW NEWSLETTERS

Art Museum Opening

If you aren't signed up for PAW's special coverage email newsletters, now is the time! Ahead of the Princeton University Art Museum's grand opening on Oct. 31, we'll report and photograph the building and the campus reaction — and send it all to you. Get on the list at **paw.princeton.edu/get-more-paw.**

SCAN the QR code to sign up for PAW's special coverage newsletters

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HOME COURT
Recreational players try out the new basketball court outside Dillon Gym that was added as part of the Class of 1986 Fitness and Wellness Center project, completed in August.

SAMEER A. KHAN H'21 / FOTOBUDY

ADOBE

ACADEMICS

What's Foul and Fair When Students Use AI?

Professors and undergrads reflect on the challenges of regulating technology's role in coursework

BY SOFIA CIPRIANO '27

WHEN ASKED TO WRITE A "snappy" hook for an article on generative AI's impact on academic integrity at Princeton, ChatGPT produced the following:

"At Princeton, generative Al is shaking up academic integrity — forcing students and professors to rethink what's real work and what's just smart software."

In this case, the chatbot may have a point: AI technology's ubiquity has sparked a wave of conversations on the national and local levels. *The Chronicle of Higher Education* reported in July that, based on an amalgamation of recent studies, anywhere from one-third to almost all university students use AI. Princeton is no exception, and yet enforcement of University rules does not seem to be meeting student practices.

The Daily Princetonian's 2025 Senior Survey found that 25% of AB students and 37% of BSE students in last year's senior class reported using a large language model (LLM) for an assignment when it was not allowed. Though Honor Code cases remain rare, the number of students found responsible for "unauthorized use" of outside material (including generative AI) on in-person exams has doubled: Between 2015 and 2020, the student-led Honor Committee found seven instances of responsibility in such cases; statistics from 2020-25 recorded 14.

The Faculty-Student Committee on Discipline, which addresses academic infractions committed outside the classroom, tells a similar story. "There has been a significant increase in the number of cases involving the improper use of generative AI in the last few years," Deputy Dean of Undergraduate Studies Joyce Chen wrote in a statement to PAW. The University's Annual Discipline Report from 2023-24 found that, two years ago, of the 42 academic infractions reported, 10 involved the illicit use of generative AI on take-home assignments. Statistics from 2024-25 have yet to be released.

Amid this backdrop, more professors are suspecting students of illicitly using AI — and more students are suspecting their peers. As the technology is developing, so too are classroom dynamics and course assignments.

Princeton's current AI policy, adopted in 2024, comes in a few parts: Students may not submit AI-generated output to fulfill an academic requirement or represent AI output as their own work, instructors have discretion to determine AI policies for their own courses, and if students use generative AI in a permitted way, they must disclose their use.

"While certain aspects of the current policy are not likely to change, the University continues to have discussions around the use of generative AI and related University policies," wrote Chen.

While some professors are more skeptical of AI, others have incorporated its use into the classroom. History professor D. Graham Burnett '93 penned a recent *New Yorker* article painting an optimistic portrait of his classroom experiments with the technology.

Princeton's policy gives professors maximum flexibility. "It's so discipline specific," said English professor Meredith Martin, who was on a University committee tasked with workshopping AI policies in 2023. Martin is also faculty director of the Center for Digital Humanities, where she employs technologies such as AI in her research.

Kate Stanton, director of the McGraw Center for Teaching and Learning, said that when advising faculty on their AI policies, "our approach always starts with encouraging faculty to define their learning or curricular goals, and then to develop an AI policy that will allow students to meet those goals."

But it's unclear whether students are always aware of the University's policies or of their professors' specific guidelines. Nadia Makuc '26, a classics major and chair of the Honor Committee, said there are some professors who have "the attitude that 'if I don't address it, it doesn't exist.' But that's clearly not the case. And so there are a lot of students who are using [AI] just because it hasn't been made clear by the professors."

Martin said she thinks "Princeton

students are already really scared" about generative AI. When she spoke to students last spring, they said that "they were afraid they were going to somehow get caught accidentally using AI, or be punished for breaking the Honor Code because they didn't know what they could or couldn't do."

Traditionally, breaking the rules on academic assignments may be seen as "an adversarial faculty-student issue," said Wendy Laura Belcher, a professor of comparative literature, but she sees it as a "student-student thing": "It's discouraging" for students to see their peers using AI dishonestly.

Students who spoke with PAW, representing a range of departments, said that they feel trapped in an uncomfortable bind: Use AI illicitly, or risk slipping behind.

"I know so many people who use [AI] to actually turn in problem sets and stuff like that," said Evelyn Wellmon '28.

"I'm disappointed that the University environment has come to this because I do like knowing that I'm not using AI for any of my work," she said. "I'm aware that I'm missing out on some things by, like, actually taking the time to do my work, and reading the books."

Pranjal Modi '28 said that in one of his advanced operations research and financial engineering classes last semester, he was shocked by the high average test results from the class's first exam, which was take-home.

"For a class that difficult, it was kind of crazy for the average to be that high," he said. He strongly suspected many of his peers used AI, a concern Modi said was shared by others in the class.

Now, he said, "a lot of my friends don't really want to take courses with take-home exams."

Most of the professors interviewed by PAW recently restructured their assignments in response to generative AI, replacing take-home assessments with in-person ones.

Molecular biology professor Daniel Notterman lamented abandoning a take-home midterm in a course he teaches, Diseases in Children. While the assignment was traditionally enjoyed by his students,

Students "were afraid they were going to somehow get caught accidentally using AI, or be punished for breaking the Honor Code because they didn't know what they could or couldn't do."

— MEREDITH MARTIN
Professor of English

"over the last couple of years, especially last year, I got a little concerned that some students were taking advantage of a robot to write these things," he said.

"It's really a matter of equity. If some students [use AI] and others don't, that doesn't seem very fair for a graded exercise. So this year, this is what we're doing," he said, pulling out a stack of blue books.

History professor Michael Brinley, who is no longer assigning essays in his Soviet history class — using instead a mix of in-class quizzes, an oral midterm, and an in-person final — said that he did so out of sensitivity to fairness.

Professors also said they're uncomfortable with reporting students for suspected illicit AI use, noting that finding evidence is difficult and accusations are high-stakes.

"I'm not interested in being a police officer — that's not my schtick," Notterman said. "I want to be able to trust my students and believe them if they tell me they didn't [use AI]."

Noting the integrity of Princeton students, English professor Robert Spoo said, "I think some Princeton students almost have too much pride to take the easiest way out."

"There are a lot of Princeton students who are obviously very competitive and driven and want to do the best possible job," said David Bell, a professor of history. "And I think they realize pretty quickly that AI is not going to get them there." From playing with AI himself, he determined that while the technology can produce a B-level paper, it can't produce an A-level one.

Like many of his colleagues, Bell abandoned assigning a take-home midterm paper due to cheating concerns. But he kept his class's final assignment, a research paper, and hopes that students will do the work on their own. "It's too important an assignment to get rid of," he said. "I will continue to preach against AI to my students."

Within the bounds of the school's AI policy, professors and students have found many ways to employ AI productively. Princeton Ph.D. student Sayash Kapoor — who, with Professor Arvind Narayanan, co-authored the 2024 book *AI Snake Oil: What Artificial Intelligence Can Do, What It Can't, and How to Tell the Difference* — said that "you can use AI to increase learning or to escape it."

"Most Princeton students I interact with have used AI productively," he said. "They use it to debug code, explore ideas, [and] get unstuck on problems."

Electrical and computer engineering major Rahul Kalavagunta '26 noted many use AI as a teaching tool, particularly in coding classes. He explained that while ChatGPT can implement code effectively, it is not useful without precise prompts. "It's not good at solving concepts," said Kalavagunta, who also works as a lab teaching assistant in an introductory computer science course.

Martin, who teaches Data and Culture, emphasized employing a critical data studies approach when using generative AI — that is, to think about where data comes from, who analyzed it, and to what end.

Thinking about how we're thinking — what computer science and psychology professor Tom Griffiths sums up as "metacognition" — is perhaps the best way to think about higher education's role today.

"The world that we're moving into, where people are interacting with these AI systems, is one where cognition might be becoming less important and metacognition is becoming more important," said Griffiths, who heads Princeton's Laboratory for Artificial Intelligence. To use AI effectively, he said, you must always ask: "What's the right way to solve this problem?" P

ALEX GARLAND FOR ISB

ALUMNI NEWS

Biologist Mary Brunkow *91 Wins Nobel Prize in Medicine

BY LIA OPPERMAN '25

MARY BRUNKOW *91 woke up at 1:30 a.m. on Oct. 6 when her phone showed an incoming call from a Swedish number. She declined, assuming it was spam. After receiving another call, she put her phone on Do Not Disturb, as did her husband, who received calls from the same number after her. At 3 a.m., a photographer from the Associated Press showed up at Brunkow's house and notified her husband, who opened the door, that she had won the Nobel Prize in Physiology or Medicine for creating the field of peripheral tolerance, a new branch of immunology.

"Over the course of a couple hours, it started becoming apparent that it was not an elaborate scam," Brunkow said in an Oct. 7 news conference at the Institute for Systems Biology in Seattle, where she works as a senior program manager.

Brunkow shares the prize with Fred Ramsdell, a scientific adviser at Sonoma Biotheraputics in San Francisco, and Shimon Sakaguchi, a professor at the University of Osaka in Japan. The award recognizes the three "for groundbreaking discoveries concerning peripheral immune tolerance that prevents the immune system from harming the body."

They identified regulatory T-cells, a previously unknown class of cells, which act as the immune system's security guards to keep harmful immune responses in check. In 1995, Sakaguchi first discovered these cells and demonstrated that immune tolerance is not limited to the thymus through central tolerance, which many researchers were convinced of until then.

In 2001, Brunkow and Ramsdell discovered that a specific mouse strain carried a mutation in a gene that they named Foxp3. Their work explained why the mice were susceptible to autoimmune diseases and showed that mutations in humans are responsible for the severe autoimmune disorder IPEX, which can cause diarrhea, inflammation of the skin, and multiple disorders including diabetes.

Their discoveries paved the way for the development of treatments for autoimmune diseases, cancer, and other immune-related conditions.

"Our very basic discovery led to a very key understanding of … one human condition, and from there, the basic biology and the basic science that's gone into understanding further just how much those regulatory T-cells are involved in many different aspects and many different conditions has just snowballed and expanded around a lot of different labs," Brunkow said in the news conference, adding that federal funding has been vital in her field.

In an interview with PAW, she explained how her research was conducted over two decades ago, and that it takes a long time for these types of experiments and studies to be validated. "It's so gratifying to see the progress that's been made," she said.

The three laureates will evenly divide the prize of 11 million Swedish kroner, or about $1.2 million.

President Christopher Eisgruber '83, in a University press release, congratulated Brunkow, "whose trailblazing achievements illustrate the power of high-quality scientific research to improve human health and change our world for the better."

While at Princeton, Brunkow conducted research in the lab of Shirley Tilghman, then a molecular biology professor and later Princeton's president. The two co-authored papers on genes and development in mice.

Brunkow fondly recalled the "collaborative and friendly and fun" lab run by Tilghman, who she said was a "patient but demanding teacher."

"She really teaches a scientific method and making arguments to defend your work and helping to figure out how to disseminate the work, which is really important," she said.

Brunkow joins 53 Princeton faculty and alumni who have been awarded Nobel Prizes, according to the University's website, including physiology or medicine laureates James Rothman, a former Princeton professor, and Eric Wieschaus, an emeritus professor of molecular biology.

Brunkow told PAW that current graduate students should listen to their hearts, work well with others, and be open to change when it comes to research.

"Lives and careers and the way you balance the whole thing with the rest of your life can change so much over time," she said. "You have to stay open to it and accept those changes." P

ALUMNI ENGAGEMENT

For Users of New TigerNet, 'Princeton Is Where You Are'

EACH YEAR, MORE THAN 25,000 alumni, family, and friends return for Reunions; however, not all alumni can make it back to campus. A new and updated version of TigerNet, which was scheduled to launch in mid-October, aims to bridge that gap by allowing alumni worldwide to connect through regional associations, affinity groups, forums (previously known as discussion boards), and a robust network of alumni.

Jennifer Caputo, deputy vice president for alumni engagement, explained that Rich Holland '96, chair of the Princeton Alumni Council from 2019 to 2021, set the theme of his term as "Princeton is where you are." "There's something about that that really continues to pull through," Caputo told PAW. "Princeton is where you are, and so we are trying to do everything we can to help find you."

When most people think of TigerNet, they think of the alumni directory, Caputo said. With the relaunch, she hopes people will think of it as much more than that: a hub where alumni can join multiple associations, connect over shared interests, and register for events across the country.

Caputo highlighted three key improvements: stronger data privacy and security, easier access and new tools for the more than 500 alumni volunteer administrators, and a more modern interface. The site uses Hivebrite, a platform alumni have been using since 2021 to create regional, affinity, and class year groups, along with forums. The new launch expands on this and adds a new alumni directory and profile page, which is more customizable and looks similar to LinkedIn.

The directory will feature a robust search system, Caputo said. Alumni and students can search for alumni based on companies, careers, and even personal interests. Students' information remains protected under FERPA, so alumni cannot access their contact information, but students can now join groups and forums.

New privacy settings allow alumni to control what they want to share with the network, outside of a few essential things, like their name, degree, and class year. Also, alumni are no longer limited to a single regional association but can join as many as they wish. Meanwhile, alumni administrators, also called "Tiger Techies," can customize and design new community pages, creating tailored spaces for their groups. When alumni log in to TigerNet, they'll have all of their groups and forums at their fingertips. P *By L.O.*

STUDENT LIFE

Student Veterans Ace Springdale Golf Partnership

RAMON ESPINOZA '26 had never held a golf club when he saw an email in 2023 from the U.S. Department of Veterans Affairs about a golf program for veterans. Intrigued, Espinoza, who spent six years in the U.S. Army, and, at the time, was acting president of Princeton Student Veterans, wanted to know if the student group could take advantage.

Espinoza approached Springdale Golf Club, a less than 10-minute walk from Lawrence Apartments, where many student veterans live, and a partnership was born that fall. It's part of the PGA's Helping Our Patriots Everywhere (HOPE) program, which provides free golf lessons to veterans and active-duty military.

Since then, on many Fridays during the academic year — whenever good weather and busy schedules align — up to 15 student veterans gather at Springdale to learn about the sport, network, and relax. Instructors give an introduction covering basics like grip and stance before moving on to teach chipping and putting, eventually followed by time on the course itself.

"A lot of us didn't have any experience in golf," Espinoza, an anthropology major, remembers of those early days. "We had no idea how it worked. It was just a fun thing to try and do, and for the sake of cohesion with the club, we indulged."

Andrew Golden, head golf professional at Springdale, doesn't mind catering to different skill levels, particularly when providing veterans with "the opportunity to take some time out of their day to come knock a golf ball around on the range or learn new skills, and just get away a little bit from reality."

ON THE RANGE
Springdale Golf Club assistant pro Chris Brock teaches swing mechanics to Marine Corps veteran Kristy González '25.

Richie Kertatos '26, an economics

CLASS CLOSE-UP

Good News and Bad in an Era of Disinformation and Generative AI

TUCKED INTO THE SYLLABUS of Media Literacy: What to Read and Believe in the Age of AI, is a "quote" from Abraham Lincoln: "The problem with quotes on the Internet is you can't always be sure of their accuracy." This gets to the very crux of what students are tackling in the new course, which examines media of all kinds — in particular, for accuracy — and how it shapes lives.

Joe Stephens, the founding director of Princeton's Program in Journalism and a former longtime *Washington Post* reporter, has taught similar courses that focused on traditional journalism, but this new iteration, offered by the University Center for Human Values, where Stephens is a lecturer, incorporates modern social media and generative AI.

STEPHENS

"I want everyone … to leave feeling that they're a confident consumer of media in all its forms going forward because we can draw on these more timeless truths on how to be a critical reader and use it to interrogate the material that we're consuming in the future, no matter what form it comes up in," said Stephens.

On the first day of class, which meets Tuesday afternoons in Wallace Hall, Stephens stressed that consumption and interpretation of media can be a life and death matter, both for individuals as well as for democracy.

The class of 13 includes undergraduates from all years, from intended computer science majors to philosophy majors.

Bridget O'Neill '26, a managing editor of *The Daily Princetonian* and a history major, enrolled to better understand "the exciting realities and the scary realities" of AI.

Devonne Piccaver '27, who is majoring in English, admitted to believing whatever she sees on Instagram, so she wants to "save myself from spreading misinformation" by learning "how to pick out where things are false and misleading."

COURTESY OF RAMON ESPINOZA '26; SAMEER A. KHAN H'21 / FOTOBUDDY / PRINCETON UNIVERSITY

major and Princeton Student Veterans chairman, hadn't played golf "to a huge extent" prior to the partnership, but he became so committed that even after breaking his leg in 2024, he continued to attend "just to watch. I couldn't play, obviously, but that's the thing — I just wanted to be around them and hang out."

The Princeton chapter regularly invites ROTC students and guest speakers to join them.

"It's a great way to meet people that are connected to the University and just connected in the general area," said Elias Fleishman '26, an electrical and computer engineering major. For the last two years, Fleishman has purposely increased his visits to Springdale leading up to Reunions to network with alumni who come to town.

Last spring, the student veterans and Springdale board members played a scramble followed by hors d'oeuvres. This fall, the group is planning to hold what they hope becomes an annual match against Rutgers University student veterans. P *By J.B.*

Tiffany Gan '29 isn't an avid news consumer, so she hopes through this course she can "recognize good news and find news outlets that are reliable," to be more informed.

Guest speakers include Edward Tian '23, creator of GPTZero, which detects the use of AI-generated text, and Pulitzer Prize-winning journalist James B. Steele. Readings and assigned viewings include discredited mainstream media articles, AI-generated video news reports, and comedy shows such as *Last Week Tonight with John Oliver*.

For the final, students will examine one aspect of the changing media by writing a paper, producing a podcast, or creating another type of project.

Stephens said he hopes studying these issues allows students to realize how media influences their thinking and perspective.

"To actually guide our lives, we need to be able to control what we take into our heads," he said. P *By J.B.*

CHOI DINING HALL AT YEH COLLEGE

STUDENT LIFE

After Princeton Changes Dining and Housing, Upperclassmen Push Back

BY LIA OPPERMAN '25

BEGINNING NEXT ACADEMIC YEAR, Princeton is requiring all students in University housing to select a Campus Dining meal plan, a change that is deeply unpopular with students across dining and residential groups.

In an email sent to the classes of 2027 and 2028 in late September, campus administrators outlined the changes. Juniors and seniors who live on campus and don't belong to an eating club or co-op will have to purchase a plan that is unlimited or with 10 meals per week, while upperclassmen in eating clubs or co-ops can opt for two meals per week.

Aid will be adjusted for students on full financial aid to cover both meal plans, a move made in consultation with eating club leaders, according to University spokesperson Michael Hotchkiss.

At a Sept. 29 Council of the Princeton University Community (CPUC) meeting, President Christopher Eisgruber '83 said the University's practice of providing two meals per week for students in eating clubs and co-ops will be eliminated in part due to ongoing budget reductions. "There is no such thing as a free lunch," he said.

The University is also eliminating the "independent" status for room draw, removing priority from students who are not in an eating club or on a dining plan but want to live in Spelman Hall, where kitchens are more accessible.

Going forward, each student will receive one draw time, and all eligible rooms will appear, instead of multiple draws at multiple times. In an Oct. 7 information session, Debby Foster, deputy vice president for University services, said that giving those on the 10-meals-per-week plan priority for Spelman remains under discussion.

According to Eisgruber, "changes were driven by responsiveness to studies about well-being and what was needed for the University community."

The change follows a 2024 study by the Huron Consulting Group, which proposed that the University require Campus Dining meal plans for all upperclassmen and review the independent status. It also builds on the University's 2023 dining pilot, a program that provided 300 randomly selected juniors and seniors five free meal swipes per week across dining halls, eating clubs, co-ops, retail dining locations, and late meal to encourage more integrated dining.

After the September announcement, students voiced concerns via social media, information sessions, the CPUC meeting, and in *The Daily Princetonian*. Aster Haviland '26, who has lived in Spelman for the past two years, told PAW, "We're undergrad students, but we're also adults. This choice to take away our ability to choose to be independent makes a lot of people feel like children." His suite shared its opposition, decorating the windows with a sign that read, "Put Eisgruber on a Meal Plan."

Leaders of the Interclub Council (ICC), the Graduate Interclub Council (GICC), campus co-ops, and the Undergraduate Student Government said they were not involved in the decision-making process for the updated dining plan.

"We are concerned that decisions like this one — made without input from eating clubs — open the door for additional restrictive policies that may erode our ability to provide unique and beloved communities for students and alumni," wrote Lilli Duberstein '26, president of the ICC.

Hap Cooper '82, president of the GICC, said the new policy violates an "unwritten agreement" that the University would not require students in eating clubs to buy meal plans. "They crossed a line," he said.

Collin Guedel '26, president of the 2 Dickinson St. Co-op, raised concerns about the dining hall options for students with dietary restrictions. Guedel and Abdur-Raheem Idowu '26, president of the International Food Co-op, noted that co-op capacity is lower than the number of students who typically declare independent.

Students and alumni also advocated for the independent experience. Otis Jennings '94, who wrote an opinion column for the *Prince*, recalled cooking and hosting dinners with friends in Spelman. While supportive of University efforts to increase well-being, he told PAW he thinks the new plan "will mean a stifling experience for students who find themselves as out-of-place in the conventional dining settings." P

SAMEER A. KHAN H'21 / FOTOBUDDY

IN SHORT

Mónica Ponce de León, the dean of the School of Architecture since 2016, will leave her post at the end of 2025 and return to Princeton's faculty and the practice of architecture at her firm, MPdL Studio. In Ponce de León's decade as dean, the school expanded undergraduate and graduate programs, hired new faculty, and launched conferences and exhibitions that showcase the work of faculty and students.

President Christopher Eisgruber '83, in a news release, called Ponce de León "a dynamic leader for the School, an effective champion for this University's values, and a tremendous partner for her Cabinet colleagues and me … ." The provost will oversee the selection of the next dean, the University said.

Haoran Li *25, a postdoctoral researcher in electrical and computer engineering who recently defended his Ph.D. dissertation at Princeton, died at his home in West Windsor Sept. 25, according to a message from University administrators sent to the campus community on Sept. 26. Additional details, such as cause of death, have not been made available.

IN MEMORIAM

Russell Kulsrud, an accomplished plasma physicist and astrophysicist, died Sept. 23 at age 97. Kulsrud's work at Princeton began in 1954 when Professor Lyman Spitzer *38 hired him to join Project Matterhorn, predecessor to the Princeton Plasma Physics Lab. The work was classified, so Spitzer could not explain the job when he was hired. Kulsrud later recalled that when he received his security clearance and learned what he'd be doing — heating plasma to extremely high temperatures and confining it with a magnetic field — "I didn't dream such things were underway." Other than a brief stint at Yale, Kulsrud spent his entire career in Princeton, later serving as a professor in the Department of Astrophysical Sciences. He received the American Physical Society's James Clerk Maxwell Prize in 1993.

COURTESY OF THE PRINCETON PLASMA PHYSICS LABORATORY

STUDENT DISPATCH

Walk-On Tradition Helps To Keep Rowing Teams Afloat

BY JAMES SWINEHART '27

OUTSIDE THE GATES OF THE castle-esque Shea Rowing Center on the grassy Lake Carnegie shoreline, two dozen unfamiliar faces gather. They watch semitruck-length boats armed with massive oars glide past as butterflies fill their stomachs. Most have never touched an oar in their lives; soon their hands will be rubbed raw from handling them so much. Straightening their posture, the walk-ons prepare for the work ahead of them.

Unlike most varsity teams at Princeton, where nearly all athletes are recruited, rowing has long welcomed walk-ons, a tradition dating back to the team's founding in 1870. Given the sport's limited accessibility in the United States, novices make up a significant portion of rosters nationwide, with each Ivy League school maintaining its own walk-on program. It's one of the few sports where driven newcomers, often with no prior experience, share a locker room with top athletes competing on the world stage.

Having walked on to the team as a coxswain last fall, my memories of this experience remain vivid. Now, I spend two hours every afternoon steering boats, shouting technique adjustments, and handling logistics for the team. It's my favorite part of the day. Having loved it so much, I decided to follow three of this fall's novices to capture their walk-on experiences.

The unexpected passion that many find for the sport often starts as a spark. Walk-on Margo Mattes '27 remembers scrolling to an Instagram photo of the women's openweight team winning the Ivy League championship last May. "Something about seeing the sport, seeing the girls win — I was like, 'I have to do that,'" she said.

Rowers with some experience, like Mattes, who learned to row last summer, may be taken into a varsity crew immediately. For others, the walk-on process is more structured. On the men's side, novice athletes spend three weeks learning technique in indoor rowing tanks, building endurance on the ergometer rowing machines (affectionately called "ergs"), and grinding through workouts on the boathouse lawn. Every hopeful member of the program — rower or coxswain — must participate.

Walk-on coxswain Bea Schlein '29 appreciated being included. "By learning how to row and doing the workouts, I'm so much more prepared to give reasonable advice to the guys," she said. "I know the work that goes into the sport."

The crowd naturally begins to thin as the physical demands of the sport take their toll. By the fourth week, rowers undergo a 5-minute erg test and coaches make cuts to reduce the walk-on group to one eight-person crew.

Zach Wagner '29 remembers the moment he made the cut this September. A few hours after finishing his erg test, he received a congratulatory email and an invitation to the boathouse for the next day's practice. "I got a text from one of my friends: 'Are we gonna be rowing tomorrow, Wagner?'" he said. "I replied, 'Yes we are!'"

After the cut, it's finally time to get on the water. An entire day is spent just learning how to walk a boat to the dock, and when it's time to take the first strokes on the water, things are shaky as the crew learns to move as one. At the time of writing, Schlein and Wagner were both in this uneasy first week. By the second week, the boat will cease to crash from side to side. By late October, the crew will start to move at a decent speed.

In early November, the novices will compete in the Princeton Chase, the symbolic finale of the walk-on program. If successful, they will be sorted into the heavyweight and lightweight teams to continue their paths as varsity athletes.

It's a crash course that has produced generations of Princeton rowers. To reach the finish line, it helps to follow the advice Wagner received from Johnny Inman, an assistant coach for the men's heavyweight team who directs the novice crew: "Coach Johnny always says, 'It's just the next stroke. The most important thing is the next stroke.'" P

ROBERT NEUBECKER; ANGEL KUO '24

GOAL ORIENTED
Danny Ittycheria '26 looks for an opening during Princeton's win over Rutgers. The Tigers started the season 9-1, scoring 19 goals and allowing three in the first 10 games.

PRINCETON ATHLETICS

MEN'S SOCCER

Strong from End to End

Striker Danny Ittycheria '26 and a staunch back line propel Princeton into the national rankings

BY BRETT TOMLINSON

FRESHMAN YEAR WAS HUMBLING for Danny Ittycheria '26, a 6-foot-2-inch striker on the Princeton men's soccer team. He had played for a high-level youth club and one of New Jersey's top high school teams, but he wasn't prepared for the physicality of the college game.

"I'm skinny now and I was very skinny back in my freshman year," he said. "I was getting really pushed off the ball."

Ittycheria felt like he had the skills to compete, so he focused on strength and fitness in the offseason. As a sophomore, he led Princeton with nine goals, but the team struggled, finishing seventh in the Ivy League. Last year, as a junior, he scored nine goals again and the Tigers broke through, winning the Ivy Tournament and a spot in the NCAA Tournament.

The following month, Ittycheria was selected by D.C. United in the second round of the Major League Soccer draft. He trained with United in the summer but put the pros on hold to focus on his final year at Princeton.

The Tigers opened the season 9-1 and climbed to No. 9 in the United Soccer Coaches poll on Oct. 7. That week, they also ranked No. 1 in the RPI, a key measure for at-large selections to the NCAA Tournament.

Ittycheria is leading his team in goals with five in eight games played, including a perfectly timed header against Harvard Sept. 27 that would prove to be the decisive strike in a 1-0 win (the eighth game-winner of his college career). He left the game with an injury shortly afterward and missed the next two games, at Army West Point and home against Brown, but Princeton kept rolling with two more shutout wins.

Head coach Jim Barlow '91 said Ittycheria has a broad skillset: He's physically strong and good in the air, and the team's GPS trackers show he does an incredible amount of high-intensity sprinting. He can play all three forward positions, so opponents don't know where he'll be on the field.

"You have to worry about him," Barlow said. "You have to pay attention to him, and he can show up so quickly behind your defense. … Even if we're not giving it to him on that play, he's drawn so much attention that other guys have more space."

Ittycheria added that Princeton has a range of attacking threats, any one of whom can go on a hot streak. Dynamic wingback Jack Jasinski '26 scored three goals in the first four games and has assisted on three others, while midfielder Bardia Hormozi '27 and forwards Kevin Kelley '27 and Jackson Martin '29 all have scored multiple goals this year.

The Tigers are also one of the most experienced teams Barlow has ever coached. The starting 11 who took the field in the season opener against Rutgers had combined to start 225 previous times in their college careers. "Rutgers was undefeated at that time and playing their fifth game," Ittycheria said, "and we were playing our first game and felt like we were the better team, from minute one to 90." The Tigers never trailed, surging to a two-goal lead in the first half before winning 3-1.

Through 10 games, Princeton has allowed just three goals, a testament to the steady back line led by Giuliano Fravolini Whitchurch '26 — "the backbone of the team," according to Barlow — and timely saves by goalkeeper Andrew Samuels '27.

Barlow said Princeton's 11 seniors learned from playing on teams that didn't always get the results they were looking for.

"I think over time they started to figure out how to win a college soccer game — how important defending is, how important [it is] that every guy transitions from attack to defense and defense to attack instantly … and how important it is to have the right mentality going into every game," he said. "So far this year, they've risen to that challenge." P

FORWARD

AND BEYOND

SAVE THE DATES

Join fellow Tigers and President Christopher L. Eisgruber ’83 at upcoming alumni gatherings around the country to celebrate the Venture Forward campaign and learn about what’s next for Princeton.

BOSTON	December 3, 2025
CHICAGO	January 21, 2026
SAN FRANCISCO	March 10, 2026
LOS ANGELES	March 12, 2026
NEW YORK	April 16, 2026

LEARN MORE:
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PRINCETON UNIVERSITY

MACIEJ OLSZEWSKI / ADOBE

FLYING FREE

A new study found migratory shorebird populations — like the flock of bar-tailed godwits pictured here — are declining due to hunting and fishing nets in China. Between August and March, more than 50 million shorebirds migrate south along the East Asian-Australasian Flyway. Pit stops in Singapore and along China's coasts are popular on this route, so the researchers surveyed 29 of these locations and found more than 47,800 birds are killed annually and observed significant reductions in 11 bird species. The research team, which was led by ecology and evolutionary biology professor David Wilcove and associate research scholar Dan Liang, recommends removing nets once harvest season ends, using colorful nets, and enacting stricter enforcement. The findings were published in September in the journal Nature Ecology & Evolution.

WATER IS LIFE

Due to his long career in the water industry — including serving as general manager of Washington, D.C.'s water authority — George Hawkins '83 founded Moonshot Missions, a nonprofit dedicated to helping communities secure safe, accessible, and affordable drinking water. Hawkins is pictured here in front of a thermal hydrolysis reactor and flash tank which converts wastewater biosolids into usable energy.

COURTESY OF MOONSHOT MISSIONS

CLEAN WATER

The Struggles to Secure Water Access and Sustainability

BY JEPHIE BERNARD

AMERICA'S DRINKING WATER system is failing. Aging water infrastructure across the country poses numerous health risks, and yet the Environmental Protection Agency (EPA) estimates it would cost $625 billion over the next two decades to fix. George Hawkins '83 has dedicated his career to water access and sustainability and was recently nominated for the Lee Kuan Yew Water Prize for his leadership. He's worked for the EPA, the Watershed Institute, New Jersey Futures, and DC Water — Washington's water authority. Now he's the CEO and founder of Moonshot Missions, a nonprofit that helps secure safe and clean drinking water for communities with limited resources. Hawkins spoke with PAW about the challenges that utilities across the U.S. are facing and the solutions his nonprofit is working to provide.

What are some of the most common constraints underserved communities face?

Resources, people, money are a few, but the biggest constraint is time. In order to do all the things we did at DC Water, we had to evaluate options and look at different companies and make selections of the best ones, and then work hard on implementation. All of this work that it takes to innovate that none of these utilities had the time or money for. Another challenge, which is very common in the public sector, is that our industry was considered resistant to new ideas or conservative, not in a political sense, but conservative as in not liking to change things. A lot of innovations were not being adopted. When you're running a water treatment plant delivering water to your home that you and your children are going to drink, you can't be wrong. You can't try something that turns out not to work right. That pushes you to use the things you know work.

Extreme weather makes it very hard for water utilities to operate. All of a sudden having more frequent and bigger storms, then you've got much more storm water to try to manage, and that's really tough.

Can you give an example of how Moonshot has helped a community change how its water system worked?

One of the cities that we're working with is Toledo. An interesting thing for water systems is they are often oversized because they were built when all these big factories were still there, but they're trying to manage these systems with less people (population) and they're getting older. We held a series of workshops, walked their facility and we got to know Toledo. One of the workshops we held is based on a project that we did at DC Water, which was taking those biosolids — this is all the sludgy stuff that you take out of the wastewater — and we developed a facility that would turn it into energy, because it turns out there's a lot of Btu [British thermal units] in that sludge, which is like a fuel source. If you know how to do the work properly, then it becomes a source for power so it saves you from buying power off the grid. Once you're generating your own power, that helps power your own facilities, which is good for resilience.

What are the signs that a community is in need, and how are you able to let them know about your organization?

One of the hardest steps in this process is

finding the communities that need help because they're not networked. They don't tend to go to a lot of the big state or federal programs on water utilities because they don't have the money and they're not very trusting. They question who we are and where we are coming from. So, when we help a small community like Wigwam in Colorado, we ask them, "What other communities do you know of that could use some support?" We also cold call places we hear are having challenges, when we can't find someone to introduce us.

Which communities do you find are the most vulnerable and have the least access to clean, affordable drinking water?

There are many communities, but the common denominator is a high percentage of low-income customers. They don't have the revenue to run the system, so it is getting worse. This is about a resource and a service that is essential to the livelihood of every person in that town in every job in that town because there's nobody who can work without clean water. It's not just small communities — if you don't have a lot of rate payers, you don't have enough people to raise money no matter if they're rich or poor; that's a challenge on its own.

Are there any ongoing water crises?

Extreme weather makes it very hard for water utilities to operate. All of a sudden having more frequent and bigger storms, then you've got much more stormwater to try to manage, and that's really tough. On the other side of the coin, the extreme weather is delivering longer sustained drought, and that's also really hard to sustain. Where's your water going to come from? Where do you store it? How do you keep it? The systems that all these communities are delivering the water in are getting older by the day, and there's almost no community in the United States that is replacing the old stuff at the rate they should be. And then there's new contaminants like PFAs, pharmaceuticals, and microplastics, along with all the old contaminants that are still around. P

L'ORÉAL-USA FOR WOMEN IN SCIENCE; SAMEER A. KHAN H'21 / FOTOBUDDY / PRINCETON UNIVERSITY; COURTESY OF THE JOHN D. AND CATHERINE T. MACARTHUR FOUNDATION

RESEARCH GRANT WINNERS

Princetonians Awarded Pew Scholarship, MacArthur Fellowship

FOUR PRINCETONIANS have been recognized as recipients of prestigious awards for their research achievements. Princeton neuroscience professor Fenna Krienen and alumna Cara Brook *17 were named Pew Scholars in the Biomedical Sciences and will receive four years of funding "to uncover fundamental insights about human health and disease." Nabarun Dasgupta '00 and Sébastien Philippe *18 are among the 22 recipients of the 2025 MacArthur Fellowship and will receive a no-strings-attached $800,000 stipend over five years. Scholars across the U.S. are chosen for their "exceptional originality in and dedication to their creative pursuits," according to the MacArthur Foundation website.

CARA BROOK *17

Brook, an assistant professor of integrative biology at the University of California, Berkeley, researches infectious diseases that spread from animals to humans, particularly those from wild bats. Building on research she began at Princeton, Brook runs a field site in Madagascar where her team studies fruit bat viruses in hopes of developing a vaccine to eradicate infections to prevent future pandemics. The Pew award will be vital to help test these vaccines, Brook says.

BROOK *17

FENNA KRIENEN

Krienen, an assistant professor of neuroscience at the Princeton Neuroscience Institute, researches how the brain's resident immune cells, called microglia, facilitate neural development in primates. Her lab is particularly interested in understanding the connection between the brain and the body's immune system in hopes of offering insights into neurological disorders such as schizophrenia.

KRIENEN

NABARUN DASGUPTA '00

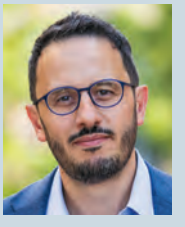
Dasgupta, an applied epidemiologist at the University of North Carolina at Chapel Hill, oversees the UNC Street Drug Analysis Lab, which tests street drugs mailed in anonymously and posts the results online to inform users what samples contain. The lab has tested more than 15,000 samples including drugs from 261 counties in 43 states. Dasgupta is also the co-founder of Project Lazarus and Remedy Alliance/For The People, which provide affordable access to naloxone, the lifesaving medication used to reverse opioid overdoses.

DASGUPTA '00

SÉBASTIEN PHILIPPE *18

Philippe, an assistant professor in the Department of Nuclear Engineering and Engineering Physics at the University of Wisconsin-Madison, is a nuclear security specialist who conducted the first independent assessment of France's nuclear weapons testing between 1966 and 1996 to document the resulting radiation. His research found that 10 times more people were exposed to significant radiation than the government reported — publishing the book *Toxique* and the website Moruroa Files in collaboration with investigative journalists. This work and later research examining radiation in New Mexico and Nevada were used by victims to get reparations and led to new legislation. In another project, Philippe and collaborators created a data visualization, short film, podcast, and other materials on The Missiles on Our Land website to illustrate the extensive radiation exposure that would result from attacks on U.S. missile sites. P

By C.S.



PHILIPPE *18

BEHIND THE RESEARCH: TINA CAMPT

Examining Visual Culture from a Black Feminist Perspective

BY JENNIFER ALTMANN

COLLABORATION HAS BEEN ONE OF THE KEYS to Tina Campt's academic career. "I have thrived by working with collaborators — forging intellectual communities, co-publishing, and cultivating relationships," says Campt, a Black feminist theorist of visual culture and contemporary art.

Academia often celebrates collaboration, but instruction in how to undertake it is not offered enough, Campt observes.

"Students in humanities and the arts are not really encouraged or taught how to work collaboratively, unlike in social or natural sciences, where research is based in groups or labs and people are fundamentally working together to test out ideas," Campt says.

In 2023, Campt founded the Princeton Collaboratorium for Radical Aesthetics. It offers a place for collaborative projects and gives students the skills to work with others on their creative journeys. The project has offered conversations between collaborators, hosted artists-in-residence, and held multiday events.

In July, Campt was named director of the Princeton Atelier, founded 30 years ago by Toni Morrison. The atelier pairs artists in different fields for teaching and performing. For Campt, it is another way to promote fresh perspectives on the arts, which she has done throughout her career.

Quick Facts

TITLE
Professor of humanities and director of the Princeton Atelier

TIME AT PRINCETON
3 years

UPCOMING CLASS
Cinema, Archive, Fabulation

CAMPT'S RESEARCH

A SAMPLING

HOW WE SEE

Campt, known for her work in photography studies, examines the way in which photographs act as vehicles for understanding the world and our place in it. Her influential 2012 book, *Image Matters*, looks at how Black Europeans used family photography to create community. In her latest book, *A Black Gaze*, Campt shifts from vernacular photos to fine art to understand how contemporary artists are demanding that audiences see Blackness in new ways. In 2024, Campt was the recipient of the Photographic Studies Award, given by The Royal Anthropological Institute for contributions to the study of anthropology and photography.

HOW WE MOURN

During the COVID-19 pandemic, Campt struggled with loss when several people close to her died. "Writing about art helped me cope with the grief I was experiencing," she says. "It became a survival tactic." Campt has compiled that writing into a monograph reflecting on the work of Black contemporary artists who have taught her ways of mourning. "It's about giving people a different way to think about the power of art, and to think about grief as something that is not necessarily an end, but a different relationship to those we have lost." The book, titled *Art in a Time of Sorrow*, will be published in 2026.

HOW WE LIVE

How does one live at the end of the world? That is one of the questions posed by the theater performance *Minor Music at the End of the World*, for which Campt is an executive producer. Exploring the subjects of environmental catastrophe, slavery, and white supremacy, the performance incorporates sound, movement, acting, and cinematic elements. The project is an adaptation of two essays by Columbia professor Saidiya Hartman, with whom Campt has collaborated on several initiatives; it also draws from the writings of W.E.B. DuBois. The piece, which was performed in October at the Internationaal Theater Amsterdam, explores how Black communities might create new possibilities in our current tumultuous moment. P

ILLUSTRATIONS: AGATA NOWICKA (TOP); MIKEL CASAL (BOTTOM)

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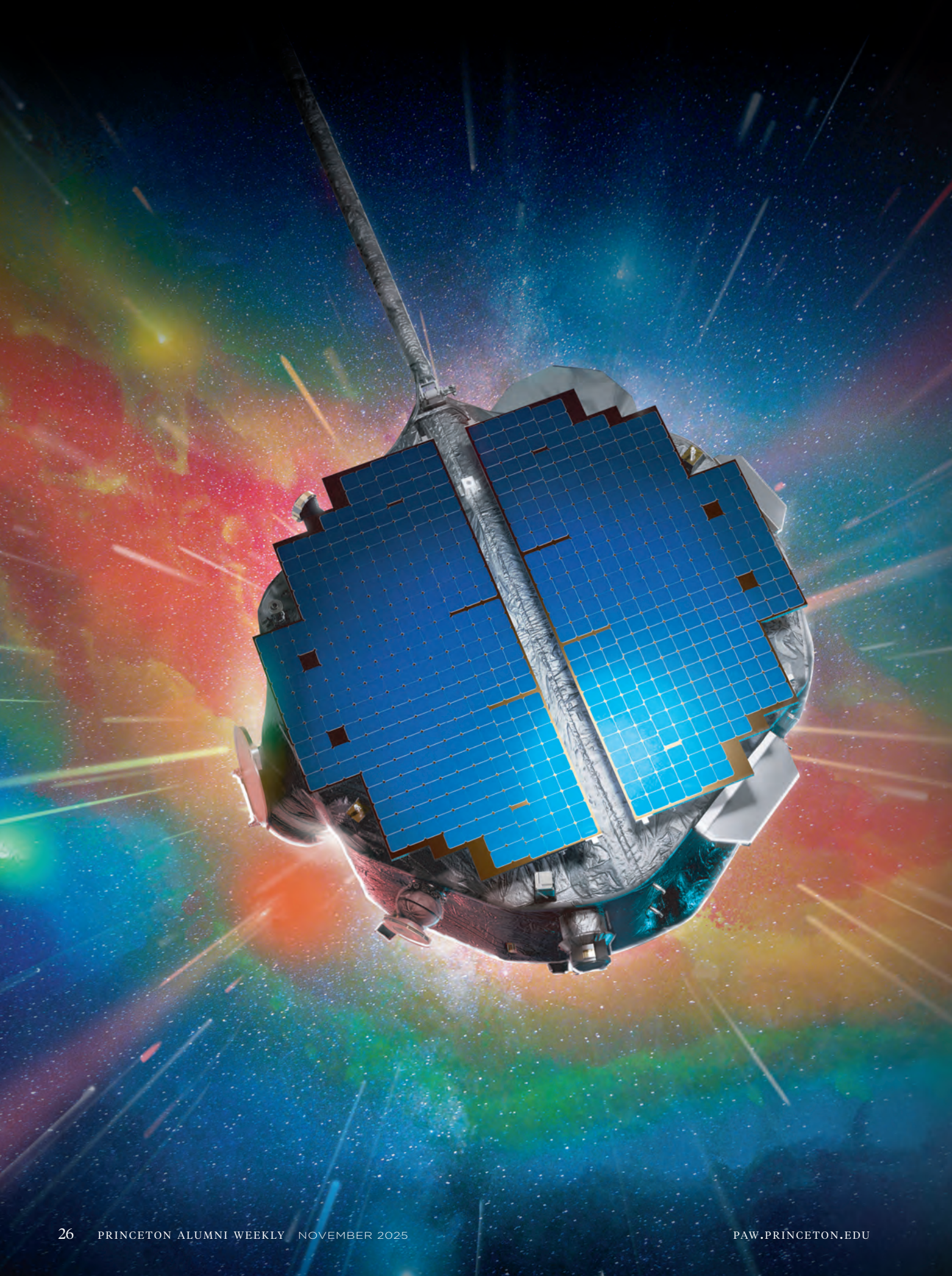


A MILLION MILES AWAY

NASA's new IMAP mission, developed at Princeton, aims to reveal more about the bubble that protects our solar system

BY **JOEL ACHENBACH '82**

PRINCETON IS A PHYSICS TOWN. The University's faculty and former students have won the Nobel Prize in physics more than two dozen times, and the nearby Institute for Advanced Study has seen many Einstein-level geniuses, including the man himself. In Princeton, the terms "black hole," "wormhole," and "quantum foam" were coined, all by University professor John Archibald Wheeler.

That's some heavy-duty theoretical physics. But it's not the kind of physics that David McComas does.

"As an experimental physicist, I go and measure things," he says.

McComas, a professor in Princeton's Department of Astrophysical Sciences, is leading a NASA mission to measure a really big thing — the heliosphere. It's the bubble of particles and magnetic fields generated by the sun. The heliosphere extends far beyond the orbits of the planets and largely shields our solar system from high-energy particles known as galactic cosmic rays. No one knows precisely how big the heliosphere is, its shape, or how it interacts with the local interstellar medium.

McComas is the principal investigator — he compares it to being the CEO — of NASA's Interstellar Mapping and Acceleration Probe (IMAP). It's a big NASA mission, costing upward of $780 million. As of early October, IMAP was speeding toward a gravitationally stable solar orbit roughly a million miles from us. That's far enough to get away from Earth's magnetic field but close enough to be a sentinel, on alert for solar storms that can cause trouble for our satellites and power grid. IMAP launched Sept. 24 on a SpaceX Falcon 9 rocket, soaring into the early morning sky from the Kennedy Space Center on Cape Canaveral.

On most days, McComas can be found at Princeton's Space Physics laboratory. It's at 171 Broadmead, so far on the easternmost edge of campus as to be a good chunk of the way to Rutgers. You find it by going past the football stadium, past a ballfield, past another ballfield, across Fitzrandolph Road, and through a parking lot, until you reach a brick structure — a former day care center — with a small sign: Princeton Space Physics.

The place buzzes with energy on an August morning when I first meet McComas. Launch is nearing. McComas' excitement is palpable.

"This is the culmination of so many years of work and collaboration. And competition. One hundred and eighty white papers," he says.

McComas is, at age 67, an imposing man, several inches over 6 feet, solidly built. ("I learned very early when I talked to people not to tower over them," he says.) He has the demeanor of a busy man with a long checklist in his head, a lot of go/no-go decisions. This is not a person whose time a visitor is eager to waste. My questions tend to bounce around, scattershot, digressive, but he keeps track of all of them — another checklist — and loops back to earlier ones to tie up loose ends.

The Space Physics building has a warren of offices on the main floor, a common space with a projector available for presentations during the regular Friday lunch discussions among the postdocs, and a classroom upstairs. The laboratory is in the basement. To enter, you must gown up and put booties over your shoes. It's sectioned off in a series of "clean rooms" with increasingly rigorous requirements for preventing contamination. If you go all the way to the inner chamber, you will need to be covered head to toe in what is called a bunny suit.

The lab is noisy. A vacuum chamber is pumping away, and there's a regular burping noise from a nitrogen generator. Dominating the laboratory is an enigmatic contraption, a tangle of pipes, chambers, and gauges. McComas explains that this thing — the "ion and neutral beamline and test and calibration facility" — generates a variety of particles, such as ions and neutral atoms, and shoots them down a tube into a vacuum chamber. Researchers can place up to two instruments at a time inside the chamber to calibrate and test how they will perform in space.

McComas says he led the remodeling of facilities like this at Los Alamos National Laboratory, where he worked for two decades, and then at the Southwest Research Institute in San Antonio. When he came to Princeton nine years ago, he and his colleagues had to build their own facility from scratch.

The laboratory also has ordinary tools, the things everyone has at home, such as a cabinet of wrenches.

"Most of the students come here and they don't really have much practical skill. So a lot of what we do in the lab class is getting them using their hands and actually building stuff," he says. "They've done everything on their computer."

IT WAS IN THIS BASEMENT THAT THE SPACE PHYSICS TEAM built an instrument for IMAP. It wasn't a model to be replicated in some NASA space center. It was the actual flight hardware to send into outer space. The instrument is called SWAPI, for Solar Wind and Pickup Ions.

The instrument lead of SWAPI is McComas' colleague Jamie Rankin, a research scholar and lecturer at Princeton and IMAP co-investigator. She's also the deputy project scientist of NASA's Voyager mission. (When I tell Nicky Fox, NASA's associate administrator for science — the leader of all NASA science missions — that I have talked to McComas, she responds, "Have you talked to Jamie Rankin? She's a rising star.")

For the past four years, McComas and Rankin have taught the Space Physics Laboratory course (Astrophysics 250 and 251). Rankin, 37, is teaching it this year

TEAMWORK

David McComas, left, and Jamie Rankin, shown in a clean room in the laboratory at Princeton, have collaborated on IMAP and in teaching an undergraduate lab course on space physics.

MATT RASPANTI / PRINCETON UNIVERSITY

while McComas takes a sabbatical to focus on IMAP. Rankin has 14 undergraduates this fall. Some of her students are part of the Princeton rocketry club, and some are majoring in mechanical aerospace engineering. I ask if there are any English majors. "I would love if there was an English major," she says.

Rankin is a polymath: She has undergraduate degrees from the University of Utah in both physics and music composition.

"Part of composing music is learning all the notes … and then putting them together and making them my own," she says. "There's a lot of analogies to putting together a space mission."

There is a passing of the (acetylene?) torch going on here at Princeton Space Physics.

"I'm extremely happy doing what I'm doing. I love teaching. I love doing original research," McComas says. But he adds, "This is the last instrument, or mission, I'm ever going to lead … . I think you've got to turn over the leadership to the next generation, and you've got to help them be successful."

THE SOLAR WINDS

Technicians perform tests on the Solar Wind and Pickup Ions (SWAPI) instrument, which was designed and built in Princeton's Space Physics lab. SWAPI collects and counts particles from the solar wind flowing from the sun and particles that have entered the heliosphere from outside the solar system and traveled where IMAP orbits near Earth.

IN LATE AUGUST, I SEE MCCOMAS A SECOND TIME, at a NASA news media briefing in a conference room at Astrotech, a spaceship-processing facility in Titusville, Florida, just across the Indian River from Kennedy Space Center. IMAP is in a clean room in the building next door.

McComas has an unusual origin story for a professor of astrophysics.

"Most professors …" I say.

He finishes my sentence. "… they're probably pretty good readers."

McComas says he is severely dyslexic. Growing up in Milwaukee, he didn't begin to read until fourth grade and struggled to get decent grades in high school.

"When I was growing up, I didn't know the word 'dyslexia.' What it was called when I was young was 'slow,'" he said in a speech at a dyslexia conference in 2014.

But being dyslexic is central, he says, to his remarkable career. From an early age, he understood the physical world. He was the prototypical boy who takes apart a radio and puts it back together.

"I've got extremely good three-dimensional physical understanding. I can unfold a maze in my brain. I can travel a path and go back years later and it's still there," he says.

His father believed that his kids should get jobs making money before going off to the rarefied world of college. McComas decided to make jewelry and sell it. To be a jeweler requires mechanical skills, including the ability to solder. McComas would solder gems onto settings and then sell his wares at state fairs.

"Jewelry is just three-dimensional assembly of stuff," he says.

He considered skipping college because he was making good money. But he applied to MIT, which found this enterprising young man appealing even if he didn't have superior grades. Off to Cambridge he went. One day he saw a notice that the physics department was looking to hire a student who knew how to solder and weld. That sent him forth on a career as a physicist, including a doctorate from UCLA.

"Dyslexia got me to MIT and made me a scientist," he says.

After stints at Los Alamos and the Southwest Research Institute, he came to Princeton in 2016 as vice president overseeing the Princeton Plasma Physics Laboratory and a professor of astrophysical sciences. By then he was already the principal investigator of a small NASA spacecraft, a precursor to IMAP, called IBEX (Interstellar Boundary Explorer), which launched in 2008. When he came to Princeton, he'd already put together a multi-institutional science team for a potential NASA mission to follow up IBEX. McComas got a verbal agreement from Princeton that, if selected to lead the new mission, he'd get the support he needed, including space for a lab and resources to outfit it. NASA officials evaluated competing proposals for a heliophysics mission and chose McComas' idea for IMAP. That opened a pipeline of government contract money, on the order of $107 million, flowing to Princeton, McComas says.

He left the vice president position last year, feeling he couldn't do justice to that role and simultaneously focus on IMAP's launch. This year, he is on a sabbatical and will spend much of his time at the University of Colorado in Boulder in a laboratory where the instruments are controlled and the data is processed.

THE HELIOSPHERE IS A PART of our environment most of us never think about. As it says on a Princeton website, the instruments on the one-ton spacecraft will address "fundamental science questions about the nature of space."

Space has a nature! It's not empty. It's not just a dimension. It's full of particles and fields and things interacting with each other. Space has weather.

This is not something intuitive as you look at the night sky. In

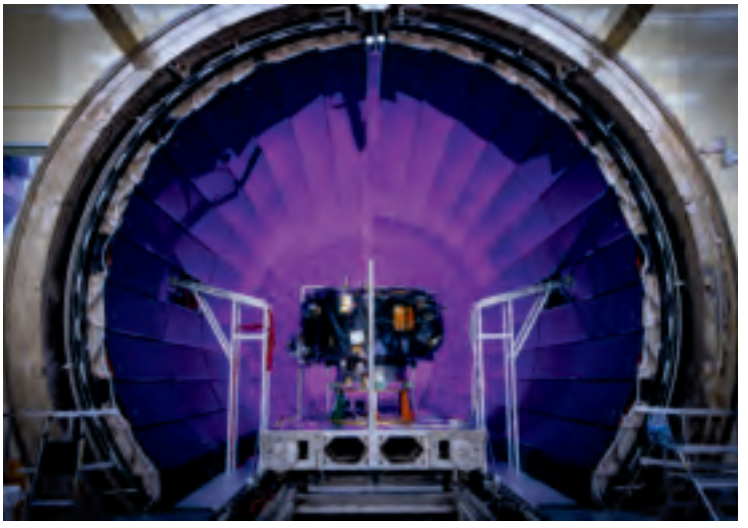
NASA / JOHNS HOPKINS APL / ED WHITMAN

fact, it was only a little more than a century ago that scientists studying comets realized that one of their tails always points away from the sun. That was the telltale sign of the solar wind.

The sun is a fusion reactor, roughly 865,000 miles in diameter. It emits particles that race across the solar system. The solar wind is supplemented by dramatic, explosive events called coronal mass ejections. These events send superheated gas, or plasma, into space, and can cause geomagnetic storms, generating spectacular auroras and sometimes damaging satellites and the electrical grid.

Half of the 10 instruments on IMAP will study the solar wind and provide receiving stations on Earth with real-time information about what's blasting our way. The other half of the instruments will gather data about the interaction of the heliosphere with interstellar space, and will help map the heliosheath, the outer boundary of the sun's magnetic field and the solar wind.

IMAP is a team effort, one that has involved thousands of people, with major contributions from 81 institutions in 35 states and six nations. The Johns Hopkins University Applied Physics Laboratory built the spacecraft. Still, the person who got things rolling was McComas.



TESTING CONDITIONS
IMAP is placed in the X-ray and cryogenic facility chamber for testing at Marshall Space Flight Center in Huntsville, Alabama.

"IMAP is huge. Ten feet across, 4 feet high. A metric ton," McComas says. Whereas IBEX had just two instruments and weighed only a couple hundred pounds. "I could have picked it up."

What is it that McComas most wants to know about the heliosphere?

"Everything. What's it made of? What's its density? What's its composition?"

He goes to a whiteboard to sketch cartoons of the heliosphere and the things lurking out there in deep space. He uses an orange magic marker to draw a graphic of two interstellar clouds.

"This part here, we're talking about the collision of two interstellar clouds, and the region that might form there, and what that might look like," he says. "We think our position is close to the collision point of two clouds in the interstellar medium."

MEANWHILE, THERE'S ANOTHER COLLISION GOING ON: Between NASA space science and President Donald Trump. As the Trump administration has been deconstructing and reprioritizing the entire federal bureaucracy, it has thrown science agencies, including NASA, into turmoil.

NASA has long enjoyed bipartisan support and typically floated above the most feverish partisan battles in Washington. But it got a shock when Trump's fiscal year 2026 budget request to Congress called for cutting the NASA science budget nearly in half. That is not a reform or a recalibration or a restructuring, but a dynamiting. According to the Planetary Society, a nonprofit space science advocacy group, the cuts would terminate 41 NASA missions.

Astrophysics would see its budget cut by two-thirds, and the Earth science budget halved. The administration wants to cut about one-quarter of the overall NASA budget but preserve missions devoted to human spaceflight, national security, and planetary defense.

Into this politically perilous atmosphere sailed IMAP. And it survived. IMAP is fully funded, according to Fox, NASA's top science administrator. IMAP's role as a space weather monitor gives it the virtue of contributing to national security.

I ask McComas whether mapping the heliosphere is so far removed from our daily existence as to be a matter of scientific curiosity, but not something that's going to, say, change the price of eggs. McComas says it's not just the space weather monitoring by IMAP that makes it a pragmatic instrument. Knowing more about the heliosphere may also be useful in the long run.

That's because the heliosphere is not static. It expands and contracts. It is generated by the sun, and the sun is a variable star — we're on the declining phase currently of the 11-year solar cycle. And interstellar space — the realms through which the heliosphere is roaming — is not a uniform medium. There are huge clouds of dust and gas out there. Some are dense, which is where things get really interesting.

The heliosphere conceivably can run into a dense region of gas and dust and become dramatically compressed. The "nose" of the heliosphere can be pushed back toward Earth. In theory, it could be compressed so much that Mars or even Earth is outside the heliosheath, exposed to the local interstellar medium and bombarded by cosmic rays. Scientists debate whether there is evidence this has happened at some point in Earth's history.

Matina Gkioulidou, the IMAP project scientist at the Johns Hopkins University Applied Physics Laboratory, says, "Imagine if you have a star that doesn't have a protective bubble, and you

NASA / JOHNS HOPKINS APL / ED WHITMAN

WE HAVE LIFTOFF
The SpaceX Falcon 9 rocket carrying IMAP takes off from Kennedy Space Center in Florida on Sept. 24.

NASA / CORY S. HUSTON

have all these cosmic rays coming at you. Would you be able to form life there? We don't know."

McComas says this is relevant to NASA's human spaceflight ambitions, including missions to Mars.

"There are these really strong galactic cosmic rays that are flying in from all directions in space, and most of them come in and get sort of diverted by this heliosheath region, by the solar wind and magnetic field … . If it weren't for that interaction with the heliosheath, it would be 10 times worse, and you probably wouldn't be able to send astronauts there."

IBEX and IMAP employ a new type of astronomy based on "energetic neutral atoms," or ENAs. The solar wind carries charged particles toward the distant edges of the solar system. These charged particles are in the thrall of the sun's massive magnetic field. But when they approach interstellar space — and begin interacting with the particles out there — some of them gain, or exchange, electrons and become neutral. When that happens — behold — they no longer are affected by the sun's magnetic field and can wander. Some of them, in fact, wander toward Earth. IMAP's instruments can detect these ENAs and analyze them.

Who invented this kind of astronomy?

"More or less we did," McComas says.

"The trick about the heliosphere is you don't see it in light. You have to see it in these energetic neutral atoms. So we had to develop an entirely new field, which we did with IBEX, which we call energetic neutral astronomy."

AT THE CAPE FOR THE PRELAUNCH PRESS CONFERENCES, McComas says he's "excited, but tired."

He's seen about 20 launches over the years, but it's especially nerve-wracking when it's your own project.

"Humanity has spent all this time and energy building something truly unique and special, and it's leaving the Earth and it's never coming back," he says. "If it's yours, you are holding your breath."

I ask McComas to explain exactly how, after IMAP snags one of these energetic neutral atoms, it squeezes information out of it. How can the instruments interrogate the atom? How can scientists then craft a map of the heliosphere, including that boundary region billions of miles away?

"It took us a long time to figure this out too," McComas answers. "Because we measure the energies of these particles coming back in, it's a little bit like having multi-spectral pictures. It's not just regular light, there's ultraviolet and X-rays … . It's sort of like you sent waves out and they bounced off something and they come back."

Space has stories to tell. The language is not textual, it's more visual or even auditory. This is the music of the spheres, awaiting the innovations that can hear it.

McComas is part of the go/no-go leadership decision team on the morning of the launch. It's a gorgeous morning, the launch window just after dawn, perfect for visuals. The Falcon 9 lifts off at 7:30 a.m. as McComas, members of his family, Rankin, and other members of the Princeton entourage watch from a balcony of a building a few miles from the pad.

Once IMAP is safely in a parking orbit, and prior to being dispatched toward its permanent position a million miles away, McComas makes a brief appearance on NASA TV. "The heliosphere is our home in the galaxy. It's really important. We couldn't live without it," he says, keeping it simple.

Two days after launch, I talk briefly by phone with McComas, who is still in Florida. Things are happening fast, he says in his busy-man voice. He says they need to tweak the trajectory of IMAP, but only slightly. The launch and the final deployment from orbit went so well that they wouldn't need to expend much fuel to get the spacecraft on the right trajectory.

How are you, I ask.

"I'm good because IMAP is good," he says. P

JOEL ACHENBACH '82 *is a freelance writer. He retired this year after 35 years as a staff writer for* The Washington Post.

LIFE IS A BLUR
As chief data officer of Transport for London, Lauren Sager Weinstein '95 monitors the collective movement of millions of Londoners through Piccadilly Circus and beyond.

LONDON'S BIG DATA DETECTIVE

Below ground or above, Lauren Sager Weinstein '95 helps commuters get where they need to go

BY MARK F. BERNSTEIN '83

DAVID WOOLFALL

Traveling across the heart of central London from King's Cross St. Pancras Station to Waterloo Station is a relatively short trip, but there are any number of ways to go. Underground or above ground? By bus, cab, car, bicycle, or on foot? Hard to believe, but there are 18 different routes for covering those three miles just on the Tube, as London's subway system is called, not to mention the various surface options. Lauren Sager Weinstein '95 knows them all.

She knows them because she has had them counted and analyzed, studying millions of bits of information that commuters create every day. Sager Weinstein is the chief data officer of Transport for London (TfL), the agency responsible for almost all of London's vast transportation network.

Vast is not an exaggeration. London's Tube or Underground has about the same ridership of New York's subway system, but TfL's network extends far beyond running the subway. The organization also oversees day-to-day operations of 8,700 buses and various surface rail lines (which are run by independent contractors), collects fees from motorists in London's congestion pricing system, and operates 800 docking stations for e-bikes. It also licenses the taxis, not just the traditional boxy black ones that roam the streets, but river ferries on the Thames. Because it maintains the medians and greenspace along major roadways, TfL even tracks the location of 40,000 trees.

"If you're walking on the pavement and crossing the street, you're touching our network because we also run all the traffic lights," Sager Weinstein boasts. Sixty-four hundred traffic lights, in fact. She knows that number, too.

As a data engineer, Sager Weinstein does not run those systems herself. But she and more than a hundred coders, analysts, and computer scientists working for her collect mountains of information about them. Their job is to make sense of it all, not just for the organization, but to improve life for Londoners and tourists.

A good way to illustrate this is to revisit that short but surprisingly complex journey from King's Cross to Waterloo Station. The TfL Go app, which Sager Weinstein's colleagues developed and relies on data her team assembled, was introduced in 2020 and has been downloaded more than 7 million times. It instantly shows the best route options at any time of day. Riding the Tube, for example, one could take the Bakerloo line, changing to the Victoria line at Oxford Circus. Overland, one could ride either the 1 or 68 bus for eight stops, exiting at Upper Woburn Place and then walking the last third of a mile. If it's a nice day, one could also rent a bicycle; Santander Bank sponsors them, but TfL collects the fees. Or walk. In each case, the app traces the route.

Besides planning a single journey, TfL Go gives updates on service interruptions, congestion, and other delays. It shows how busy each Tube station is at any time of day, and which stations have elevators, so passengers with disabilities can avoid the escalator or steps. It also shows when every bus is scheduled to reach its next stop, in real time.

If one were really a glutton for information, the Network Demand Dashboard, accessible on the TfL website, shows almost unimaginable amounts of historical data, such as the amount of traffic on each bus route and Tube line for every day since 2019. TfL also collects Wi-Fi pings from cellphones in the pockets of customers moving through each station (anonymizing the information to preserve privacy), showing which platforms are crowded and where advertisements will get the most views.

Sager Weinstein and her team began looking at how to use data from ticketing systems starting back in 2005, in collaboration with universities in the U.K. and the United States, including MIT. Transit agencies in other U.S. cities now use the data analytics technology routinely, including Boston, Chicago, and Washington, but TfL was one of the early adopters.

"TfL was the place where we substantially enhanced this functionality," says Jinhua Zhao, a professor at the MIT Transit Lab who has worked with Sager Weinstein for many years.

While all this information may be fascinating, it can also be overwhelming unless it is organized, synthesized, and applied to solve problems. But first someone must decide which problems need to be solved. That is where Sager Weinstein comes in. Rather than chief data officer, she thinks a better title for her job would be chief data detective.

"It's more than just about being curious," she explains. "We're trying to solve problems and look at things in a new way. My job is to help us decide, first, what are the right questions? What would we do differently if we had answers to those questions? And how do we get the information needed to answer them properly?"

IN 1995, WHEN SAGER WEINSTEIN GRADUATED, her current job did not exist. (Capital One Bank was the first company to appoint someone as a "chief data officer," in 2002.) She grew up in the Washington, D.C., suburbs; before she was born, her father, an engineer, had worked with NASA's mission control on the Apollo moon landings. A data maven from an early age, Sager Weinstein appeared on the TV game show *Jeopardy!* while still in high school, though she did not win. ("The buzzer was really tricky," she contends.)

At Princeton, Sager Weinstein was active in campus theater, the Quipfire! improv group, and the glee club, and was a founding member of the Jewish a cappella group, Koleinu. She majored in the School of Public and International Affairs. Hoping to work in government after graduation, she went to Los Angeles, first as an aide to a city council member and then as a research assistant at the RAND Corp., a nonpartisan think tank.

Rather than pursue a career in academia, Sager Weinstein entered Harvard's John F. Kennedy School of Government, earning a master's degree in public policy. It was there, in 2002, that she came to the attention of Eric Rothman '93, who hired her to join his business planning team at TfL, which had been founded only two years earlier. Sager Weinstein and her husband, Jacob Sager Weinstein '94, decided to move to London, thinking they might stay for a year before moving on. "Famous last words," she laughs.

From Rothman's perspective, Sager Weinstein was the perfect fit. "She really ticked a lot of the boxes for what I was looking for in terms of inquisitiveness and an analytic base in how she approaches things," he says. "She was always extremely capable of taking on additional assignments."

For her part, Sager Weinstein was attracted by the opportunity to shape a huge municipal agency from the ground up. TfL was formed to consolidate London's transportation systems, which had been spread among more than a dozen agencies at different levels of government. It is a division of the Greater London Authority, the entity that provides citywide services to London's many boroughs. TfL's annual budget comes primarily from ridership fares along with funding from national and local sources and private entities.

TfL's extensive scope, which is unique among municipal transportation agencies, was another attraction. "It gives us an ability to think holistically about how people move around London," Sager Weinstein says. Her first job was to advocate for a huge increase in funding. "We were able to say, if you make this big investment, in money, in infrastructure, in engineering, you will get a real return out of it." TfL gained that funding, and Sager Weinstein spent three years as chief of staff for its finance and planning division.

In 2007, Sager Weinstein moved to a different challenge when she took charge of developing TfL's Oyster card for contactless payments. The agency had introduced Oyster in 2003, enabling Underground riders to pay for transit without queuing up to buy a weekly or monthly fare card. They were now gathering massive amounts of information as passengers tapped into and out of the system each time they traveled. What could TfL do with that data, and what questions could it help them answer?

Oyster arrived just as the so-called Big Data revolution was taking off worldwide. In 1939, the London Underground tried to assess ridership patterns by collecting 4 million paper tickets over a three-day period; it took six months to sort them all out by hand. As recently as about a decade ago, TfL measured usage patterns at its Underground stations by asking commuters to complete paper surveys once a year, hoping to grab people on their way to or from work. They surveyed the bus lines once every five years.

Now able to gather information on millions of passengers every week and sort that information almost instantaneously, Sager Weinstein and TfL collaborated with MIT and several other universities to help make sense of it. MIT developed a program called ODX, which stands for Origin Destination and Transfer (or Exchange), to model transit patterns. It involves more than just looking at where someone entered and exited the system and can be used across different types of transportation. Suppose a passenger taps on the network when they enter the Tube, taps out at a different Tube station, and then taps on to a bus that stops at the corner. Bus passengers don't have to tap out when they get off the bus, but if that same card next taps in at another Tube or bus stop nearby, the program can infer that the passenger was making one long journey.

More recent technological advances, such as tracking Wi-Fi pings from commuters' cellphones, enable TfL to understand how people move through the system, to discern which of those 18 possible Tube routes between King's Cross and Waterloo, in other words, they actually prefer.

MORE RECENT TECHNOLOGICAL ADVANCES, SUCH AS TRACKING WI-FI PINGS FROM COMMUTERS' CELLPHONES, ENABLE TFL TO UNDERSTAND HOW PEOPLE MOVE THROUGH THE SYSTEM.

"Now we can understand that Saturday [traffic] is different from Wednesday, and that last Wednesday is different from this Wednesday," Zhao says. "You can get a much more nuanced understanding." TfL expanded its contactless payment system to include credit and debit cards across the network in 2014.

Besides making travel smoother, TfL has used big data to respond to big challenges that place stresses on the system, such as the 2012 Summer Olympics and Queen Elizabeth II's funeral in 2022, advising riders on how to get to and from events smoothly or avoid them altogether. During the pandemic, Sager Weinstein and TfL used their extensive network information to advise the prime minister and cabinet on how to tailor public messaging to ensure that passengers followed safety guidelines.

"That was a huge opportunity in a very uncertain time to use data to help inform public policy," Sager Weinstein says.

After serving as head of Oyster development from 2007 to 2012, Sager Weinstein was named TfL's first head of analytics in 2012, and its chief data officer in 2017.

THERE IS AN OLD ADAGE THAT "DATA" IS THE PLURAL of "anecdote," but think about that relationship in reverse. Each anecdote is a person moving around the city, making decisions about where they want to go and how to get there. Data shapes the rides. The rides shape the journeys. The journeys shape the system. The system shapes the city.

Proximity to public transportation can be a key factor driving development and economic growth. Sager Weinstein has already seen this happen during her time at TfL. The $26 billion Elizabeth line, the first new Tube line in nearly a quarter century, opened in 2022 and expanded TfL's rail capacity

JACOB SAGER WEINSTEIN ’94 IS NEVER NOT WRITING

JACOB SAGER WEINSTEIN ’94 is a prolific author, although such a highfalutin term might make him blush. He has written picture books for children, such as *Lyric McKerrigan, Secret Librarian*, and *What Rosa Brought*, about his mother’s family’s flight from the Nazis. He has written a series of novels aimed at young adult or middle-grade readers, such as *Hyacinth and the Secrets Beneath*. And he has written books aimed at adults (in the marketing, at least) with such titles as, *How Not to Kill Your Baby, The Government Manual for New Superheroes*, and *Be Happier Now: 100 Simple Ways to Become Instantly Happier*. His real demographic might better be described as the young at heart.

Still, as any writer might appreciate, one benefit of such diversity is that there is always something to do when he is wasting time.

“If you’re stuck on one thing, you can procrastinate productively by working on the other thing,” he reasons.

Juggling multiple literary projects is one of the realities of being a freelance author. Some transitions, though, are harder than others. “When you write a book about the Holocaust, if I changed a word I would be wrecked for the rest of the day,” Sager Weinstein says. “If you’re writing about a superhero librarian, it’s a little easier to put that aside and jump to something else.”

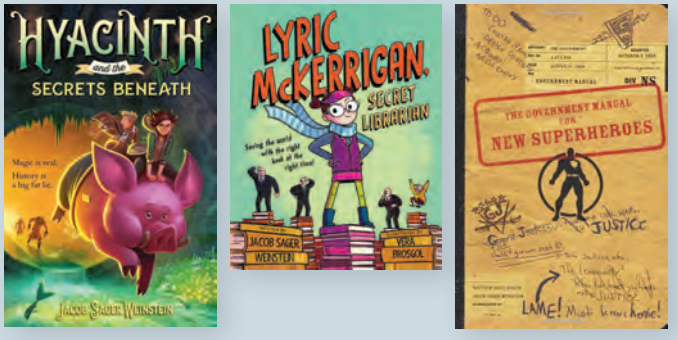
One of Sager Weinstein’s literary muses is Ivan Pavlov, the Russian psychologist known for training dogs. For each book he writes, Sager Weinstein says, he builds a themed musical playlist, which he uses to get his creative juices flowing. When he was writing *Hyacinth*, for example, which is set in a magical world beneath the streets of London, he built a playlist of songs entirely about London. “The downside is that those songs are then completely ruined for me.”

Sager Weinstein and his wife, Lauren Sager Weinstein ’95, have lived in London since 2002, when Lauren joined Transport for London. They had been living in Los Angeles, where Jacob was a staff writer for comedian Dennis Miller’s late night talk show. Since she had followed him to the West Coast, he decided it was his turn to be a good spouse and support her career. Also, *Dennis Miller Live* was canceled a week later.

“So I got all the husband brownie points with no actual sacrifice,” he jokes.

He tried writing screenplays before turning to writing books, especially children’s books, after his own kids were born. Like most children’s book authors, Sager Weinstein writes the text, and the publisher pairs him with an illustrator. He says it works out for the best that way. “I might be able to draw a stick figure if you give me enough time.”

As usual, Sager Weinstein has several new projects in the works, including another middle-grade novel and several picture book manuscripts, all at different stages of revision. Whenever he gets stuck on one, he just moves to another. As he explained on PAW’s Q&A Podcast in 2018, “You can always revise a bad first draft, but you can’t revise a blank page.” *By M.F.B.*



THE WRITE STUFF
Jacob Sager Weinstein ’94 has written fiction books for children, young adults, and adults.

LAUREN SAGER WEINSTEIN ’95

CONTROL CENTER

London Undergound staffers monitor the network using a wall of video feeds from around the city.

TRANSPORT FOR LONDON

by 10%, connecting the growing financial district around Canary Wharf to Heathrow Airport and rail stations outside the city. Sager Weinstein worked on the project from its early stages, helping make the case for why the large infrastructure investment would be useful. So far, it has paid off. According to the engineering firm Arup, 60% of London's employment growth between 2015 and 2022 occurred within a kilometer of an Elizabeth line station, and tens of thousands of new homes were also built along the route.

Sager Weinstein says she believes that further expansion of TfL's network, such as an extension of the Bakerloo Tube line to the south and an extension of light rail lines to the east, might also open old industrial areas to new development, create badly needed jobs, and perhaps ease the U.K.'s severe housing shortage.

"We're a growing city," Sager Weinstein says. "How do you make the case for new investment?"

She cites several pressing challenges to the network. Some are perennials, such as whether TfL can continue to secure enough funding. Another is the emergence of autonomous vehicles, which TfL has already begun to study. Still, another is climate change. Creating an entire fleet of electric buses by 2034, as TfL has pledged to do, is only part of the issue. "How do we design our networks — walking, cycling, buses, roads, freight, trains — and how do they all fit together for a world where we're having people reduce their carbon emissions getting to net zero?" Sager Weinstein asks.

Like any story about tech these days — like any story about anything, really — one question is about the effects of artificial intelligence. Sager Weinstein points out that TfL has used forms of AI and machine learning for many years. New generative AI might produce better design processes and streamline existing processes, but Sager Weinstein says she is neither a champion nor a skeptic. Any new technology only raises the eternal questions: What could we do with this information if we had it? Would it help us run things better? Would it help us provide better services and information to our customers in a way that is easy?

Sager Weinstein is now a true Londoner who rides TfL frequently from her home in North London to her offices south of the Thames. But she notes that, like most riders, her journeys are rarely exactly the same from day to day. Some days she may have a meeting that takes her to a different part of the city. She may go in late after waiting at home for a delivery or leave early to attend one of her children's school events. She may stay in central London in the evening to go out to dinner or the theater.

There are lots of places to go and a staggering number of ways to get there.

"People live in London because they want to be part of the life of London," Sager Weinstein says. "Our role at TfL is to connect people together." P

MARK F. BERNSTEIN '83 *is PAW's senior writer.*

Alumni Day

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February 21, 2026

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Kevin Gover '78

Under Secretary for Museums and Culture
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Photos: Kevin Gover: Noah Willman Photography; Terence Tao: Penny Jennings / UCLA

RANDALL DUNN

AUDIBLE ANATOMY

Vocalist Charmaine Lee '14's music might be unlike anything you've heard before — an improvised language drawing from the human body's own sounds. "At what point," she asks, "does life become music, become sound, become music, become life?" This summer and fall, Lee launched a tour of 60 shows in all 50 states, including a performance she called "life-changing," pictured here, at a Lakota skate park organized by the nonprofit Ground Control, on the Pine Ridge Reservation in South Dakota. Lee still found time to discuss her auditory art on an episode of the PAWcast. Listen at paw.princeton.edu or wherever you get your podcasts.

COMMUNITY CARE
*Karen Jackson-Weaver '94 takes a selfie with Julius Coles *66 during a reception at Prospect House.*

MANY MINDS, MANY STRIPES

Conference Celebrates 125 Years of Graduate School

BY LIA OPPERMAN '25

MORE THAN 1,100 GRADUATE alumni and guests gathered on campus Oct. 9 to 11 for the first Many Minds, Many Stripes conference for graduate alumni in 12 years. This year's celebration coincided with the Graduate School's 125th anniversary and explored how higher education can change to adapt to a rapidly shifting world.

In the upper hallway between Chancellor Green and East Pyne, a history display presented by the Princetoniana Committee highlighted pivotal moments in graduate scholarship, including famous firsts such as Howard Edwards Gansworth 1901 *1906, the first Native American student to earn a Princeton graduate degree, and other notable graduate alumni, including five decades of James Madison medalists.

In his welcoming remarks, Dean of the Graduate School Rodney Priestley trumpeted the transformational impact of the graduate school. "Princeton's graduate school has had a storied history since its founding and is continuing the legacy of graduate education today," he said. "Now, in the current moment, there is ample rhetoric about the current state of higher education, but I'm here to tell you that Princeton's Graduate School is thriving."

Nancy Cole *76, a School of Public and International Affairs (SPIA) alumna, drove from Milwaukee to make the conference. She also attended last year's Every Voice conference, which recognized Princeton's LGBTQ+ alumni. "I'm just becoming so enamored with my alma mater of 50 years that I'm back again, and I may come next year, because it will be my 50th," she said. Cole has never been to Reunions but hopes that next year will be her first.

Robert Johnston *70, another SPIA alum, took the train from New York City for the conference. "In this troubled time, what can be done, and what can universities do?" he said. "We stand up for academic freedom. The president spoke strongly for it." Johnston also recalled his years on campus during the late 1960s Vietnam War protests, when the University was led by President Robert Goheen '40 *48.

At a Friday conversation, President Christopher Eisgruber '83 echoed Priestley's remarks and emphasized Princeton's commitment to free expression. He spoke about the importance of having respectful free speech on college campuses, the subject of his book *Terms of Respect: How Colleges Get Free Speech Right*, released in September. "Our job is to allow for passionate, emotional, sometimes offensive discussion to take place on the campus, while also generating the forum that allows for more deliberate, truth-seeking, reasoned argument about what goes on, and to do that in an inclusive way," Eisgruber said.

Panels throughout the weekend, many led by graduate alumni, explored the state of higher education, free speech, technology, and global change. "I know we're all grappling with the craziness of this moment, and I think it's important for us to be in community together, to have conversations to try to talk it out," said Princeton professor Eddie Glaude *97 at a Friday talk on leadership and public service.

Amaney Jamal, dean of SPIA, spoke on a panel with SPIA alumni Ajay Bisaria *09 and Cara Abercrombie *03. Jamal discussed the need to have empathetic policymaking, build trust with stakeholders, and adapt to a new technological and educational environment in public service.

"The realm of politics has lost its stability, and for politics to continue to

TORI REPP / FOTOBUDDY

"Now in the current moment, there is ample rhetoric about the current state of higher education, but I'm here to tell you that Princeton's Graduate School is thriving."

— RODNEY PRIESTLEY
Dean of the Graduate School

do the job of a good society, we must work to bring civility back into politics," she said.

Other panels and talks focused on using artificial intelligence, navigating moral complexities in the rapidly changing world, expanding educational access to underrepresented communities, and accelerating economic mobility in America. Provost Jennifer Rexford '91 interviewed Sarah Nagy *14, who received her degree in French and Italian and founded Seek AI, about what's at stake as artificial intelligence and academic institutions evolve.

The conference also highlighted mentorship and pursuing nontraditional career paths. At the kickoff on Thursday, graduate alumni shared how their time at Princeton shaped their lives today. Many highlighted the importance of an interdisciplinary, liberal arts education and pursued paths different from those they had initially expected when they entered graduate school.

At the event, Yasmin Elhady *15, a SPIA alumna, lawyer, and comedian who holds five degrees, discussed the challenges she faced while pregnant with scoliosis. She shared her doula's advice to listen and be curious about her pain while she was in labor, and said 60 seconds later, her baby was born. She likened this journey to the current climate. "You know, in this moment, it may feel like we're in a lot of pain, but we have to be awake for it. We have to lean into that pain. We've got to get curious about what's coming, because something new is going to spring forward," she said.

In a conversation at Labyrinth Books, graduate alumni authors discussed how

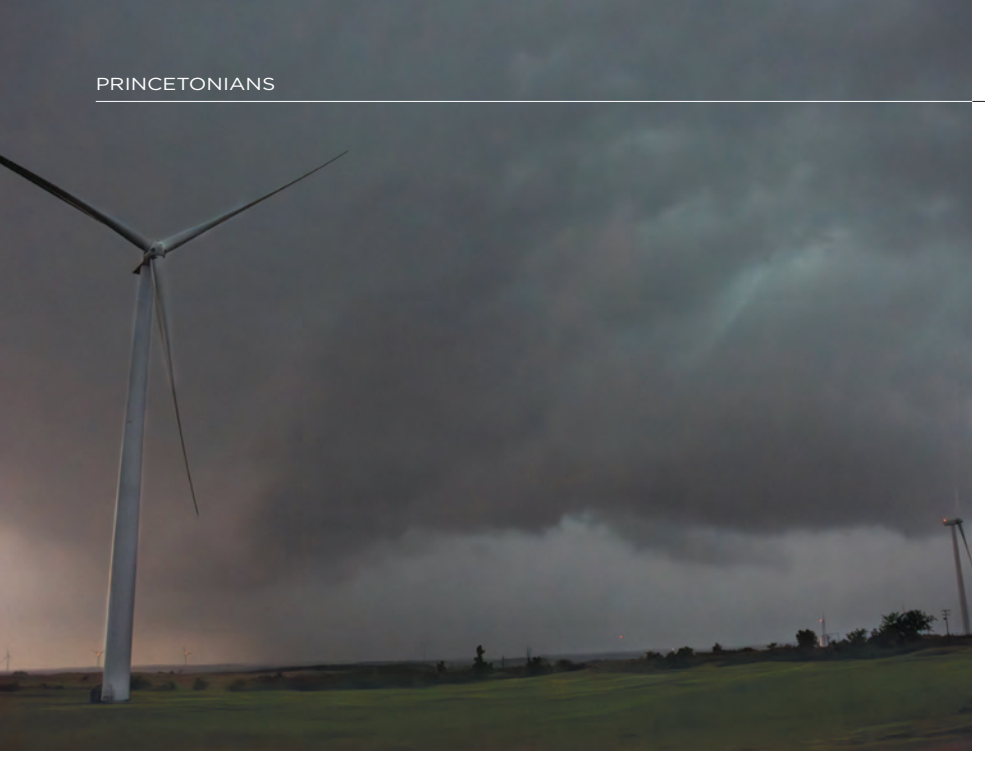
WARM WELCOME
*Clockwise from top: From left, attendees John Berrier *73, Kaustav Biswas *00, Yi Zhao *97, and Ling Tong *98 tour the Frick Chemistry Laboratory; Provost Jennifer Rexford '91 speaks with Danilo Joa '77 at the Asian American Alumni Association of Princeton reception at Prospect House; Rodney Priestley, dean of the Graduate School, offers welcoming remarks.*

their studies influenced their writing, even as they ventured outside of academic publishing. Peter Lighte *81, who earned his degree in East Asian studies, spoke about being an "indie author" and how his knowledge of Chinese languages led him to a banking career instead of an academic one. This eventually led to his memoir, *Straight Through the Labyrinth*, about being a gay man adopting a daughter from China.

Current graduate students also joined the conversation and spoke about their time at Princeton, the communities they've found on campus, and the extracurricular activities that complement their academic experiences. Graduate alumni in the audience asked questions about residential life and opportunities for alumni mentorship. Nikita Taniparti, a Ph.D. student in anthropology, said her GradFUTURES alumni mentors have helped her talk through a range of concerns, from general exams to career anxiety.

"It was just like a really nice informal but informed avenue to always know that you could email this person, and they don't need context of what you're going through," she said. "Being mentored has helped me be a better mentor as well, to undergraduates and other people hoping to come to graduate school." P

TORI REPP / FOTOBUDDY; CHARLES R. PLOHN / FOTOBUDDY



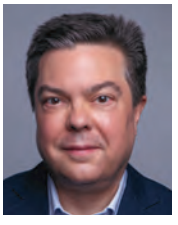
TOM WEBER '89

Understanding Extreme Weather Events To Save Lives

BY LOUIS JACOBSON '92

WHEN TOM WEBER '89 was in his first year at Princeton, he decided to take the train to Boston for a weekend.

It was the fall of 1985, and Hurricane Gloria was bearing down on the eastern United States. Gloria became the first significant hurricane to threaten the Northeast in more than a decade, ultimately killing more than a dozen people and causing almost $1 billion in damage.



WEBER '89

Growing up in Michigan, Weber had known little about hurricanes. "As a child and a teen, tornadoes were the weather danger we were familiar with," Weber recalls. In elementary school in his part of the country, that was the weather event you practiced for.

Weber's trip came a decade before the internet, and long before the Weather Channel app and National Weather Service text alerts. Back then, Weber says, a hurricane "sounded so abstract to me." At least until he was on his way to Boston.

As Gloria hit, Weber was forced to sleep overnight in the New Haven train station, which had lost all power. It took him 23 hours to get to Boston.

This experience, and Weber's cluelessness going into it, remained with him decades later, when he began researching and writing the book, *Cloud Warriors: Deadly Storms, Climate Chaos — and the Pioneers Creating a Revolution in Weather Forecasting*.

"One of the themes in the book is the need to be prepared for almost any kind of weather, especially weather you're not familiar with," Weber says.

At Princeton, Weber earned a degree in politics, but he spent most of his time at *The Daily Princetonian*, ending up as chairman (and, as an alumnus, currently serving as president of its board of trustees). Weber worked in increasingly senior editing roles at a string of publications in New York — *Worth* magazine, *The Wall Street Journal*, *Newsweek-The Daily Beast* (when the two were merged), and *Time* magazine. Then, in the mid-2010s, he decided he wanted to get back to reporting.

As the *Journal's* first columnist writing about the internet in the 1990s, Weber had pitched his editors on a story about the technology of storm chasing, but they decided the topic was too far afield from his beat. After years of nursing the idea, Weber began working on a book about the science of weather forecasting and, following some pandemic-related delays in his reporting, the book came out in June. (Technically, it was Weber's second book; with another senior *Prince* editor, Jack Goodman '89, Weber published a book that collected interviews with 26 notable alumni on how Princeton's service motto shaped their careers.)

For *Cloud Warriors*, Weber visited several nodes of the "weather enterprise" — the nexus of government offices, academia, and for-profit forecast providers that collaborate on weather forecasting. Practitioners explained the technological advances, and the shortcomings, of contemporary weather forecasting. (One of the locations he visted is the Geophysical Fluid Dynamics Laboratory, a research center on Princeton's Forrestal campus.) At one point in his research, Weber fulfilled his old dream of riding with storm chasers in Oklahoma.

As his reporting proceeded, Weber began to focus on why more accurate forecasts don't necessarily translate into better outcomes, in lives and property saved. Weather satellites, radar stations and the specialized scientific knowledge to understand the data they produce are all important, he concluded — but a key, underappreciated factor is how to manage human psychology.

CLOUD COVER

Tom Weber '89's new book Cloud Warriors *explores the movements and people dedicated to understanding deadly storms. Pictured at left is the wall cloud of a supercell — a severe type of thunderstorm — over southwest Oklahoma. These formations are of key interest to researchers because supercells often precede violent tornadoes.*

TOM WEBER '89; EMIL COHEN

TIGER ATHLETICS GIVE DAY

TUESDAY, DECEMBER 2, 2025

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THREE CHEERS FOR OLD NASSAU

A turning point came with Weber's interview with a social science expert who traveled to locations that had recently been struck by tornadoes. As her colleagues were focusing on estimating wind speeds and damage patterns, this researcher was asking community members about the warnings they'd heard before the storm and how they decided to take the actions they did.

"I realized then that there was a huge push in the weather world to start better understanding people, as well as the atmosphere," Weber says. "The real issue is, how do you get people to make the safest decisions? You have to communicate that to people in a way that gets them to treat it with a gravity that is appropriate to the danger. It's a complicated chain of events."

Weber found there isn't a one-size-fits-all way of doing this. Class differences can pose barriers: People with hourly jobs, he says, "may not feel they are able to skip work if their manager says they still have to show up despite a storm coming." Cultural factors can complicate matters, too: In some places, local weather officials have to figure out how to send urgent meteorological warnings to Amish communities, which have religious objections to using modern technology.

In the case of communities like the Amish farmers in Pennsylvania, Weber said, meteorologists have been working with a maker of emergency radios to develop an Amish-friendly version that can receive weather alerts but won't tune in music or other commercial programming. National Weather Service forecasters have also relied increasingly on providing the Amish with information through a community telephone, which is generally accepted in place of family or individual phones.

As with his own experience with Hurricane Gloria, Weber says, the most dangerous weather events can be the ones you're least expecting.

Heat waves can be deadly anywhere, but especially so in places that aren't used to them, such as the Pacific Northwest, which suffered from an unusual "heat dome" in 2021; there, residents were more familiar with the dangers of heavy rain. Similarly, New Yorkers struggled to understand how to react to a wildfire in Brooklyn's Prospect Park in 2024.

For Weber, the July 2025 flash floods in central Texas spotlighted the long-overlooked risks of flooding. Even before the Texas floods, Weber saw a need for improved communications about flash flood threats. "With a tornado, people know to get into the basement or an interior room," he said. "I don't think most people can rattle off the safest response to a potential flash flood in the same way."

While Weber says he's worried about proposed cuts to weather research under the Trump administration, he remains optimistic about future improvements in weather forecasting.

He said he's bullish on a role for artificial intelligence (at least in conjunction with more traditional techniques), and he admires lower-tech solutions like text messages that forecasting companies can send inexpensively to farmers in the developing world. Such efforts, Weber says, have had "an enormous economic impact" for farmers he interviewed in Ghana.

Improvements in weather forecasting have been "one of society's greatest achievements," Weber said. "We are so much better now at predicting hurricanes days in advance, and that translates into real help for timely evacuations. One way or another, I think this work will continue." P

"The real issue is, how do you get people to make the safest decisions? You have to communicate that to people in a way that gets them to treat it with a gravity that is appropriate to the danger. It's a complicated chain of events."

— TOM WEBER '89

TOM WEBER '89

METEOROLOGIST MOVES

Top: Storm chasers at the National Severe Storms Laboratory gather data with these instrument-studded trucks to better understand tornadoes. Above: The New York State Mesonet blankets the area with weather stations that provide granular data that helps everyone from the Department of Transportation to local emergency managers. Cameras with the instruments give real-time views of conditions.

MISSY WYANT SMIT, '98
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THE CLASS OF 1949

THEODORE E. GORDON '49

Ted died Jan. 13, 2025, in Vero Beach, Fla.

Raised on an apple ranch in the Hood River Valley in Oregon, Ted and his family later moved to New Jersey, where he attended Lawrenceville and served in the Merchant Marine during World War II. At Princeton, he majored in electrical engineering and was a member of Cap and Gown. He spent summers in Bay Head, N.J., where he met his future wife, Elizabeth (Lee) Seaman; they married in 1950.

After a year studying at Columbia, Ted worked on Wall Street before going on to a career in business magazine publishing. He started Gordon Publications in 1961, which grew to 16 magazines and newspapers before he sold it.

Ted and his wife raised their five children in the Morristown, N.J., area and after retirement divided their time between Vero Beach and Lake Sunapee, N.H., where he was an active golfer and a member of the U.S. Seniors' Golf Association. He led the effort to create Baker Hill Golf Club in the New Hampshire mountains, considered one of the best courses in the Northeast.

Ted is survived by his wife of 74 years; two sons; two daughters; 15 grandchildren; and five great-grandchildren. He was predeceased by his oldest daughter.

THE CLASS OF 1950

WILLIAM F. HAYNES JR. '50

Bill died Dec. 31, 2024, surrounded by family. He was 98.

Bill was born in Newark, N.J. He graduated from Newark Academy in 1944 and then attended the U.S. Merchant Marine Academy. He served in World War II in the Pacific Theater until the end of the war. At Princeton, he was on the swim team and a member of Cottage Club.

Bill graduated from Columbia Medical School in 1954. He served in the Navy as a lieutenant (j.g.) medical officer, finished his residency, and moved to Princeton, where he began a cardiology practice in 1960 and founded Princeton Cardiology Associates. He also served as an assistant clinical professor of medicine at the Robert Wood Johnson Medical School.

After retiring at age 71, Bill earned a master's in theology from La Salle University in Philadelphia and then served there as an adjunct professor of theology. He wrote several books on medicine and prayer. Bill was one of the original members of the Princeton Officers Club and served as president of the University Friends of Swimming and president of the Class of 1950.

Bill is survived by his wife, Aline; sons Bill and David; daughter Suzie; and eight grandchildren.

THE CLASS OF 1952

DAVID PATON '52

Dave died April 3, 2025.

He graduated from The Hill School and studied biology at Princeton. He won the

Freshman English Prize and served as senior class vice president, among many other activities. He roomed with Jim Baker and Bill McHenry. Dave's father, R. Townley Paton, was in the Class of 1925.

Dave graduated from Johns Hopkins Medical School in 1959 and joined the Wilmer Eye Institute at Johns Hopkins. In 1970, he joined Baylor College of Medicine, chairing the opthalmology department.

In 1973, he founded an organization, Project Orbis, to gather funds to provide eye care for patients in other parts of the world. To provide care in these areas, he converted a retired United Airlines DC-8 jet into a hospital and filled it with medical treatment and teaching equipment. Orbis flew to many developing countries across the globe, treating patients and training doctors.

The statement accompanying Princeton's 1985 honorary degree of Doctor of Science to Dave cited him as a visionary for his treatment of visual problems, all while handling his own dyslexia. He earned France's Legion of Honor, Jordan's Royal Decoration Award, and the first U.S. Presidential Citizens Medal ever given to a physician.

Dave wrote a remarkable statement in "The Book of Our History" about himself and classmates he leaves behind.

Dave was predeceased by his wife, Diane Johnston, in 2022. He is survived by his son, Townley; and stepchildren Garrison Franke, James Beardmore, and Lauren Ivanhoe.

THE CLASS OF 1953

VINCENT J. ANDRETTA JR. '53

Vincent was born in Kingston, N.Y., and attended Kingston High School and

Lawrenceville before coming to Princeton. He was a member of Tower Club and majored in English in the American Civilization Program. He wrote his thesis on William Faulkner.

Vincent was called to active duty in the Army in early 1954. Since he had an ROTC commission he went directly to artillery school, then to the Army Aviation School, and became a pilot.

When he was discharged from the Army he went into his father's liquor business and eventually became chief executive officer of Colony Liquor Distributors. He also served as chairman and president of the Wine and Spirit Wholesalers of America.

Vincent died March 2, 2025. He is survived by his three children, Jay, Sandra, and Bonnie.

RICHARD W. CORKHILL '53

Dick died June 24, 2025, in Avalon, N.J.

He was born in Berwyn, Pa., and came to

Princeton from the Haverford School. Dick majored in history and wrote his senior thesis on "French Jesuits in Canada in the 17th Century." He joined Colonial Club, played clarinet in the Band, and was drum major his senior year.

After graduation, he served three years as a first lieutenant in the Navy. He worked for General Steel for eight years and then spent 19 years at Sun Shipbuilding in Chester, Pa., and 11 years with Wyeth Pharmaceuticals in Great Valley and Radnor, Pa., as a human resources manager before retiring in 1993. His avocation through those years was as a scoutmaster and as a deacon and elder in the Presbyterian Church.

His first wife, Nancy, died after 54 years of marriage. He is survived by their son Douglas and Dick's second wife, Kathy Hotchkiss Hallamore.

THE CLASS OF 1954

DAVID GREATOREX POWELL '54

David died Jan. 28, 2025.

He prepared at South Kent School and was active in football, crew, and student government.

At Princeton, he majored in the Special Program in European Civilization and the Modern Languages Department, joined Dial Lodge, participated in crew all four

years, and graduated *cum laude*.

David was captain of the 150-pound crew, which, after winning all U.S. races, competed at the Henley Royal Regatta, breaking the course record in the semifinals before losing to the Royal Air Force.

David married Joan Van Nostrand Hitch during two years of service in the U.S. Army. He then began his career with Standard Oil and its successors — Esso, Exxon — and Exxon Chemical, with assignments in New York City, Toronto, Rio, Buenos Aires, London, and Madrid. In 1980, he was recruited by Allied Signal/Honeywell, where he remained until retirement in 1995. He then devoted himself to community service as chairman of the board of trustees for the Morristown Hospital's Foundation, trustee for Centenary College, and on the board of the Morristown, N.J., Seeing Eye. Passionate about geriatric medicine, he and Joan established the David and Joan Powell Center for Healthy Aging at the Morristown Medical Center.

David's wife Joan predeceased him on October 12, 2024. He is survived by their daughters Katherine, Clare, and Elizabeth; three grandchildren; a great-grandchild; and David's brother Evan Rhys Powell.

THE CLASS OF 1955

PHILLIP E. GLADFELTER '55

Phil, who was born in Philadelphia June 24, 1933, grew up there and then moved across the country to spend his life in the Seattle area, died April 6, 2025.

He attended Olney High School in Philadelphia, where he participated in band, choir, and student government, At Princeton, Phil joined Campus Club and majored in classics, picking one of the more intriguing thesis topics: ancient fertility cults. He earned a "P" as varsity swimming manager and participated in IAA touch football and basketball. Phil was active in the Chapel Choir, WPRU, the Philadelphia Club as senior assistant of the board of advisers, and as a concert usher. Senior year his roommates were Carter Buller and Dave Fulmer.

After graduation, Phil did three years in the Army, then three years at Harvard Law School. He said that when he had moved to Seattle, he seemed to be the only Princeton graduate in the neighborhood; before long there were a dozen or more. Starting in the legal department of an international manufacturing company, he moved to commercial real estate, then retired in 2002. His interests over the years were camping/hiking in the Northwest, concert-going, reading, and traveling. Phil described himself as a "lifelong bachelor more by happenstance than design."

THE CLASS OF 1957

BRUCE MARTIN '57

A classmate who made the U.S. Army a great part of his life, Bruce died Jan. 8, 2025. He came to Princeton from Walpole (N.H.) High School. At college he majored in English and was a Commons captain for three years and a library assistant for four years. He joined Cloister Inn, for which he played intramural basketball. His senior-year roommate was Bill Johns.

Bruce married his childhood sweetheart, Janet Prentiss, shortly after graduation. Having participated in Army ROTC, Bruce served as an artillery officer at various bases in the U.S. and Europe, including SHAPE headquarters in Belgium, had two deployments to Vietnam, and was a battalion commander. He completed the Army Command and General Staff College and Army War College courses and then taught at both. He retired from the Army in 1985 as a full colonel.

Thereafter Bruce joined Cambridge International in Virginia, serving until 1993, when he moved back home to Walpole, N.H. He was active in the First Congregational Church there, as well as in the American Legion and Walpole Grange. He spearheaded the group that created and raised funds for the Veterans Memorial in Walpole. He also relaxed at his family cottage on Lake Warren, collected coins, was an avid card player, and tended a noteworthy garden.

Bruce is survived by his wife of 67 years, Jan; their three children, Gregory, Steven, and Tracey; five grandchildren; seven great-grandchildren; and other extended family members.

THE CLASS OF 1959

HERMAN J. BELZ '59

Herm died March 12, 2024, in Rockville, Md.

Born in Haddon Heights, N.J., Herm's stellar undergraduate years included a basketball career as one of Cappy Cappon's "Iron Five" basketball players and as ace pitcher on the baseball team. A history major, he dined at Cannon Club and roomed with Chris Allen, Hal Pachios, Mike Viola, Tom Dalton, and twin brother Carl. After five years as a lieutenant in the Navy, Herm went on to earn a Ph.D. in history from the University of Washington in 1966.

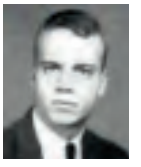
He put his doctorate to use in a 40-year teaching career at the University of Maryland, ultimately receiving the title of professor emeritus of history and assuming academic leadership positions, among them director of graduate studies in the history department. He was a prolific writer with award-winning publications addressing subjects from affirmative action to the American Constitution to Abraham Lincoln.

Herm's many other involvements included academic director of the congressionally established James Madison Memorial Fellowship Foundation (1996-2012), visiting scholar in Princeton professor Robert George's James Madison program, George W. Bush appointee to the National Council on the Humanities, and adviser to the Supreme Court Historical Society. This multi-talented, thoughtful man brought so much to so many.

The Class of 1959 wishes heartfelt condolences to Herm's family, especially his wife, Valerie; and children Kristin '84 *94 and Aaron '87.

JOHN M. HILL JR. '59

John was born July 1, 1937, in St. Paul, Minn. He died April 15, 2024, in Santa Cruz County, Calif.



John prepared for Princeton at Phillips Exeter Academy, and at Princeton he majored in psychology. He joined Colonial Club, roomed with Carl Kappes and Jerry Miller, and played freshman soccer and varsity hockey for three years.

After beginning his career at 3M and working for several years in New England and abroad, John ultimately settled in the Santa Cruz area, where he worked as a recognized leader in the material handling and supply chain industry. He was a pioneer in the implementation of automatic identification and data collection systems including bar coding and radio frequency identification, and warehouse and transportation management systems.

John was a former president of the Material Handling Institute (MHI), member of its board of governors, emeritus member of MHI's advisory roundtable, and the recipient of numerous awards for contributions to the U.S. material handling industry.

He taught his daughters the art of soccer, and he went on to coach the game — leading his eldest daughter's team to a division championship. For himself, golf became his ultimate obsession.

John is survived by his wife Barbara; his daughters, Jennifer and Sarah; his grandchildren Madison, Riley, Sawyer and Miles; and his great granddaughter Lily.

ROBERT W. TULL '59

Cross country skier, hot air balloonist, fly fisherman, husband, and father, Bob died Dec. 24, 2023, in Albuquerque, N.M.

A Denver native and Mercersburg Academy alum, at Princeton Bob majored in mechanical engineering, worked on the Campus Fund Drive, dined at Quad, and led a platoon as an NROTC midshipman ensign. He roomed with

Bill Gantz, Bob Hilton, and Ben Hoover. Following Navy service, Bob graduated *cum laude* from the University of Denver College of Law and entered upon a 45-year career as a life insurance underwriter with Northwestern Mutual Life.

A volunteer par excellence, Bob served his homeowners association, his church, the American Cancer Society, Special Olympics, and the Princeton Schools Committee. Unusual for our time, he remained with Northwestern Mutual Life for his entire working career, receiving both local and state life underwriter of the year awards and the state associations' nomination for an award of excellence. As a sideline he acquired an extensive collection of Native American pottery and artwork, ultimately leading him and Judy, his wife, to residence in Albuquerque, where he lived out his life.

Bob and Judy loved to travel, especially to Europe to see their daughter Linda and their grandchildren. Bob is survived by Judy; daughters Linda and Paula; five grandchildren; and brother Paul '64.

THE CLASS OF 1960

L. PARKER HARRELL JR. '60

Parker grew up in Washington, D.C., and attended St. Albans School, where he stood

out in sports. With us he played four years of baseball, studied at the Woodrow Wilson School, and dined at Ivy. On graduation he joined the Army Reserve, rose to second lieutenant, and attended the London School of Economics in 1960 and 1961.

Parker began his career in banking with Wachovia Bank and Trust in Charlotte, N.C. He moved to American Security and Trust Co. in Washington, D.C., then entered executive search, first at Paul Stafford Associates and ultimately with Korn/Ferry International in 1984. There he developed K/F's European business through 2005, rising to director of financial services and CEO of Korn/Ferry Europe. He was also active in alumni affairs and was proudest of serving as class president from 1985 to 1990.

In 2005, Parker retired due to a serious stroke. Determined rehabilitation enabled him to serve on the board of the Atlanta Federal Home Loan Bank and continue to serve with a succession of school boards. He resumed playing some golf and enjoyed his home and farm in the foothills of the Virginia Blue Ridge Mountains.

Parker died April 21, 2025. He is survived by his wife of 62 years, Adele; daughters Glenn '87 and Logan; and eight grandchildren, to all of whom we send our condolences.

R. BRUCE ROSENBAUER '60

We lost an amiable classmate when Bruce died May 7, 2025, shortly before our

65th reunion.

Raised in Sleepy Hollow, N.Y., Bruce graduated from North Tarrytown High School, where he joined the tennis and basketball teams and honed his pool skills. With us, Bruce majored in sociology and joined Cannon Club, where he supported the club's IAA sports efforts.

After a term with the armed services, Bruce earned an MBA at Columbia in 1964. His career was spent largely in business development and acquisition, for many years with C.R. Bard, where he concentrated on identifying and acquiring new ventures in the medical device and technology sectors,

Bruce and Carol married in 1974, raised Brett and Melissa and in time enjoyed their grandchildren, Elijah and Evelina. Bruce is survived by Carol, their families, his brother and sister, and many nieces and nephews. We extend the class's sympathies to them all.

THE CLASS OF 1961

NICHOLAS C.H. MacNEIL '61

Nick died May 23, 2025, at home in Staunton, Va., of complications of Parkinson's disease.

Born in Summit, N.J., he spent his youth in Haiti, where his parents then lived. He came to us from Ridley College, a Canadian boarding school. At Princeton, he majored in history, took his meals at Charter Club, and roomed with Cy Adams, Brooke Baker, Merrill Burton, John Lopez, and Tom Powers. After Princeton he served for two years in the Navy on an LST.

Joining the Foreign Service, Nick had a remarkably peripatetic career, serving initially in Guatemala and Vietnam before earning a master's degree in public administration at Harvard's Kennedy School. Returning to Vietnam in 1974, he and his family were among the last Americans to leave. His role assisting Americans and Vietnamese refugees in escaping earned him the State Department's Award for Valor. Subsequently he served in Bogotá, Bangkok, New Delhi, Montreal, and Fiji, with a brief hiatus to serve in the Carter/Mondale campaign in 1980. He retired in 1996 to Alexandria, Va., and in 2001 moved to Staunton, where he was active in the community.

Nick was predeceased by his son, John. He is survived by his wife of 53 years, Linda; daughters Marcia and Laura; and four grandchildren.

JOHN BRADFORD McCOBB JR. '61

John died Jan. 15, 2025, in Washington, D.C., his home for many years.

Born in Orange and growing up in Westfield, N.J., he came to Princeton from

Pingry School. At Princeton, he majored in mathematics, ran track and cross-country all four years, and ate at Dial Lodge. He roomed with Phil Shambaugh, Doug Kerr, Joe Segura, Ray Unger, and Jeff Morgan.

After Princeton John earned his J.D. at Stanford and his LL.M. at New York University. While at Stanford he took a two-year leave of absence to serve as the first teaching fellow of Princeton in Asia at Chung-Chi College in Hong Kong. Then followed a long career in various positions at IBM in Palo Alto, Calif., in sales and then as an IBM lawyer, including legal service as their counsel for the Asia-Pacific area. Over the years he lived in Japan, England, Texas, Connecticut and, lastly, Washington, D.C., on a special assignment for IBM.

John is survived by his wife of 52 years, Maureen; daughter Carrie; son Ryan; and two granddaughters.

CHRISTOPHER L. PERRY '61

Chris died April 7, 2025, at Country House in Greenville, Del., following a long battle with Parkinson's disease.

A third-generation Princetonian, he was born in Bayshore, N.Y., and came to us from Lawrenceville School. At Princeton, he majored in politics, was with WPRB, ran freshman track, and ate at Colonial. He roomed with Ted Kurz.

After Princeton, Chris earned a master's degree in journalism at Columbia's School of Journalism and then began a career in Delaware politics, including serving as chief of staff to the governor, co-founding a political consulting firm, and becoming chief of staff in Washington to Commerce Secretary Elliott Richardson. He later joined the DuPont Co., where he rose to the position of managing director in the public affairs department. Retiring in 1992, he became speechwriter for the president of The Ohio State University before relocating to Weston, Vt., then Williamsburg, Va., and finally returning to Delaware, all the time continuing with speechwriting for business executives. Over the years he served on several philanthropic boards in Delaware and Vermont.

Chris is survived by his wife of 53 years, Nancy; son Jeffery; daughter Kimberly; and their families.

THE CLASS OF 1962

MICHAEL S. MATHEWS '62

Mike died May 17, 2025, at Princeton Medical Center of acute respiratory failure.

He came to us from Columbus Academy, where he was president of his class, editor of the school newspaper, and participated in football, basketball, and student government.

At Princeton, he was a Woodrow Wilson School major, editor of *The Daily Princetonian,* chairman of the Campus Fund Drive, a Chapel deacon, a member of Cap and Gown, and the recipient of the Detwiler Prize as the senior who had demonstrated outstanding service to the class.

Following graduation, Mike earned his law degree from the University of Michigan in 1965. After practicing corporate law for four years, he joined Smith Barney in its corporate finance department. From there he focused his career on Scandinavia, helping to start investment banking and U.S. operations for Swedish and Norwegian banks. In 1992, he became an independent financial consultant, public company director, and private equity investor.

He loved his friends, good writing, extensive world travel, and world affairs.

Mike is survived by his wife of 58 years, Cecilia; their sons, Brandon and wife Kristina, Mark and wife Vickie, and Alexander; and five grandchildren.

DAVID V. MILLIGAN '62

Dave died May 9, 2025, at home in Monterey, Calif.

He came to us from Evanston High School. He ate at Quadrangle Club and majored in chemistry, graduating a year later than our class, *summa cum laude* and Phi Beta Kappa. Recalling his hectic early 20s for our 50th-reunion yearbook, Dave wrote that "by the time I graduated in '63 I was married to my high school sweetheart, Sue Lind ... heading off to the University of Illinois with a small truckload of hand-me-down furniture and two children in tow."

He earned a Ph.D. in organic chemistry in 1967, while also earning credits in management and marketing. This mix of skills shaped his career, beginning in 1967 at 3M Corp. and, after other management positions, at Abbott Laboratories for 17 years, retiring as senior vice president and chief scientific officer.

In his retirement Dave became a venture capitalist and corporate board member and endowed graduate fellowships at Princeton and the University of Illinois.

He is survived by his wife, Susan; four children; 11 grandchildren; and two great-grandchildren. The class extends sympathy to all.

THE CLASS OF 1964

STEPHEN P. ELLIOTT '64

Steve died Feb. 3, 2024, in Greenwich, Conn., surrounded by his family.

He graduated from The Hill School in 1959, where he played basketball, baseball, and

soccer. He then spent a year motorcycling around France.

Steve joined Princeton's Class of 1960, following in the steps of his great-grandfather, father, and older brother. He majored in history, ate at Key and Seal, and roomed with Michael Terry all four years.

Following graduation, he began his publishing career at Grolier, took graduate classes at NYU, and married Susan Carter, with whom he had two sons. Drafted into the Army in 1966, he served as a reporter and speechwriter for senior officers at Fort Hood, Texas.

He then returned to Grolier, going on later to Dushkin Publishing, focusing on editing academic reference books and encyclopedic histories. In 1974, he co-founded Sachem Publishing Associates, where he focused on editing nonfiction and providing editorial services to numerous publishing companies. He believed in books and the power of the written word to impact lives. With his two sons, Stephen and Matthew, he became a 46er by climbing the 46 major peaks of the Adirondack Mountains.

In 1999, he reconnected with grade school classmate Susan Merklee, and they spent 25 years together until his death.

To Susan, his two sons, and their families, the class offers its condolences.

PETER B. POLATIN '64

After a long and varied career as a psychiatrist, Peter died Aug. 17, 2024,

from immune-deficient pneumonia.

Coming to Princeton from Riverdale Country School, he majored in biology, ate at Cap and Gown, and played piano in various jazz and rock and roll bands, including Ivory Jim and the Headhunters. Piano playing became a lifetime joy.

After Princeton, Peter earned a medical degree at Columbia, completed a psychiatry residency at UCLA, and later earned an M.P.H. at the University of Texas, Houston, to better help victims of natural disasters.

He began his career with the DC-based Medical Corps during the Vietnam War, earning the rank of lieutenant commander in the Navy. After four years as a Peace Corps physician in Liberia and Kenya, he eventually settled in California, where he met the love of his life, Emily Clark, marrying in 1982.

Peter worked for many years at PRIDE (Productive Rehabilitation Institute of Dallas for Ergonomics), treating chronic pain. Also concerned about global mental health, he assisted in relief efforts, including in post-war Bosnia and following Hurricane Katrina, and volunteered with the International Rescue Committee. In 2007, Peter became health program manager of DIGNITY (the Danish Institute Against Torture), and he later spent a decade on the faculty of Harvard's Program in Refugee Trauma. Along the way, he scuba-dived from Costa Rica to Australia.

To Emily, their children, and families, the class offers its condolences.

THOMAS B. YOUNG '64

Tom died April 23, 2025.

He was born in Hartford, Conn., and

raised in Cadiz, Ohio, where he was valedictorian of his high school class. At Princeton, he graduated with honors in English and wrote a novel, "Some Lovely Glorious Nothing," for his thesis. His roommates and best friends for many decades after Princeton comprised a group he described as "from Jersey, two Catholics and a Jew, and I the token Methodist from Cadiz, Ohio."

Tom received an MFA from the University of Iowa Writers' Workshop and a Ph.D. in English from Ohio State University. In Iowa City, he grew the beard he'd have for the rest of his life and met his first wife, Jane. He taught at the University of Hawaii, Mercer University, Pima Community College, and Central Michigan University, where he met his second wife, Kathy. They moved to Columbus, Ohio, so he could teach at Ohio State. In 1985, he began a stint as a computer programmer at the Defense Logistics Agency that lasted until his retirement in 1998. Among his published works are a novel titled *Binary Alliances* and a poetry collection, *Down and Out in Macon and Tucson*.

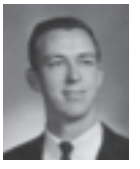
Tom was an avid talker, punster, ham radio operator, baseball fan, and player of computer games. He enjoyed a good beer or a fine bourbon and a hearty laugh.

He is survived by Kathy; daughter Sarah, five grandchildren; and his first wife, Jane. The class extends profound condolences to them all.

THE CLASS OF 1965

JOHN F. ANDREWS '65

John, a renowned scholar devoted to deepening public appreciation of



Shakespeare, died of a rare blood cancer May 4, 2025, surrounded by family at his home in Santa Fe, N.M.

Arriving at Princeton from Carlsbad, N.M., John studied architecture before a professor led him to major in English. After studying teaching at Harvard — where he met Vicky Anderson, with whom he had Eric '93 and Lisa '95 before amicably divorcing — he earned a Ph.D. at Vanderbilt, specializing in Shakespeare.

John spent a decade as director of academic programs at the Folger Shakespeare Library in Washington, D.C.,

before editing two acclaimed annotated editions that revealed lost double meanings and playful wordplay in Shakespeare's works. He later founded The Shakespeare Guild and established the Sir John Gielgud Award, which honored luminaries including Dame Judi Dench, Sir Ian McKellen, and Sir Patrick Stewart.

In 1994, John married artist Jan Denton. They relocated to Santa Fe, where they hosted mini-reunions and John highlighted the relevance of the Bard in contemporary politics and society through his long-running "Speaking of Shakespeare" series and prolific writings. He was named an honorary officer of the Most Excellent Order of the British Empire in 2000 and, in 2022, oversaw the unveiling of a memorial plaque to Gielgud in Westminster Abbey's Poets' Corner.

John's family has received an outpouring of warm remembrances, many celebrating his wit, humility, and graciousness.

MELVIN M. MASUDA '65

Mel died March 19, 2025, in Honolulu, Hawaii.

He was born in Puunene, Hawaii, and attended Roosevelt High School there. At Princeton, he was in the Woodrow Wilson School. He was a member of Campus Club and editor of *The Daily Princetonian*. He was the winner of the DeWitt Clinton Poole Scholarship Prize and the Princetonian Best Newswriting Award.

After graduating from Princeton he attended Yale Law School, where he was on the Yale Law Journal. He then clerked for Chief Justice William Richardson. During that time, Mel joined the Army Reserve, where he served for six years. Because of his work in Washington, he was invited to study at Harvard Kennedy School, where he earned a master's degree, giving him a degree from Princeton, Yale, and Harvard.

As an attorney in private practice, he was a lifelong advocate for native Hawaiians. As an educator, Mel nurtured generations of legal minds, serving as a professor of law at Hawaii Pacific University for 25 years. There, he established legal programs, mentored students, and created innovative courses to ensure that his students understood that knowledge was a tool for empowerment.

Mel is survived by his wife, Karen; son Makamae and his wife Allison; daughter Kaiewa and her husband Matthew Muranaka; and grandchildren Ikaika, Kapono, Kahiau, and Keolaloa.

PHILIP J. MOORAD JR. '65

Phil died Aug. 13, 2022, in Helotes, Texas, where he had lived for the past 45 years, of a glioblastoma. He was surrounded by

his wife, Michele, and his children Jacob, Benjamin, Michael, and Lisa.

Phil grew up in central Connecticut and came to Princeton as part of the large cohort from the Hotchkiss School. He took his meals at Elm Club, where he was vice president, which allowed him to live at the club his senior year and, important to his many friends, have a car. At Princeton, Phil was a pre-med and biology major.

After graduation, he earned a medical degree at the University of Rochester Medical School and held a residency, serving as chief resident for two years, in psychiatry and neurology at the University of Washington School of Medicine. He then moved to San Antonio, where he was associate professor of medicine at University of Texas Health Science Center at San Antonio from 1975 to 1980. He then entered private practice and subsequently became the medical director of the Afton Oaks Psychiatric Hospital and Mission Vista Psychiatric Hospital. He was a gifted, warm, and caring physician. In his honor, the Dr. Philip J. Moorad Jr. Memorial Scholarship was established by the Texas Interscholastic League Foundation to support individuals who are planning a career in mental health.

In later life, while he was still practicing medicine, Phil and Michele indulged their passion for exploration and travel, often visiting his four children and three grandchildren, Madeleine, Max, and Lisa, who live across the globe in four countries. Phil was a humble, witty, and kind man who is much missed by family and friends.

THE CLASS OF 1966

GEORGE WELLS McMURRAY II '66

Wells died April 28, 2025, after a long battle with the effects of prostate cancer.

Wells followed his father, George Wells McMurray '36, to Princeton after graduating from the Bolles School in Jacksonville, Fla., where he played on the football, baseball, and soccer teams.

At Princeton, he majored in English and wrote his senior thesis on the humor of James Joyce. He belonged to Dial Lodge and played freshman soccer and lightweight football. His roommates included Dave Corcoran and Mark Fleder.

At the time of his death, Wells lived in Santa Fe, N.M., having retired from a 40-plus-year career as a college counselor director, coach, and teacher. He reported in our 10th-reunion yearbook that he was director of admissions at New York's Trinity School, and in our 25th-reunion yearbook that he was director of college counseling at Greenhill School in Addison, Texas.

Wells is survived by his wife, Susan, whom he married senior year; and son Patrick. The class extends our condolences to them.

THE CLASS OF 1971

RICHARD B. DiFEDELE '71

We lost our most affable and respected classmate Rich Jan. 31, 2025.

He died on his beloved boat, *Breakaway,* anchored in Longboat Key, Fla. He came to Princeton from Christian Brothers Academy, having grown up on the family farm in Colts Neck, N.J. He majored in economics, participated on the Wilson College Social Committee and the Sailing Team, lived at Pyne senior year (after rooming with McGinnis, Conderacci, Pauly, Chitty, and Dennis Thompson), and ate at Stevenson. He is remembered for his integrity, wisdom, generosity, compassion, and love of family and life.

Rich met Maria, his steadfast partner for life, at Douglass. They married in 1973. They were blessed with two daughters, Lisa-Marie and Anastasia, and later two grandchildren.

Rich graduated from law school at George Washington in 1974. His career work was in construction, providing a full range of contract management and legal services. He worked in both the public and private sectors. They lived in Virginia and New Jersey before settling in New England. The Clinch River Breeder Reactor Project, NYC's East Side Access Project, and Boston's Big Dig project highlighted his career. Rich was a loyal '71er, attending all but two reunions and serving on Reunions and Annual Giving committees.

Rich and Maria became liveaboards on their boat in 2020, sailing up and down the East Coast from Key Largo, Fla., to Penobscot, Maine, seeking out interesting ports and live music. They were often accompanied by Mick and Melissa McGinnis, their longtime sailing and skiing partners.

The class offers its deepest sympathies to Rich's family and his many friends.

CHARLES K. HARMAR '71

Charley died Dec. 19, 2024, at home in Glenside, Pa., of Alzheimer's disease and Lewy body dementia.

He grew up one of six siblings in Chestnut Hill, Philadelphia. He loved playing sports, especially ice hockey, tennis, and football. His athleticism extended from Germantown Academy to Princeton, where he was one of 1971's three three-year lettermen in hockey. He majored in English, belonged to Cottage, and lived with Rob Watson, Tom Payne, Tom Roberts, and Tom MacMillan in Walker senior year. Charley is remembered for his incisive quips, satirical cartoons, quiet forthrightness, and loyalty.

He began his financial career at Fidelity Bank (now Wells Fargo) and remained in the health care and education lending sector as a commercial mortgage broker. Charley was a longtime board member of the former Children's Service of Philadelphia, and he also served Princeton as an ASC interviewer and regional officer. He married Emily Franklin '88 in 1992 and was proud father of their children, Josiah and Lila '22.

The class extends its sympathies to Emily, Josiah, Lila, and Charley's siblings, as well as numerous cousins, nieces, and nephews.

THOMAS K. PETTUS '71

Our highly respected classmate Tom died April 15, 2025, in Black Mountain, N.C.,

after living many years with Parkinson's and Lewy body dementia.

Tom came to Princeton from Myers Park High School in Charlotte, N.C. He majored in religion, rowed lightweight crew, belonged to Cap and Gown, and lived with Waterman, Perraut, Jim Brown, and Morrisey in Blair senior year.

After earning a master's degree at Princeton Theological Seminary, Tom graduated from medical school at the University of North Carolina. He completed his residency in internal medicine in Minnesota and then devoted his career to geriatric medicine as a kind, thoughtful, and deeply compassionate physician in Minneapolis, remembered for his leadership of and advocacy for high-quality senior living and hospice.

Tom was a devoted husband, a loving father, and a loyal friend to many. He was passionate about road cycling, organizing local weekend rides, and embarking on cross country journeys.

The class extends its condolences to his wife, Cecily Hines; son Zachary; the rest of his family.

JOHN SCOTT SHEPPARD '71

Scott died Jan. 27, 2025, at his home in Ottawa after a long battle with Parkinson's

disease.

He came to Princeton from Hamilton Collegiate Institute in Ontario, Canada. He graduated with honors in English and roomed with Dick Balfour, Mike Davis, and Frank Mackay in Little junior and senior years. All four were devoted bridge players, and their living room bridge table was in constant use by them and friends. Scott also enjoyed bridge and backgammon at his club, Cap and Gown.

He studied law at the University of Toronto before launching a distinguished career as a political strategist, consultant, speechwriter, and advocate for social justice, utilizing his sharp intellect and exceptional writing skills. He was a passionate liberal, and his principles were grounded in kindness, integrity, and a tireless pursuit for the betterment of society. He was known for his warmth and thoughtfulness, Scott's ability to listen and offer wise counsel touched the lives of countless individuals. His legacy is one of compassion, commitment to justice, and unwavering love for those he held near and dear.

The class extends its condolences to his partner Vance Smith, his siblings, and his extended family.

THE CLASS OF 1976

LEWIS M. EDWARDS III '76

Lewis died Jan. 29, 2025, at Mid-Hudson Regional Hospital in Poughkeepsie, N.Y. He was employed by Lending Tree as a software architect/developer.

Born and raised in New Jersey, Lewis graduated from Allentown High School. At Princeton, he majored in electrical engineering, was a member of Colonial Club and Tiger Inn, and roomed with Bob Hugin, Bill Landrigan, and Michael Reidy. Lewis also was a member of Eta Kappa Nu, an engineering society.

After graduating *magna cum laude* with a B.S.E., Lewis obtained an M.S. in computer engineering from Syracuse University and pursued post-master's Ph.D. study at Columbia. He began his career at IBM, where he rose to the rank of senior technical staff member and earned numerous awards. Beyond his technical expertise, he brought a steady presence to every challenge, turning challenges into opportunities.

As chief technology officer and co-founder of Image Technology Laboratories he developed a radiology information system called Picture Archiving and Communications Systems (PACS).

Outside of work, Lewis was a violinist and board member of the Mid-Hudson Community Orchestra at Dutchess Community College. He was also an instrument rated private pilot/owner and a member of Angel Flight Northeast with Homeland Security/TSA pilot credentials; and held the American Sailboat Association's keelboat skipper certification. Lewis was appointed to the Town of Saugerties Economic Development Committee in 1996 and was a member of the state Assembly Hudson River Valley Economic Development Task Force.

Lewis' greatest joy came from time he spent with his family and friends, especially his granddaughter; flying in his airplane; or sailing his boat on the ocean off the coast of Maine.

The class officers extend condolences to his wife, Darlene; daughter Dara '03; son-in-law Jeremy Ellenbogen; granddaughter Danica; mother Jennie; and his siblings.

DAVID A. HANDZO '76

Dave died June 15, 2022, several weeks after learning he had a rare, asymptomatic cancer.

He grew up in New Jersey. At Princeton,

he rowed lightweight crew (as he did at Choate), played tuba in the Band, and majored in history. Dave's love of history expanded lifelong through reading, discourse, travel, and "doing": restoring old houses himself, using 19th-century tools for carpentry and woodworking; building his own wooden rowing shell; and planning for a wooden skipjack sailboat in retirement.

A 1980 law graduate of Michigan, Dave was a litigation partner of Jenner & Block in Washington, D.C., for 30 years. Elected a fellow of the American College of Trial Lawyers, he won his many civil and criminal trials and mentored younger lawyers until retirement in 2021. His professional path returned him to Princeton recently, working with two longtime economics professors whose respect he earned. He also maintained an active pro bono practice focusing on the disadvantaged, continuing his commitment from his early career at the D.C. Public Defender Service.

Dave always strove for the top, and 2021 found him summiting in the Rockies. As his 50th birthday approached, having typically run 10-Ks, he set the goal of a marathon fast enough to qualify for the Boston Marathon. He succeeded, ran the 2007 Boston, and was still running half-marathon distances in the last weeks of his life at Mayo Clinic. His greatest accomplishment, though, was intangible: earning respect from all, even foes.

Dave loved chocolate, pranks, being barefoot, hiking (sometimes while barefoot), his family, friends, and colleagues.

Dave is survived by his wife, Mary Jane Dodson '76; brother George '69; nephew Ben Handzo '04 and his wife Kim Nortman '04; sister Catherine; and three other nephews and their families.

JAMES A. HANSEN '76

Jim died April 9, 2025, at home with his wife at his side in Santa Rosa Beach, Fla.,

following a 1½-year struggle with glioblastoma.

Born in Ohio, Jim moved around the country with his family as they followed his father's academic career. He attended North Springs High School in Atlanta during the years that his father was president of Georgia Tech. A natural athlete, Jim was an accomplished soccer player and avid outdoorsman. He also served as class president in high school and participated in national tournaments with the debate club.

At Princeton, Jim majored in politics, was a star on the soccer team all four years, participated in Whig-Clio, and became an enthusiastic member of Dial Lodge. He made friends easily and maintained them

throughout his life.

After graduation, Jim began his career in banking at Manufacturers Hanover Trust Co. in Manhattan. An avid runner, he completed the New York City Marathon eight times. He took up golf, scoring several holes-in-one and was a member at National Golf Links of America. He also enjoyed fishing trips and hunting expeditions around the world. Later, he worked for Howard Weil in New Orleans and then moved to Bank of America, Morgan Keegan, and Opportune in Houston. Jim specialized in the oilfield service sector of the energy business before retiring to Santa Rosa Beach, Fla., in 2021.

In 2013, while living in Houston, he met the love of his life, Melissa, and they were married in 2018. Jim adored her three daughters and accepted them as his own.

The class officers send deepest sympathy to Jim's wife, Melissa; daughters Tara, Kaitlyn, and Jordan; and extended family.

WALTER B. JONES JR. '76

Walt died Dec. 5, 2023, at home in Middleburg Heights, Ohio, of cancer.

Born and raised in Philadelphia, Walt was an active member of Holy Temple Church of God in Christ, where his grandfather and uncle served as pastors. He graduated from Central High School.

At Princeton, Walt majored in architecture and roomed with Tom Baker and Michael Goerss.

After graduation, he continued his studies at Clemson University, graduating with a master's degree in architecture. He settled in Atlanta upon landing his first career assignment at Heery & Heery Architects. Walter joined the Cathedral of Faith Church of God in Christ, where he served as a deacon. He was active in the singles ministry, where he met and later married Janice Ott Jones.

Walter was an avid reader, a serious cook, a history lover, and a consistently affable individual, known for his quick wit. He enjoyed cruises and vacationing with his family.

Walt became an associate with Howell Rusk Dodson Architects in Atlanta, where he supervised major projects including the capital renovation and expansion of Grady Memorial Hospital and the Northside Hospital Women's Center.

Walt then went to Dallas Parkland Health and Hospital System. He managed the planning, design, development, and programming of Parkland's $1.3 billion, 865-bed hospital and medical campus project, then described as the largest hospital construction project in North America.

In 2014, Walt moved to Cleveland to work for the MetroHealth System, where he coordinated the massive reconstruction and renovation of a 3-million-square-foot campus.

When the project was completed, the American Institute of Architects (AIA) elevated him to its College of Fellows, the highest honor given to only 3% of AIA member-architects.

The class officers send deepest sympathy to his wife, Jan; and children Amber, Walter III, and Evan.

JOHN HENRY LOW '76

John Henry died April 11, 2025, at home in Pine Plains, N.Y., following a two-year struggle with cancer.

Born and raised in New York City, he attended St. Bernard's School and then graduated from St. Paul's School. At Princeton, he majored in electrical engineering and computer science, worked at WPRB, sailed, learned to fly with the Soaring Club, and was an active member of Charter Club. John Henry roomed with Jim Russell, David Edelstein, Michael Kassen, and Richard Norair, and kept up his friendships for life.

After graduation, John Henry began a 17-year international banking career with Mellon Bank. He was fluent in German and traveled abroad frequently. In 1985, he obtained an MBA from the Wharton School. In 1992, he established his own financial advisory firm, Knickerbocker Advisors, which he ran with his wife, Constanza, out of their home in the Hudson Valley. He was known in the national media, having appeared on Bloomberg Television and been quoted in *Bloomberg Wealth Manager,* CNBC, *Business Week, Consumer Reports, MarketWatch,* and the *New York Post*.

A nature lover, he enjoyed watching the wild birds, foxes, and other woodland animals behind the house. He spent most vacations with Constanza and their daughter Spencer exploring the national parks and other scenic places of North America. John Henry was a loyal Princetonian, regularly attending Reunions and serving as an ASC interviewer. He loved trains and gave lectures on railroad history of the Hudson Valley, and he had an extensive model railroad set up in his basement with 10,000 cars. He took up the sport of ice sailing, purchasing his own vintage ice sailboat and racing it on the frozen Hudson River.

The class officers extend sincere condolences to Constanza, and Spencer.

THE CLASS OF 1988

SIAN WANG '88

Sian died March 10, 2024, at his home in Los Angeles after a courageous battle with cancer.

Sian's friend David Silverstein shared that "all Sian's accomplishments pale in comparison to what a good human being he was." Sian left an indelible mark on those around him. John Kintzele '88 remembers his deep compassion, emotional intelligence,

and ability to meet others where they needed him most. Sian turned mundane moments into shared hilarity. Tom Ball '88 recalls complaining with his NYC apartment-mates about the thankless grind of paralegal work their first year out of Princeton: Sian would empathize with, "Aww, that's HARSH!", and leave everyone in stitches. "He always lightened the mood with his wry humor."

Sian met his wife, Madeleine, at Wharton, where their love story began with Sian's confident charm — his steadfast belief that they were just meant to be together. During the later stages of his battle with cancer, Madeleine says Sian was entirely focused on his boys, Brady and Oliver.

Sophie Rosenfeld '88 says Sian was "just a lovable and loving person." His legacy lives on through Madeleine, Brady, Oliver, his mother Sally, his sister Erika, and all those whose lives he touched. Sian Wang remains a shining example of how to live fully, love deeply, and leave the world better than we found it.

THE CLASS OF 2000

MATTHEW D. EISAMAN '00

Matt died Feb. 28, 2025, of cancer in Port Jefferson, N.Y. He was 46.

Matt's academic and career accomplishments after his A.B. in physics included a Ph.D. in physics at Harvard, stints at Brookhaven National Laboratory, Stony Brook, Google X, and founding the carbon capture startup Ebb Carbon.

At the time of his passing, Matt held an endowed chair in the Department of Earth and Planetary Sciences at Yale University. At our 25th reunion, Matt's friends, his widow, Heather Lynch '00, and daughter Avery gathered at Jadwin Hall, where Matt spent many hard-working days and nights. They celebrated how Matt's brilliance was matched by his goodness. Friends spoke of his work ethic, focus on the welfare of others (including his students), love of the outdoors, belief in his work to mitigate climate change, lifelong partnership with Heather, and the joy he brought to being a father. A reading from Matt's hand-marked and well-read copy of *Tao Te Ching* shared a lesson from his life: "Therefore, the contentment of knowing contentment is constant contentment."

The class, so proud to claim Matt, stands with all his survivors at their time of loss and in the years ahead.

GRADUATE ALUMNI

DANIEL EDWIN ROSNER *61

Dan died Feb. 3, 2025, in Hamden, Conn. He was 91.

Born in October 1933 in the Bronx, Dan earned a B.S. in mechanical engineering from the City College of New York in 1955, and a Ph.D. in aeronautical engineering from Princeton in 1961.

He worked in the aerospace industry in Princeton, then joined the faculty at Yale with a joint appointment in chemical and environmental engineering and mechanical engineering, and was awarded the Llewellyn West Jones Jr. Chair.

Dan's textbook, *Transport Processes in Chemically Reacting Flow Systems,* is used for teaching transport phenomena in chemical engineering departments. He received the David Sinclair lifetime achievement award from the American Association for Aerosol Research, an honorary doctorate from the Universidad Nacional de Educatión a Distancia in Madrid, and the Particle Technology Award from the American Institute of Chemical Engineers.

NASA sought Dan's expertise on high-temperature reacting flows for the space shuttle orbiter's siliconized pyrolytic carbon wing leading edge and nose cap thermal protection tiles, developed to withstand the extreme conditions of hypersonic reentry. Dan conducted experiments on the plates of the stegosaurus dinosaur in collaboration with the department of geology and geophysics at Yale and the Peabody Museum of Natural History.

Dan is survived by his wife, Susan; children Stefan and Lisa; and two grandchildren.

JAMES A.W. HEFFERNAN *64

Jim died of metastatic prostate cancer in Hanover, N.H., July 21, 2024. He was 85.

Born in Boston in 1939, he earned a B.A. from Georgetown in 1960 and his Ph.D. in English from Princeton in 1964.

Jim began his teaching career at the University of Virginia. After joining the Dartmouth English department in the fall of 1965, he taught literature until retiring in 2004 and thereafter continued writing about it. He was appointed the Frederick Sessions Beebe Professor in the Art of Writing.

Jim served as director of an NEH summer seminar on English Romantic literature and the visual arts at Dartmouth in 1987 and 1989. In 1989, he directed a research conference on "Representations of the French Revolution in Literature, Art, and Historiography." He received an NEH fellowship for a book-length project on the poetics of ekphrasis.

He was the founding editor of *Review 19,* an online review of new books on 19th-century English and American literature. He served on the board of trustees of the Vermont Academy and was a council member of the Association of Literary Scholars and Critics.

Jim is survived by his wife, Nancy; his children, Andrew and Virginia; and his four grandchildren.

HENRY D.I. ABARBANEL *66

Henry died in Del Mar, Calif., May 26, 2023.

Born May 31, 1943, in Washington, D.C., Henry received a B.S. in physics from Caltech in 1963 and his Ph.D. in physics from Princeton in 1966.

Henry spent most of his academic career at the University of California, San Diego, where he was a Distinguished Professor of Physics in the School of Physical Sciences and a research physicist at the Scripps Institution of Oceanography's Marine Physical Laboratory. Previously he worked at Lawrence Berkeley National Laboratory, held faculty positions at Northwestern and Princeton, and was a visiting professor at Stanford and UC Santa Cruz. He was also a visitor at the Institute of Neuroinformatics in Switzerland, the Bernstein Center for Computational Neuroscience in Germany, and the Weizmann Institute of Science in Israel.

Henry's research interests included nonlinear dynamics in physical and biological systems, machine learning, geophysics and regional weather forecasting, electrical signals in the heart and their role in heart disease, odor recognition in insects, oceanic gravity waves, and fluid dynamics.

He served on San Diego regional bodies concerned with energy, wastewater, infrastructure, and quality of life.

Henry is survived by his wife, Beth Levine; daughters Brett and Sara; and granddaughter Joanna.

RUSSELL EARLE RICHEY *70

Russell died Jan. 19, 2025, in Durham, N.C., after an extended illness.

Born Oct. 19, 1941, in Asheville, N.C., he earned a B.A. from Wesleyan in 1963 and participated in Operation Crossroads Africa in Ghana. He earned an M.Div. degree from Union Theological Seminary in 1966, and his Ph.D. in religion from Princeton in 1970.

Russell chose an academic career rather than the pastoral ministry. He joined the faculty of both the theological and the graduate schools at Drew University, where he spent several years as assistant to the president, serving as the university's affirmative action officer among other duties.

He moved to Duke Divinity School as associate dean for academic programs, as research professor, and then professor of church history. From 2000-06 he served as dean and later as professor of church history at Candler School of Theology at Emory, retiring in 2011 as William R. Cannon Distinguished Professor of Church History Emeritus.

Returning to Duke Divinity School, Russell offered a seminar or directed study in American Methodism as visiting faculty and fellow of the Center for Studies in the Wesleyan Tradition.

He is survived by his wife, Merle; children William and Elizabeth; and four grandchildren.

WILLIAM J. CIBES JR. *75

Bill died Feb. 8, 2024, in Farmington, Conn.

Born in Kansas in 1944, he completed his undergraduate degree at the University of Kansas in 1965 and his Ph.D. in politics from Princeton in 1975.

Bill's professional life encompassed academia and politics. He launched his academic career by joining the faculty of Connecticut College in 1969. After spending time in state government, in 1994 he became the president of the Connecticut State University system, which at that time included the four regional state universities, retiring as its chancellor in 2006.

In 1978, Bill was elected to the first of six terms in the Connecticut House of Representatives. Considered the General Assembly's leading expert on tax policy, Bill co-chaired the Finance, Revenue, and Bonding Committee. He served as budget chief to Gov. Lowell P. Weicker Jr.

Bill served on the board of the Connecticut News Project and was the publisher of *The Connecticut Mirror* from its launch in 2010 until 2018.

Predeceased by his wife Peg, Bill is survived by his daughter Julia and his brother Charles.

HOWARD RALPH HALL III *78

Howie died Dec. 5, 2024, in Fairfield, Ohio.

He was born Sept. 14, 1950, in Yokohama, Japan. He graduated from Delaware State University in 1973 with a bachelor's degree in psychology. He earned a Ph.D. in experimental psychology from Princeton in 1978. After Princeton, Howie earned a doctorate in clinical psychology from Rutgers.

His first appointment was as an assistant professor at Penn State, where he also worked with football coach Joe Paterno helping players obtain better focus when playing the game. From there he went to Case Western Reserve University School of Medicine, Rainbow Babies and Children's Hospital, and University Hospitals of Cleveland in 1987, where he remained until his retirement in 2022.

Howie was known for his research in a Middle Eastern Sufi phenomenon surrounding energy-based rapid wound healing, which was featured in a *National Geographic* television presentation. In his clinical practice he sought to apply his training to positively manage pain and risk of infection.

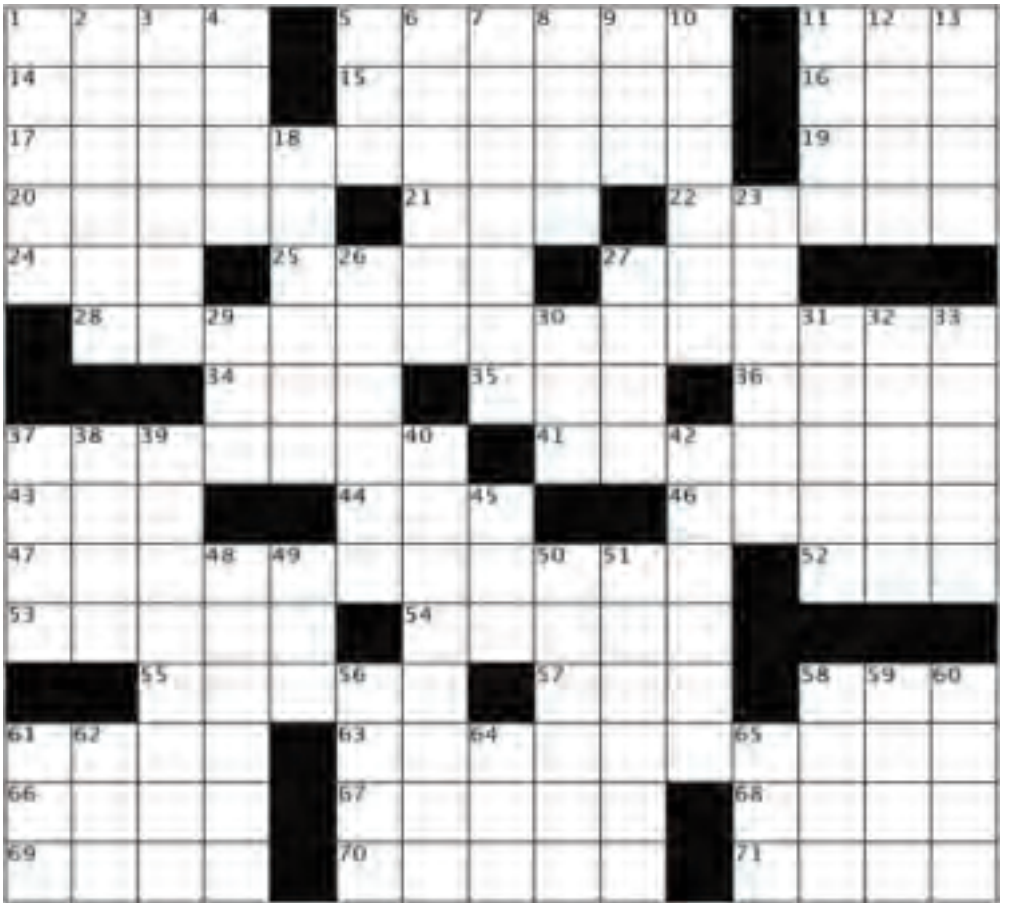
Jazz piano was Howie's other passion. In Cleveland he started the HH Jazz Circle music group, originally consisting of hospital doctors and staff.

Howie is survived by his wife, Jean; daughters Ilea and Karelle; and two grandchildren.

Graduate memorials are prepared by the APGA.

Tigers on the Court

BY STELLA (DAILY) ZAWISTOWSKI '00



ACROSS

1. Parts of machine gears
5. Joseph ___ (men's fashion label)
11. Short, quick punch
14. Cookie medium used by artist Anita Pan *20
15. The second "P" in PPPL
16. Put to work
17. Class of '65 alum in the Basketball Hall of Fame
19. Cube at a casino
20. "___ or not, here I come!"
21. Texter's "my thought is..."
22. Be a sore winner
24. Colony insect
25. Unit of dinero
27. ___ Milli ("Perfect Person" artist)
28. Class of '23 alum who was signed by the New York Knicks in 2025
34. Letters before an approximation
35. "Um, well..."
36. Inscription on Irish-made euro coins
37. Goes bananas
41. Contents of a cookbook
43. Movie theater chain
44. Decimal base
46. Hardly skilled
47. Class of '24 alum who plays guard for the Golden State Valkyries
52. Article learned in GER 101
53. Month learned in SPA 101
54. Bit of pro sports news
55. Influential sort
57. *The 4-Hour Workweek* author ___ Ferriss '00
58. Donkey Kong, e.g.
61. An ellipse has two of them
63. Hall of Famer who coached Princeton men's basketball from 1967 to 1996
66. Draft animals
67. Positive decision from Karen Richardson '93
68. Has birthdays
69. Enemy at the end of a video-game level
70. Static exercises that work the shoulders
71. Supermodel's stance

DOWN

1. Hooded hisser
2. Point in the right direction
3. Treat that might be served in "piccolo" or "grande" sizes
4. Auctioneer's word
5. Loan figure: Abbr.
6. Philosopher Pascal
7. "Don't do that, my friend"
8. Capital at 59.9° N
9. Japanese plum
10. Neon pigment brand
11. Martial art form that emphasizes throws
12. Home of Taiwan and Thailand
13. Veggie often paired with goat cheese
18. Alternative route
23. Tiger Noodles offering
26. Something or someone
27. Silently stew
29. Catch a glimpse of
30. "I'm cold!"
31. Plumb tuckered out
32. Grilled corncake
33. Arboreal homes
37. ___ Carnegie (where Tigers row)
38. Nation known for frankincense exports
39. Chemistry, biology, and physics
40. Covered kids' furniture
42. Princeton Garden Theatre specialty
45. Big name in ATMs
48. New Jersey Transit vehicles
49. Soft throw
50. Terse, unhappy movie review
51. Official orders
56. Iridescent gemstone
58. Best Picture Oscar winner after *The Artist*
59. Some Nomad Pizza purchases
60. Otherwise
61. Keyless entry device
62. Good Grips brand
64. "Did not need to hear that!"
65. Eminem's genre

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HENRY NORRIS RUSSELL 1897 *1900 (1877-1957)

A Stellar Student, He Transformed Our Understanding of the Stars

BY HARRISON BLACKMAN '17

"THERE WAS A TIME WHEN it was supposed to be beyond human power to find out what the sun and stars were made of," wrote Princeton astronomer Henry Norris Russell 1897 *1900 in a 1941 issue of *Scientific American*, for which he wrote a monthly column for more than 40 years chronicling advances in the study of the cosmos. "We all know how the 'hopeless' problem was suddenly solved."

Russell knew the solution because he had played a critical part in determining the sun's composition using the discipline of spectroscopy, the study of the interaction between matter and electromagnetic radiation. Because each element gives off its own configuration of wavelengths in the form of solar radiation, if astronomers could record the spectrum emitted by the sun, they could determine its composition. Among his many astronomical innovations, in 1929, Russell proved that the sun was mostly made up of hydrogen, a revelation that informed the later determination that the element was the building block of much of the known universe.

By comparison, Russell's universe started out small within a family of vast intellectual horizons. Growing up in the affluent Long Island community of Oyster Bay, his father was a minister whose congregation included future president Theodore Roosevelt. Despite his spiritual upbringing, Russell came from a mathematical family — his grandmother had won an award for her mathematics prowess at Rutgers Female Institute in New York, and his mother had been recognized for her math ability at the University of Edinburgh.

In 1882, when Russell was 5 years old, his parents showed him the transit of Venus, an influential moment that informed his interests going forward. Sensing his potential, his parents enrolled him in Princeton Preparatory School. While attending, he lived with his aunt Ada Norris in her house at 79 Alexander St., a home he would eventually inherit and inhabit for the rest of his life.

Entering the University in 1893, Russell developed a passion for astronomy under the magnetic professor Cyrus Young. A workaholic, Russell didn't play cards, smoke, or drink beer as a student. He graduated with the rare distinction of *insigni cum laude* (with extraordinary honor), and his class yearbook dubbed him "Our Bright and Shining Star."

However, after receiving his Princeton doctorate in astronomy in 1900, Russell's overwork caught up with him and he suffered a nervous breakdown. Sent to the Italian island of Capri to recover, he went on to pursue postdoctoral work at the University of Cambridge. He returned to Princeton in 1905 to join the faculty; six years later, he was appointed director of the Princeton observatory, where he'd stay on until his 1947 retirement.

As an instructor, Russell was enthusiastic and erratic. According to biographer David DeVorkin, Russell's lectures frequently exceeded the class window by hours, during which he would fiddle with his chair nonstop. "Russell would stumble over it, climb on it, [and] declaim for a minute or so from the summit," wrote former student Donald Menzel *1924.

The field of astronomy was transitioning from strict observation of celestial objects toward astrophysics, paving the way for the physical and chemical understanding of celestial movements and processes. Starting in 1921, Russell split his time between Princeton and the Mount Wilson Observatory in Southern California. According to DeVorkin, he was recruited to "serve as an interpreter and as catalyst" between physicists at Caltech and the astronomers atop the mountain, enabling better collaboration between the theorists and the observers.

Through his regular columns in *Scientific American*, Russell also represented an antecedent of popular science communicators like Neil deGrasse Tyson, chronicling the rapid leaps astronomy made in the first half of the 20th century.

Upon the discovery of the first planets outside our solar system in 1943, Russell wrote that "this latest discovery completes the work which Copernicus began four centuries ago," explaining that the idea that the Earth was at the center of the universe was now long dead. "There is no longer a basis for supposing that either this world or its inhabitants are unique," Russell wrote. "The realization of this should be good for us." P

DANIEL HERTZBERG

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