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President Jayawardhana on Research, Student Life, and Caltech's Future



(Photo: Caltech Magazine/Max S. Gerber)

Emily Yu
Feature

Astrophysicist and author Ray Jayawardhana became Caltech's tenth president on July 1. He previously served as provost at Johns Hopkins University and dean of Cornell University's College of Arts and Sciences, and earlier spent a decade at the University of Toronto. Alongside his academic leadership, he studies the origins and evolution of planetary systems and writes about science for the public.

On October 5, Jayawardhana spoke with the *Tech* about settling into the role and his emerging priorities for research, student life, and Caltech's impact beyond campus.

This interview has been edited for length and clarity.

Before taking office, you spoke with over 200 members of the Caltech and JPL community and other stakeholders. Since beginning the job, has anything surprised you or changed your understanding of how Caltech works?

I had a fairly long on-ramp to the presidency between the time I was announced in early January and officially assuming office on July 1. That gave me a chance to meet with hundreds of people on campus and at JPL, as well as people in Washington and New York: community members, government officials, and a host of different constituents. It gave me a chance to come up to speed over a period of time rather than suddenly overnight.

I think maybe because of that, I haven't had any big surprises since assuming office. I do continue to be amazed by the caliber and ambition of the people at Caltech. It's quite a singular place in that sense. I really feel privileged to be in the thick of it all and to play a part in shepherding that community.

You've spoken about supporting more blue-sky, high-risk research. Could you expand on what that means for Caltech?

Both at Caltech and at JPL, we take pride in daring mighty things. I think Caltech has an unparalleled track record of pursuing blue-sky research, giving talented people the freedom and opportunity to pursue questions that seem beyond the reach of the scientific community at the time. Yet they get to keep at it, sometimes over years or even decades, and those efforts really pay off in a big way.

That environment is something I'm proud of and want to cherish. I want to do what we can collectively to ensure that Caltech remains the place where people can take long shots, take risks in their research, and have the resources, freedom, and runway to do that.

In a changing landscape for science funding, it does mean

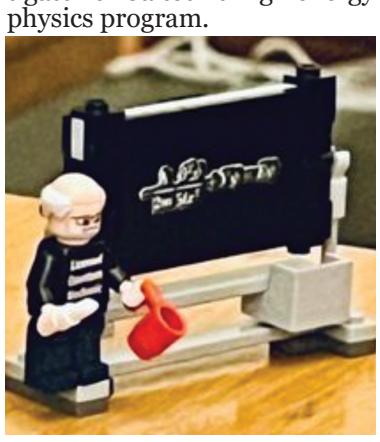
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Mark Wise, 1953–2026

Maria Spiropulu
The Inside World

Editor's note: This and related pieces were originally collected for Professor Spiropulu's memorial essay, which is also accessible from the bottommost external link in Mark Wise's Wikipedia page.

Mark Wise died on July 10, 2026. He was a member of the Division of Physics, Mathematics and Astronomy at Caltech for forty-three years. The obituaries will say, correctly, that he was one of the great theoretical physicists of his generation: an architect of heavy-quark effective theory, a student of Fred Gilman at Stanford, recruited to Pasadena by Murray Gell-Mann, a member of the P5 panel that set the national course for particle physics, and for sixteen years the principal investigator of Caltech's high energy physics program.



Built by his students: Mark Wise at the blackboard, in LEGO. (Photo: Mark Wise)

All of that is true, and none of it is the reason the people who worked beside him are bereft. I want to set down what else he actually did. In the classroom, he paid students a quarter (later a dollar for inflation) for every correct answer — an economy of encouragement he ran for years out of his own pocket, twenty-five cents at a time. His students answered in kind: the undergraduates of Dabney built him in LEGO — a white-haired figure at a blackboard, mug in hand, lecturing to eternity. (The full story of how, and of the challenge and the thousand dollars behind it, is told later in these pages.)

Institutions confer medals and chairs. Students build you out of LEGO only if they love you. Paul Dieterle, a distinguished Caltech alumnus of Tombrello's Physics 11 — a Tombrelite — wrote: "Mark Wise's homework sets were full of stylish, original problems that taught physics without pedantry. Each problem was like little slide knot, requiring a delicate pull at the right place before unraveling to the students' delight." In his last spring quarter, he taught his course to the end, graded the finals himself, and completed what he called, without ceremony, his final Caltech responsibilities of the academic year — some by Zoom, in pain, days after learning his diagnosis.

That was one thread of the pattern. Here is another. In September of last year, an ad-

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Caltech Among Nine Universities in Federal Visa Fraud Investigation

Emily Yu
News

Caltech is one of nine universities under federal investigation for alleged misuse of the J-1 visa program, Vice President JD Vance announced on October 8. The administration alleges that the universities are using international researchers to undercut wages for American graduate students and researchers.

Other institutions named are MIT, Stanford, Harvard, Yale, Brown, Arizona State University, the University of Pittsburgh, and the University of California, Davis. The Department of Labor's Office of Inspector General said subpoenas had been served to all nine universities.

The J-1 Exchange Visitor Program, which is overseen by the State Department, allows foreign nationals to participate in approved educational and cultural exchanges in the United States. Its categories include university students, professors, and research scholars.

At the press conference, Vance said the universities were using J-1 visas for federally funded grants at a rate of approximately 61% compared to a national average of 38%. "They're using these visas way too much. They're using them to undercut the wages of American grad students and American researchers," Vance said. He also stated that American graduate students or researchers earn about $20,000 more than their counterparts on J-1 visas.

An October 9 press release from the Office of Inspector General described the 61% figure as the share of "postdoctoral workers and researchers supported by federal grants" who are "foreign nationals." The release did not provide a breakdown by university.

Anthony D'Esposito, the Labor Department Inspector General, said the investigation would examine "whether foreign influence, improper financial relationships, or visa abuse are compromising federally funded research." He specifically raised concerns about China.

International researchers make up a large share of the U.S. academic workforce. According to the National Science Foundation's (NSF) National Center for Science and Engineering Statistics, 58.3% of postdoctoral researchers in science, engineering, and health held temporary visas in 2024. This percentage includes multiple temporary visa categories and is not limited to federally funded positions.

Among recipients with known citizenship status, temporary visa holders earned the majority of U.S. doctorates in computer and information sciences (60.5%), engineering (53.3%), and mathematics and statistics (51.7%) in 2025.

Several universities named in the investigation have said they comply with federal law. MIT spokesperson Kimberly Allen told *Inside Higher Ed* that the university was reviewing the subpoena and noted that J-1 visa holders undergo U.S. government vetting.

"America's ability to attract top talent from around the world while protecting U.S. economic and security interests is a national strength, and that competitive advantage should be supported," Allen said.

Shayna Chabner McKinney, Caltech's Chief Communications and External Relations Officer, told the Tech that "the Institute has received a subpoena and is reviewing it."

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President

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figuring out the right mix of resources. Federal government funding remains critical and central to our enterprise, but there are also corporate partnerships when they make sense. Philanthropy, of course, has been and continues to be quite important for us to be able to do that kind of work. I'm keen to ensure that environment is sustained at Caltech, bring in new resources where we can to strengthen it, and double down on those kinds of bets.

Beyond sustaining that research environment, what are your priorities, especially for your first year?

It's still early days, and I continue to engage with people, and listen and learn through conversations with faculty and students, but some themes are beginning to emerge.

Empowering ambitious curiosity: One of them is what I'm phrasing as "empowering ambitious curiosity." One part is sustaining and doubling down on curiosity-driven research.

Another is figuring out how best to use the rapidly rising power of AI for scientific discovery across all six academic divisions. That means both pushing the boundaries of AI and machine learning themselves and enabling our faculty who are domain experts to use AI to tackle scientific questions that might otherwise have been beyond our reach.

The third piece has to do with JPL: ensuring its continued success and its continued management by Caltech. It's a 90-year legacy. Caltech graduate students' experiments with rocketry led to what we now cherish as the world's best center for robotic space exploration. I think the value proposition of Caltech, JPL, and NASA working together remains incredibly effective, not just for NASA, but for the nation itself.

Enhancing the student experience: A second emerging theme is enhancing the student experience on campus. Again, these are emerging ideas. It's not that I have a fully formed plan, but a framework is starting to emerge.

I'm thinking about the physical spaces. I recently toured the North Houses, which I think need some attention. But I'm also thinking about the fact that students come here because they are ambitious and want to be challenged. They are being challenged at Caltech. As they step up to tackle those challenges, we need to have the support in place, whether it's academic support or mental health and wellness support.

Students learn a lot from each other as well as from our world-class faculty, so this also means ensuring there are spaces for connection and enriching campus life through athletics, the arts, and other opportunities.

There's a lot that's working great already. Our students do really well in terms of job placements, graduate school placements, and summer internships. Over 90 percent of our students do research during their time as undergraduates. Caltech does exceptionally well, even relative to our top peers, but that doesn't mean there isn't room for improvement.

Caltech's impact on the world: The third pillar I'm thinking about is Caltech's impact on the world. There are two main aspects. One is continuing to bring discoveries on campus and at the lab into the world, whether through supporting startup formation, corporate partnerships, or partnerships with other organizations.

The second is thinking about how best we engage with the public at large, the media, and other external stakeholders. That's something I've been passionate about from an early age, having almost become a science writer.

I think Caltech is doing great, but we can do even better and be more thoughtful about engaging with the public and the media in meaningful ways that are authentic to us. We can tell our story better and share the excitement of discovery more broadly.

Much of student life is handled by administrators and staff. How do you plan to stay connected to students and make sure their perspectives reach you?

I have looked for, and will continue to look for, opportunities to engage with students. On move-in day, I engaged with first-year students coming in, helped them unload and spoke with their families. Toward the end of the summer, I had coffee with some JPL interns who were living on campus.

There are formal opportunities, like convocation for new students, but also less formal opportunities at events or on the sidelines. We had an event for new students at our residence two weeks ago. I try to find ways to hear what's on students' minds, learn about their experiences, and understand what's working well and what's not.

I'm hoping sometime in the fall to sit in on a few classes, maybe one of the sessions of Integrated Core, which is going through a lot of interesting experimentation. That would give me some sense of the student experience, sitting in the classroom with them.

A number of the lab visits I've done with faculty have also included undergraduates working in the lab. I've had the opportunity to see how students engage with cutting-edge research as well. I'll continue to look for additional opportunities.

Could you elaborate on how Caltech could engage more with the public?

We want to be more proactive and thoughtful about sharing what we do, the excitement of the work, and its value with our fellow citizens across the country. We want to reach audiences beyond those who might already be interested in science and engineering.

We also want to elevate faculty expertise and voices, not only to share their work, but to comment on developments in the world, whether it's the release of a new science fiction movie, an extreme weather event, or the upcoming Olympics. There are many opportunities for our faculty to share their expertise and bring their voices of experience and insight to help the world make sense of these developments.

We're thinking about a variety of ways to do that. For example, there's a group of faculty named Hurt Scholars, and we're planning communications training for them this year as a pilot. A couple dozen faculty will go through it as a cohort, then we'll see which elements work and maybe offer them to all faculty members who are interested. We're also thinking about supporting faculty members who want to write opinion pieces informed by their disciplinary expertise.

We're also thinking about opportunities to bring the local community onto campus. The Watson Lectures are already extremely successful, with a full house every time, but we also want to think about what we do across the Los Angeles area, across the state, and across the country.

Along those lines, I was just in Washington, D.C., for an event called NXT in Space, celebrating JPL's 90th anniversary this October. It brought together about 100 people from government, venture capital and finance, and private-sector companies in quantum, AI, and robotics, along with our faculty and staff from JPL. The conversations illuminated how these fields are changing and brought Caltech and JPL expertise to those discussions.

I will start doing some alumni events across the country soon, finding places where Caltech's value can be highlighted and shared.

As a teenager, you wrote to JPL for information about Voyager. What does it feel like to come full circle and lead the institution that manages the lab?

It's a bit surreal, to be honest. I had a sense of wonder and curiosity from a very young age. I was a space-obsessed kid growing up in Sri Lanka, and one of the things I did was write to JPL and ask for more information and images from the Voyager missions that were happening at the time.

I remember receiving that package with a sort of oversized viewbook and printed images. It was just so thrilling and left a very positive impression. It felt like, even from the other side of the planet, I could share in the thrill of discovery.

What we talked about wanting to do now, I felt like I was on the receiving end of that as a teenager. To be here, engaged in shepherding both the lab and the Institute, really does feel surreal. I feel humbled and privileged to be in this seat.

As an undergrad at Yale, you wrote for the school newspaper. If you were reporting at Caltech and writing about your own presidency, what would you be watching most closely?

That's a great question. I guess I'd talk to many more people than just the president. In terms of the president, I would think about how the words and actions align. It's probably not easy to tell in a month or two, but over a few years, whether the person is walking the walk and not only talking the talk would be something I'd want to pay attention to.

This Week in *Tech* History

October 17, 1969

Biologist Wins Nobel Prize

Max Delbrück of the California Institute of Technology, Salvadore Luria of the Massachusetts Institute of Technology, and Alfred Hershey of the Carnegie Institution of Washington won the Nobel Prize in Physiology and Medicine for 1969 for their work concerning the replication mechanism and genetic structure of viruses.

Caroline Institute of Stockholm: "These discoveries first of all imply a deeper insight into the nature of viruses and virus diseases. Indirectly they also bring about an increased understanding of inheritance and of those mechanisms that control the development, growth and function of tissues and organisms. The work of the three, centering on bacteriophage, which are viruses that invade bacteria, since around 1940, has had great impact on biology in general. Over the years our d bt of gratitude to the three leading figures of bacteriophage research has continually in creased."

In 1937 at Caltech, Delbrück became interested in bacteriophage. He was joined about 1940 by Hershey and Luria. They sought the simplest living system for their study, the virus, and studied its fundamental life processes, focussing first on the reproductive system. They developed quantitative methods for their research. They synchronized the virus, followed its method of multiplication and were thus able to learn about its life processes. They studied what happened to the virus in a single cell, by the application of simple statistical methods.

Their work, which resulted in several important discoveries, set the foundation for molecular genetics.

First Thoughts

"What were my first thoughts when I was told that I had won the Nobel Prize? I thought that these people in Stockholm should realize that there is a nine hour time difference between here and there. The news services started calling at 5:25 this morning. It's a terrible thing to call a man before he has had breakfast."

This is the way Dr. Max Delbrück described the first moments when he was told that he had won the Nobel Prize in Medicine and Physiology. Dr. Delbrück spoke at a news conference held at 10:30 on Thursday in the Trustees Room in Millikan Library.

Leather Slippers

Dr. Delbrück was dressed in a light tan sports coat. A sign of the frantic pace at which the day was preceding, he wore a pair of leather slippers on his feet.

Dr. Delbrück shared the prize with Dr. Salvadore Luria of MIT, and Dr. Alfred Hershey of Carnegie Institute of Washington. He said that he was "very happy to share this prize with my friends. I believe that of the three of us Hershey deserves the prize the most. He did the most important experiments."

Dr. Delbrück began the press conference by describing his career. He began as a theoretical physicist. He worked under Dr. Leise Meitner, and he has an effect, the Delbrück effect, named after him.

Dr. Delbrück is going to Stockholm to accept the prize. He will be accompanied by his wife, and will probably meet one or more of his sisters from Germany in Stockholm. He will not take his children with him.

Going to Moscow

After the ceremonies, Dr. Delbrück will travel to Moscow to meet his old friend, Dr. Timofeeff-Ressovsky, a Russian geneticist who worked with Dr. Delbrück before he moved to America.

When he was asked to comment on fellow scientists who worked on chemical and biological warfare, Dr. Delbrück stated, "Until recently, I have had the impression that these people were very incompetent. Otherwise, they would not stoop to that sort of work. However, they are becoming frighteningly competent. Biological warfare is so much less controllable than other kinds of warfare."

The Nobel Prize winner ended the conference on a note of humility by reading some verses from an old Japanese poem. In part, they went, "The temple bell echos the impermanence of all things. Pride lasts but a little while."

Caltech's Previous Nobel Laureates

Robert A. Millikan	1923, physics
Thomas Hunt Morgan	1933, medicine
Carl D. Anderson	1936, physics
Edwin D. McMillan	1951, physics
Linus Pauling	1954, chemistry
William Shockley	1956, physics
George W. Beadle	1958, medicine
Donald A. Glaser	1960, physics
Rudolf Mossbauer	1961, physics
Charles H. Townes	1964, physics
Richard Feynman	1965, physics

Mark Wise, 1953–2026

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From Ph 125
His students wrote down what he said in class. They kept it for years.
A selection, verbatim:

- "1 wise = 3 x 10^10 cm. c ~ 1 wise/sec."

- [Looks at quarter to throw for answering Legendre polynomial question.] "What quarter has arches on the back?" [Two people respond simultaneously: Utah.] [Tears dollar bill in half and gives it.] "Don't tell anyone I did that, apparently it's illegal."

- "Often when something like this is done at first, it's not a fully rigorous derivation, and there's a leap involved that maybe has some logical holes... and it takes someone who's a genius to do it... but even if you're not a genius you can still do great things, and you can win the Nobel Prize. So if you're not a genius, don't get depressed. Anyways..."

- "There's a better way to explain this, but I haven't figured it out yet, so you'll have to suffer for now."

- "My wife and I had our first kid in Boston when I was a postdoc at Harvard -- the lowest paying postdoc position in the nation. So we drove to New Hampshire to buy a house, since they have no sales tax there. The plate holders all say 'Live free or die', but we're Canadian, so our only priority is to live."

- "Sorry. Sorry, you don't know why I said sorry. I don't know why I said sorry. It's a real problem being Canadian."

- "One time in class I said this result would knock your socks off, so I threw my socks at the board when I finished."

- "I once dropped the i′ term in a paper I published, then somebody used it and found an effect that didn't exist, and we thought we were going to win the Nobel prize."

- "Signs are tough, class. Best done behind closed doors." (pause) "And my door is closed."

- "When I was a postdoc, my friend Joe was really excited about normalized gauge theories. I told him 'Joe, you're on a mission from God.' So he called me back, 30 years later, and said 'I finally know what you meant! I just watched the Blues Brothers.'"

- "This differential equation is really beautiful. It's something you could take home, show your parents and they'd think it's beautiful too."

- "Class, I have an embarrassing admission. I can't count. I have to work out the cases first, then write down the formula."

He also would always sing a tune as he approached the end of a problem on the board and ask the class "do you know what that is?" and then grin and say "the thrill of victory!". Apparently, it was a reference to https://www.youtube.com/watch?v=Vv368yWOSas
Collected by his students; preserved by Alexander Zlokapa (Ph 125).

ministrative assistant in our group lost her dog. I wanted to send her flowers and did not have her home address. I asked Mark. Within the hour, he had gone to Carol, put the question in motion, and written back: "I asked my boss, Carol," he said — he called his assistant of many years his boss, and meant it. He was seventy-two years old, holder of an endowed chair, with four decades of foundational physics behind him, and he treated the errand of a colleague's grief as work worth doing immediately. It was.

When a graduate student scheduled a candidacy exam and circulated the logistics, the student noted that only one committee member would be attending in person — "which I believe is just Mark." It usually was. He sat in the room. He asked the questions. Afterward, he would write to the committee that a student's oral was one of the best he had recently attended — praise he gave freely and meant, because he never gave praise he did not mean.

He took the students and staff of our laboratory to lunch as a habit, not an occasion. He was present when the senior leadership of the Department of Energy visited, and when Fermilab's directors came, and he was present at the bench conversations no dignitary ever saw. Five weeks before he died, a graduating senior wrote to thank him for winning the Feynman Prize in Theoretical Physics — a nomination Mark had made quietly and mentioned to no one until the thank-you arrived. He forwarded the note with seven words of explanation: "*I nominated Stavros for the Feynman Prize*." The deed, then silence. That was his style.

It extended past physics: every morning he fed the stray cats that came to his lawn, and he reported with real delight the first day the cautious black one let itself be pet.

He offered his own funds where the Institute or DOE fell short — and always after asking Jackie. In October 2025, undergraduates were needed urgently for detector assembly carrying hard deadlines to the Department of Energy — hardware bound for CERN. The requests for their support had gone nowhere. Mark instructed his grant manager to open an account with funds of his own chair so the students could be hired and trained. When the paperwork stalled, he wrote that the students could simply be charged to his chair directly, and added, in passing, that if their costs ran over he would pay the difference himself.

When students' travel reimbursements sat frozen for months, he quietly told his grant manager to accept their expenses against the remaining balance, reasoning, in his laconic way: "It's hard for the division to complain if I am helping students." He offered funding to cover grant management for federal awards — management that had been requested through channels, without result, for five years. He regarded all of it as part of the research enterprise: support the work, and the people who do it.

He was a witness in the honest sense of the word. Through five years of a documented administrative vacuum in the handling of research awards, Mark sat in the meetings. He did not observe from a distance; he came, he listened, he read financial exhibits at eight in the morning with a magnifying glass, apologizing that he was "terrible at this type of stuff" — and then catching discrepancies the professionals had missed. When the record of a crucial meeting was later disputed, he settled it in three sentences that will outlast every ledger: "I can confirm point 3. It is my understanding as well. I was at the meeting."

When a staff member was summoned to a meeting she found frightening, he agreed at once to sit beside her as her witness. And when a decision was made badly, in an area where he had once had standing, his first instinct was to apologize for it — to write, of a failure that was in no sense his, "I let both you and them down." He was the only person in the affair who took responsibility, even when it was not his to take.

He worked until the work was done. He received his diagnosis on a Friday evening at the end of May and told no one for a day so as not to spoil his grandson's graduation weekend. Within the week, between scans at the hospital, he finished the term's obligations. From the hospital, he arranged the reassignment of his graduate students, gave instructions for the support of the undergraduates in his care, and told the Dean of Students what each of them would need.

He put every one of his people in order before he permitted anyone to put him first. The last time I went to his office was May 27. His door stood open; he was down the hall, sitting in a student's oral exam, because of course he was. I photographed his blackboard and texted him: "I am at your office, your door is open." He came back and closed it. The board deserves a word, because it says what he was doing with the time. Above the half-erased ghosts of older calculations, laid out in proposal language — "Aim 1," "Aim 3" — was a new project in a field that was not his: the quantum many-body physics of magnetic devices.

Aim 1 was a device, drawn with an experimenter's care: a current driven through a heavy metal, the spin Hall effect converting it into a torque on the ferromagnet layered above — the working mechanism of next-generation magnetic memory, each layer labeled in his hand. Beside it, the theory the device lives in: a Heisenberg model of interacting spins carrying the Dzyaloshinskii–Moriya twist, the term that winds spins into chiral textures.

And below, the jewel: amplitudes A_{12}, A_{23}, A_{31}, each a phase, multiplied around a closed triangle of spins — a Berry phase, the quantum flux an electron feels circling a loop — with the count of triangles among n spins, $n(n-1)(n-2)/6$, worked out in the corner. Mark counted the loops. He was seventy-two. He had built heavy-quark theory, and he was teaching himself another field from the ground, in chalk. On the hook beside the board, his shirts hung pressed in their plastic, waiting for weeks he did not get. The writing is probably still there.

In the 1990s, with Savage and Kaplan, Mark built the effective field theory of nuclear forces — the operator structure and power counting that turned nucleon interactions into a calculable expansion — and with Mehen and Stewart he showed how Wigner's mysterious spin-flavor symmetry emerges from it. Twenty-five years later, that scaffolding had a second life he did not expect: quantum information moved in. Entanglement suppression in the S-matrix was shown to be the origin of the very symmetries he had mapped, and the idea now runs from nuclear forces to the Higgs sector — Carena and collaborators' entanglement analysis of two-Higgs-doublet models stands directly on his 1990s papers.

I brought it to Mark as a potential SURF undergraduate project, and of course he saw it immediately. "If entanglement could somehow help with understanding where so-called (approximate) Wigner Symmetry comes from," he wrote to me from his phone, "that would be profound." That is the definition of a theorist whose work is alive. Mark believed in institutions. It was his one extravagance. He had served Caltech within its channels and its proprieties for forty-three years, and he extended to it the good faith he extended to everyone — the assumption that a place devoted to truth in physics would practice truth in its dealings.

In his final year he offered his counsel to the Division he had served, freely, as he always had. The Caltech he believed in was real. It is the one in the founding idea of the place: excellence in science and technology, and a community — faculty, students, staff — that takes care of its own.

Mark did not invoke Caltech. He constituted it. Where it existed in our corridors of the Lauritsen High Energy Physics building, it existed largely because he was in the room. His friends and colleagues across the world — at Roma Sapienza, Stanford and Fermilab, at UCSD and Perimeter and CERN — are now honoring him and his family for what he spent forty-three years doing for everyone else's people, and that, too, is his doing: he taught us how.

To his wife Jackie, his children and grandchildren, his students across three generations of theoretical physics, know that it will be a tall order for all of us to live by the standard he set. For my HEP CMS/QIST group, the honoring will be done the way he would have wanted: with results. The 4th crate of fast-timing detector trays our group is completing for CERN will ship in August with his name etched on them. The students he paid for— a quarter, a lunch, a semester at a time — are still assembling the hardware now.

The work continues, which is the only tribute he ever asked of anyone.

Take care, Mark.

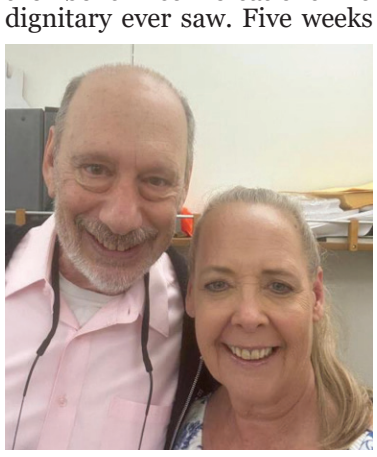
All photos provided by Maria Spiropulu.



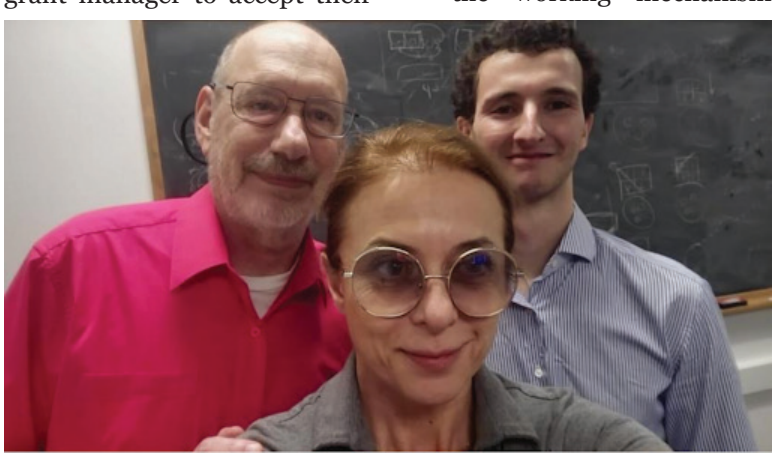
Taking the students to dinner at the Athenaeum. A habit, not an occasion.



With Kip Thorne, Carolee — in her LIGO dress, the gravitational-wave chirps printed on the fabric — and Maria Spiropulu, at the Athenaeum, 2025 (ML4JETS). The Caltech he believed in.



With Tracy Sheffer, whom he stood beside when no one else would.



"Which I believe is just Mark…" — in person at the candidacy exams and defenses, year after year.

Grill Night, Pizza, and the Socks

Jackie Lodman
The Inside World

Editor's note: The same Jackie Lodman (BS '20, Dabney) who ordered the pieces for the LEGO – now completing her PhD in theoretical physics at Harvard — sent this remembrance. It is presented here in her words, lightly edited by Spiropulu.

Like many Caltech physics students of my generation (2016-2020), I met Mark during Ph125A. I was the kind of student to sit in the front row and ask questions, so I'd say I got to know him pretty well in class. Enough to invite him to formal dinner that first quarter. I was interested in particle phenomenology, but that wasn't why I started going to those group meetings. What actually happened was one day Mark and my undergraduate advisor Sean Carroll saw me through the glass door taking leftover pizza from the group meeting and invited me in. Later he told me that he always bought extra pizza for the formal theorists and undergraduate scroungers. But it's ok, "I eat their sandwiches on Fridays, so it evens out." I started going to meetings every week for the rest of my Caltech career (until COVID shut that down).

Mark would end up taking the entire Ph125B class to the Panda Inn that year (a pricey sit down Chinese restaurant that used to be near campus, you are likely more familiar with its spin off Panda Express). He probably spent $500 on that meal. Why? For fun, I think. He even let me go the next year when he took current Ph125B students. Mark also bought us all pizza when he had to do a make-up evening class once or twice. I think he was afraid he would be making us choose between dinner and class. I know Mark was afraid of putting too much stress on students; he told me once that he always approved extensions in case it helps someone going through a rough patch.

The next year, I was stressing about applying to PhD programs in particle phenomenology. Mark told me it would be ok if I didn't get in anywhere the first try, he didn't. Mark never seemed to take things like that personally. He worked on "little problems," as he told me, and hoped that his contributions would be useful to the field. Though I never did research with him, Mark wrote a letter of recommendation or two for me. My other recommenders got a box of fancy chocolates in thanks, but I had something special in mind for Mark. He got a pair of socks with pictures of his face and "Physicists just want to have fun" (his catchphrase) printed on them. Mark was quite enamored with them, as I knew he would be. I don't know if they ever got worn as socks, Mark thought they were too cool to be worn.

By that point, I had started inviting myself to lunch with the phenomenology group. Aneesh Manohar and Elizabeth Jenkins were visiting that quarter, so Mark tried to get lunch with them every day. One day near the end of fall term, we arrived at Browne around the same time as several busloads' worth of small children. Mark opened the door, looked inside, and said "you know what, let's go to the Ath on me!" and that's where we went. That's just who Mark was.

Later, I'd invite him to eat dinner at my house (Dabney) on grill night, where the undergraduate waiters grilled steak and chicken provided by CDS. This happened every Thursday. It should be noted that the undergraduate houses require a keycard to get in, so I would have to let Mark in. The day before he was scheduled to visit, I went to dinner with a friend at a restaurant with no cell service. When I got service again, I realized I had a message from Mark. He said dinner was good, but he wondered where I was. Apparently, Mark had mixed up the days and got another student to let him in since I wasn't there. Everyone loved Mark, and we were happy to have him over for dinner anytime.

Only Mark would have no problem getting students to let him through locked house doors. Eventually, COVID hit, and that was the last I saw of Mark in person for a few years. We corresponded via email; I ended up being advised at Harvard by a friend and collaborator of Mark's — he actually introduced us back when I was a senior at Caltech. In the years I returned for Ditch Day, I sometimes gave a talk at those same Thursday pizza lunches I had once scavenged from. They weren't a regular occurrence anymore, but Mark always bought pizza for everyone like the good old days when I came. The last time was this year. I only saw Mark for a few minutes; he had to teach and then rush off for doctor appointments.

Mark actually missed my talk because he had a last-minute appointment get rescheduled. But I was fine with that, he'd make it to the next one, so I thought. I couldn't believe the news when I received it. He seemed so normal when I saw him in May. So alive. I had always wanted to work with him on an actual research project, and with Zoom that's easier than ever. Mark was a pillar of the phenomenology group at Caltech. He was always the first one I emailed when I decided to fly back and the first office I visited when I got there. And now that office will be empty or taken by someone else.

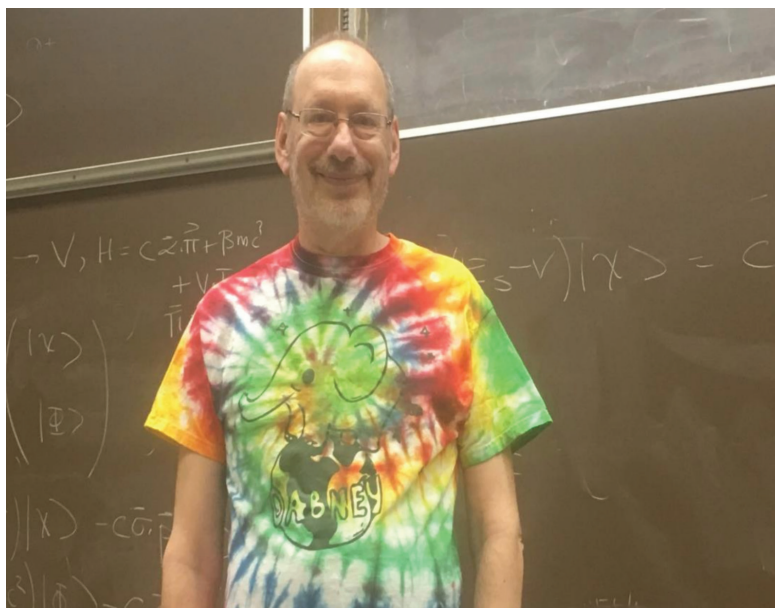
Mark wouldn't want it to remain empty. He always talked about retiring so a younger person could get a faculty job (an issue in our field). As soon as he was done taking students, he'd retire. Mark was passionate about allowing the next generation to flourish. In the days leading up to the COVID shutdown, Mark morbidly joked about some faculty positions opening up in the near future. No one else at that table was over 30 and none of us said anything either. I hope that wish is honored.

I can't claim to know Mark as well as one of his graduate students did, let alone his colleagues at Caltech. I was never his student (in the research sense), but he embodied the kind of professor I want to be someday. At his funeral, it was wonderful to see so many faces from all walks of life. His death will not be real to me until I return to his office and see he's no longer there.

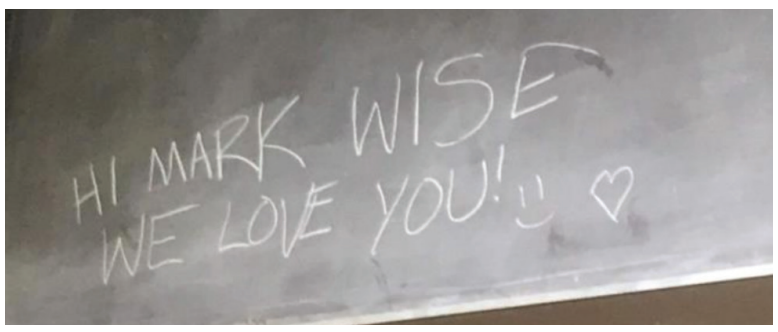
All images provided by Jackie Lodman.



Mark in Dabney's "Bear Pit"; taken for a gag article.



Mark in the shirt Dabney tie-dyed for him.



Message of student appreciation (not taken during a class he taught because it's from my senior year).



Introducing Mark to my cat, Mercury.



Mark's quantum mechanics DMV apron (because he gives out "licensed quantum mechanic" shirts; apparently people who used to work at the DMV wore aprons?)



The socks. (Photo: Mark Wise)

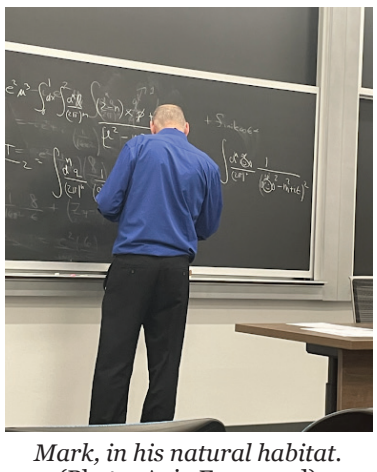
Memories of Mark Wise

Ania Freymond
The Inside World

I met Mark Wise in 2022, during my freshman year at Caltech. My first-year SURF mentor connected us because of my interests in theoretical particle physics, and his work at the time was directly aligned with our project.

From the beginning, he was incredibly easy to speak with. He welcomed all my naïve questions, recommended readings, and even offered to supervise a reading course — before I even dared to ask. Although he was not officially my SURF mentor, he might as well have been, given the time he devoted to reviewing the theoretical sections of my reports.

By my sophomore year, I had of course heard all about his QFT class from my physics friends. I came to audit several lectures for the content, but left with a lot more: a childlike enthusiasm for physics; many, many coin tosses; wise jokes in my notebook's margins; and, of course, free singing performances. At the end of lengthier derivations, say, deriving the Faddeev-Popov ghost term, he would put down his chalk, turn slowly from the blackboard, reveal a big smirk, and crescendo into his signature phrase: "It's the Thrill of Victory!" Occasionally, he would even break into the song to trick his students into thinking the painful derivation was done to keep everyone's attention, and then comfort us with another motto: "Don't worry, be happy."



Mark, in his natural habitat. (Photo: Ania Freymond)

The following year, I took QFT officially and had the pleasure of being entertained all over again. I was pleased to discover that he had not retired from singing and had, moreover, begun experimenting with the visual arts, most notably by drawing large-eared smiley faces for dummy variables. Needless to say, I also saw how much he cared about his students and how much effort he put into teaching.

He routinely prepared his lectures from 10:00 to 10:30 each morning, and would always send post-lecture Canvas announcements correcting or clarifying concepts from class. Occasionally, these announcements addressed less conventional matters: one informed us that Downs-Lauritsen had been attacked by a mob of angry zombies (to this day, I know not what had occurred), and another declared that he had written to People magazine requesting selection for "Sexiest Man Alive" on these impeccable grounds: "How can the sexiest human not know quantum mechanics, let alone relativistic quantum field theory, which is an even sexier topic?" This argument, the class conceded, was difficult to refute.

But the jokes always came with serious teaching. Whenever he had to miss a lecture, he always made sure to rearrange his schedule to teach us during lunch on Friday, bringing in food from Mendocino Farms or somewhere else from Lake, so that we should be deprived of neither lunch nor fun physics. Of course, we were also always grateful for the occasions on which he invited us to Baskin-Robbins for ice cream at the end of a term, my favorite part being his stories about "Caltech and physics back in the days," as well as Mark's sharing of his simple pleasures in life, such as Pasadena's timeless purple flowers and the sandwich man at Browne.

I also always enjoyed the way Mark Wise would tease his colleagues on the fourth floor, while also making clear how highly he regarded them. This contributed to making the theory department feel much more familial. On one occasion, I remember we were told Clifford Cheung had unexpectedly visited his office around 10:00 a.m. on a Wednesday with some exciting new results, thereby consuming the time he ordinarily reserved for reviewing his QFT lecture notes.

When we entered the classroom later that morning, we found "Blame Cliff!!!!!!" written across the board, so that should the lecture go awry, the culprit had already been identified.

What I appreciated most, however, was how consistently kind Mark Wise was as a person. From when I met him as a freshman until my senior year, he was never quite absent. Whenever we happened to cross paths around campus, he would stop to speak with me. He would invite me into his office and ask what I was working on or reading about, how things were going more generally, or share crazy stories from his time as a graduate student.

When asked questions he couldn't do justice to, he introduced me to great people whom he thought could, who then helped shape my own research direction. It is safe to say that he contributed greatly to my intellectual and personal growth during my four years at Caltech. I am very grateful for all of our conversations, his generosity, his humor, and his support. He will be greatly missed.



A magazine cover from a parallel, better universe. (Credit: Toby J. Saunders-A'Court)



Mark (fifth from left) leads the annual Baskin-Robbins Ph 205 trip at the end of the 2024-2025 academic year. (Photo: Ania Freymond)

Mark and the LEGO

Kai Svenson
The Inside World

Editor's note: Professor Maria Spiropulu credits the following account to Kai Svenson, a Caltech alumnus and her former SURF student who is now a graduate student in theoretical physics at UT Austin. Svenson gathered the account from the group chat of the students who built the figure. It is presented here in his words, lightly edited by Spiropulu.

On October 9, 2023, Mark came to Dabney dinner to present a challenge to Dabney House. He explained that on a recent visit to a colleague, he noticed a LEGO minifigure of the colleague standing on the desk. He thought this was extremely powerful, so he challenged Dabney to make a LEGO minifigure of himself, with a reward of $1000 donated to the house if they could pull it off. There was a chat of about 25 people all offering suggestions on whether to print their own pieces, which pieces to use, and what additional accessories to include. Then-Dabney President Tomás Wexler and alumna Jackie Lodman collected all the suggestions and ordered all the pieces. They decided on the "licensed quantum mechanic" shirt, a blackboard with the Schrödinger equation written on it, a piece of chalk, and a beverage for LEGO Mark to hold. They also got Professor Cliff Cheung's approval of the final design.

On April 10, 2024, Mark returned to Dabney dinner, where Tomás presented the LEGO Mark to human Mark. Needless to say, he loved it: "because if you have a LEGO figure, you're like a god." Mark's donation to Dabney went towards a recreational retreat at a wild-western-themed town. It was one of the best excursions the house did, and everyone was grateful to Mark for helping make it possible. Including the challenge itself, it's another example of how much he cared about the student body, and invented opportunities to get creative and have fun.

Tomás Wexler remembers that just before this photograph was taken, Mark said: "Lemme straighten my glasses." He was preparing to look iconic. Kai, who sat in his QFT lectures, says what three generations of students would co-sign:

"He was without a doubt the best professor I ever had. He made very intimidating subjects like QFT very accessible through his thoughtful teaching and witty humor. When time permitted, he treated us to ice cream after lecture, which to me meant that he really knew how to have fun and spread happiness."
— Kai Svenson (BS '25, Dabney)





Mark receiving his LEGO minifigure in Dabney.

Scampering Around Scandinavia

Surya Narayanan Hari
The Outside World

I was not expecting much from Scandinavia. To be honest, I was a little afraid of whether the locals would be kind to foreigners, bringing back flashbacks of communication difficulties during my time in Japan. I also wondered if the countries, which seemed culturally homogenous, would be welcoming of my family and me, who are fairly Indian — we talk in Tamil and pack our own meals on flights and trains.

I was very pleasantly surprised to be proven wrong on all counts. Mostly, I was surprised at the amount of thought put into small details — the design of bridges, waiting areas in train stations and everyday buildings. It's no surprise that Scandinavian design is famous — I saw the Egg chair and the Ekstrem chair.

Almost every city has its own lane of beautifully colorful buildings in and around the city center and "hipster" areas (which I learned is just the hush-hush way of saying expensive). I was not expecting the buildings to be this colorful.

My trip made me think hard about the importance of large open green spaces in the city. I recently read about a proposal to convert a field to a convention center in Mumbai and wondered if the additional business was worth the loss in aesthetic and cultural value. I think reducing commercialism from the culture goes a long way — allowing people to spend a day at a well-maintained park goes further than forcing people to buy food and drink at yet another coffee shop that runs on negative margins.

I also didn't expect as many Baroque-era castles and was in awe of the ostentatious furniture, interiors and grounds of the castles I saw. Castles are constantly undergoing maintenance and construction, which makes you feel like history is a continual process that you are experiencing, rather than just witnessing from afar. Most of the changes made today are indistinguishable from the style the castles were constructed in.

The paintings of the various noblemen and women whose names aren't mentioned anywhere in history make me want to give more importance to the work of lesser-known officials in our society — we should celebrate the maintainers of our societal fabric: the secretaries of education, labor and finance across levels of government.

The museums had a lot of engaging exhibits: photo booths with frames, props and interactive exhibits about Vikings, the dressing sense of old kings, and a food tour of their parties. My eyes were also opened to the concept of outdoor museums. One outdoor museum has painstakingly disassembled houses, buildings of commerce and a stave church from the 13th century and reconstructed these ancient buildings on the grounds to create the feeling of being in a historic Scandinavian town. As someone who thoroughly enjoys being transported to new times and places, I found this thoroughly immersive. Though I missed the actors' reenactments of how cows were milked in the 1800s, walking through the lanes where cows were kept and spending time in the stave church gave me an appreciation for the aesthetic of the Middle Ages.

It was very interesting to see human remains and other objects recovered from bogs on display in the museums. Maybe one can generalize that the Vasa itself, a six-story-high ship recovered from the mud after over 300 years underwater, is a bog object. I would have loved to see what my ancestors wore, what they carried or what they did. It's also surprising how easy it is to relate to our ancestors found in bogs. They're doing something we often do — picking berries, working on farms or resting from travel — all before the dawn of the internet and the iPhone. As easy as it is to go to another country and experience a different culture, I wish it were as easy to go back in time and experience another time. I'm sad I didn't get to fully immerse myself in the Viking exhibit in Copenhagen. The Vikings are truly an interesting culture, with myth and survival stories paralleling a great civilization, but with far fewer artifacts globally.

At the Schøtstuene museum in Bergen, the guide knew that a color on a wall was incredibly expensive at the time it was painted. I wondered how the guide knew this, given how long ago these events transpired, but the tourist infrastructure — how well the guides were trained, what information they had, and how they preserved an original panel from the 1600s and built the experience around it so they could immerse the audience in the room — created a very compelling experience for everyone there.

The public transit was generally very comfortable. Trains and buses were air-conditioned, electric and generally on time. Vehicle ferries ran, and my folks saw a bus get loaded onto a boat for the first time. Almost all the drivers spoke English, and we were seldom lost or looking for direction. Many times, instructions were relayed in English, which was super helpful.

Tourist passes really were a game changer throughout my trip. Most places had really good tourist infrastructure and almost every entry kiosk had a functional ability to scan QR codes even on complicated passes that allowed you to visit only one of three places from a certain tier, etc. Each transport form — metro, train, bus, tram, ferry — was in sync about what tickets were allowed, and all drivers (save for one in Bergen) were aware of the various privately operated tour company QR codes. Some tourist passes even had discounts at certain restaurants.

The Norway in a Nutshell pass was similarly very simple to use — the buses and trains, despite being public transit, were timed and placed perfectly to allow tourists to transition from connecting trains. We only had one issue when our ferry was about to leave before a bus arrived, but we made it on. In another family's case, one guy made it on but the mother who was limping missed the boat. They turned the 100-plus-person ferry around to pick her up, which was quite impressive.

Almost all the tourist spots we went to in Scandinavia were very mobility-friendly. We opted to take elevators everywhere and often had mobility constraints with large suitcases. In almost all the castles, museums and train stations, there were accessible elevators and escalators. Even in the Stockholm palace, where there was no visible elevator, we were escorted to a hidden elevator that was activated on the outside by security, which made us feel very cool.

One caveat: I didn't eat out much in Scandinavia. I traveled with parents who don't eat out much. However, there are two things I was impressed by: how vegetarian-forward the region was, and the pastries and milk products. A little shop outside a railway station 30 to 40 minutes outside the center of town, somewhere near Fruängen, had a whole vegetarian/alternative meat menu. This is remarkable — the LA equivalent would be my DREAM of one day eating vegetarian tacos from a taco truck. Even a climbing gym under the Romsdalsgondolen — a gondola in Åndalsnes, a town a few hours from a major city in Norway — had a veggie burger.

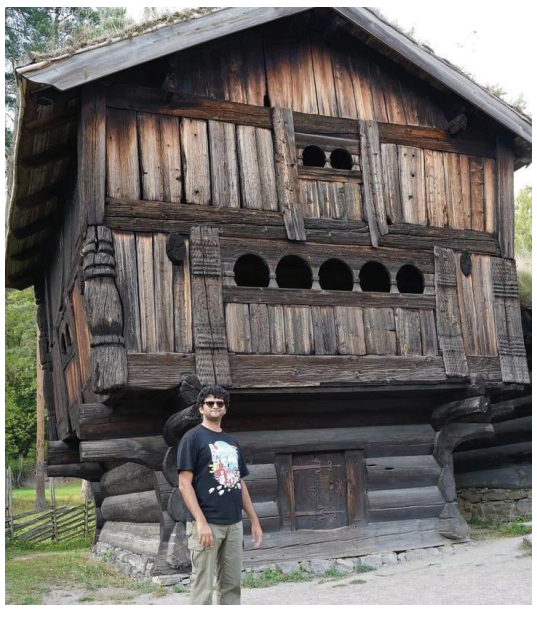
I had a few pastries from a few different shops across Scandinavia. They were not all as sugar forward as the ones I was used to here in the States. On average, they were not overly sweet and had interesting flavors compared to the usual fare I get in coffee shops in LA. The poppy seed and cardamom rolls were of note, but not prepared with the same level of expectation everywhere. The milk here is thinner; thus, the yogurt is more like ayran. It's not tart, which I liked. Because the milk solids are different here, the candy is different — I hoarded up way too much chunky Kit-Kat from Europe and am keen on disbursing it to add philanthropy to my resume. Please let me know if you would like to be on the receiving end.

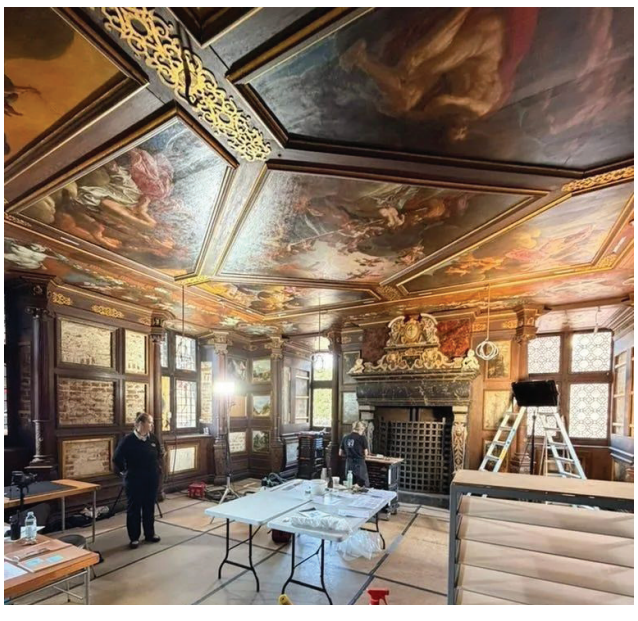
All images provided by Surya Narayanan Hari.

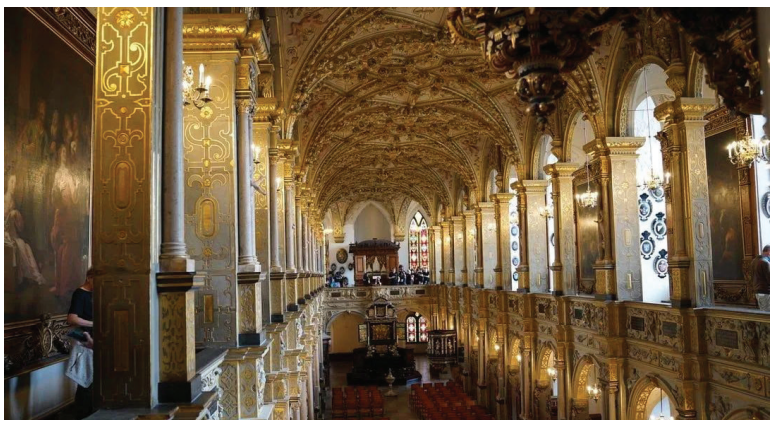












Caltech Wildlife: Flycatching Birds

Jieyu Zheng
Column

This month, the Jet Propulsion Laboratory (JPL) and Caltech are celebrating 90 years of partnership, having worked together on the world's most advanced guidance and navigation systems in space. In the bird world, many Caltech birds are also masters of precision flight, known for their signature hunting behavior – flycatching. They launch from a stationary position, track a moving target with pinpoint accuracy, intercept it at the best moment, and return to where they started. This sally-and-return move mirrors JPL's Stardust mission, which flew through the dust cloud of a comet hundreds of millions of kilometers from Earth and brought its catch home in glory.

You are almost guaranteed to see a black phoebe flycatching at the lily pond behind Ramo Auditorium. This tiny bird likes to perch on the concrete rim of the pond and suddenly sweep out into the air. Before you can see what it is aiming at, it has already returned to the same perch with a small fly in its beak. Phoebes belong to the tyrant flycatcher family (Tyrannidae). They didn't get their name from Phoebe Buffay from "Friends" or Pasadena's own Phoebe Bridgers (who hasn't listened to "Lost Weekend"???), but from the eastern phoebe's song, which sounds like "fee-bee." Black phoebes borrowed the name from their eastern cousins, but their own song sounds more like "tee-hee." More often, they make single-note chirps, and each chirp tends to come with a tail wag, as if the bird is trying to make itself look as big as possible. In fact, one theory suggests that phoebes pump their tails to deter predators.

Perhaps to get a clear view, flycatchers favor exposed perches, and on campus, many of those are man-made structures. From my observations, their favorites include lampposts, parking signs, and the blue plastic armchairs scattered around the lawns. Like students with their favorite library seats, they return to the same perches again and again – which is why some of those spots come with streaks of bird poop. From the perch, they dart into the air or drop to the grass, every flight far more focused than the sparrows' hopping and pecking. Sparrows keep their heads down, searching for seeds; flycatchers hold their heads high, always waiting for your applause for their spectacular moves. If you see a male vermilion flycatcher, you'll agree with me that it looks like an attention-seeker. Its plumage is probably the brightest red on any backyard bird in Los Angeles.

The whole tyrant flycatcher family takes its name from its most belligerent members, the kingbirds (genus Tyrannus). I once found a breeding pair of Cassin's kingbirds on a cable tower in Altadena. Their chicks had already fledged and were almost as big as the adults, but the parents were still highly protective. A poor American crow, a full 100 meters away from their nest, became the target. The two parents took turns dive-bombing the crow, at one point even going for its tail feathers. I couldn't help laughing at the karma in action – readers of previous columns may remember that crows are usually the bullies, chasing away hawks. The kingbirds really showed that crow who was king.

Many birds outside the Tyrannidae family also take up flycatching as a part-time job when flying insects are abundant. Our resident western bluebirds, for example, feed on insects in warm weather. In the spring, with hungry chicks waiting at home (likely an old tree hole left by woodpeckers), the bluebird parents fly around the Red Door dining area, snapping up flies buzzing over students' pizzas (I always feel a deep appreciation for them over my protected lunch). Surprisingly, acorn woodpeckers also make sally-and-return flights. I once saw one catch a big wasp midair, its stocky body almost as agile as a kingbird's. Right now, the acorn woodpeckers (covered in my first wildlife column back in 2025) are busy with their full-time job – stockpiling acorns. All day long, they drill holes and hammer acorns into the palm trees, creating a bountiful stash for themselves and many lurking opportunists, including fox squirrels.



Black phoebes don't mind perching on man-made structures.



Black phoebes are the most common flycatchers on campus.

Once you know about flycatching behavior, spotting these birds becomes much easier. A sweeping silhouette and a chirp can reveal a lot about the species. While your friends are still squinting at a tiny dot in the distance, you can show off your birder magic, like mission control tracking Stardust.

All photos by Jieyu Zheng.



Cassin's kingbirds are also year-round residents. The head tilt in the picture is both cute and useful for scanning the ground.



Vermilion flycatchers are year-round LA residents. So far, none live on campus, but if you see a male, his flaming red is unmistakable.



The male western bluebird is monitoring parking violations on campus. Make sure you put on a permit!



Surprisingly, acorn woodpeckers (male in the picture) are also great at catching flying insects midair.

I Time-Traveled to Caltech from 2058 — and Found a Beautiful Future

Charity Hume
Culture

As Caltech's academic year finished up at the end of May, I received a printed invitation to a "Time Traveler Party." The invitation arrived after I attended.

Earlier, I'd been directed to a registration link that explained, "Only two events of this kind have been tried before — a time travelers' convention at MIT in 2005, and Stephen Hawking's demonstration at Cambridge in 2009. Famously, if disappointingly, both attempts yielded null results."

The principal designers for the evening included experiential futurist Stuart Candy, artist-in-residence at Caltech Theater 2025-26, and improvisational theater actor Kari Coleman, who led a joint collaboration between the Institute for Quantum Information and Matter (IQIM) and Caltech Theater Arts, to try their own experiment. Mathematical physicist Spiros Michalakis (IQIM) and Director of Theater Arts Caltech (TACIT) Brian Brophy were also key organizers. Lending his enthusiasm—and the famous voice of Jar Jar Binks—Ahmed Best served as emcee.

I'd studied improv with Coleman, and she encouraged me to come as a "Time Traveler." I agreed to attend a training session a few days prior to the event.

To get into character for the night, we listened to Spiros Michalakis's theoretical guidelines for this thought experiment. One known scientific bedrock was emphasized.

Time can only move forward.

So according to fundamental laws of physics, Time Travelers can never "go back in time." Instead, we were asked to impersonate a successful traveler from a future "parallel universe."

In this model, our hypothetical doppelgangers, entangled with our own identity in the parallel universe, will still be us, but we will feel like we awoke suddenly -- "here." But unlike our present selves, this future self would have additional memories of our own future – so we should come prepared to explain it to the people we encountered at the party.

Impersonating this self from an alternative universe, we could create characters who returned from at least 27 years in the future. We could also imagine the reason why we had chosen to come "back" -- to the present.

I added two years to the minimum. I was born in 1958, so I chose my 100th birthday year: 2058.

The next step was to situate this future version of ourselves in the culture of a future society – imagined in specific and physical detail, down to its public monuments, rituals, politics, and climate.

Each traveler drew a card that prompted them to construct a different type of universe.

Mine had one word.

Beautiful.

Something clicked.

Why had I never been asked to visualize a positive future in concrete detail before?

I seem to foresee catastrophes far more easily. I've visualized positive outcomes in advance of an important meeting, but this was a more comprehensive world-building exercise. What would a beautiful future look like?

As a first step, I imagined that the United States finally passed the E.R.A. in 2058.

What could provoke humanity to free itself from the prison of misogyny, where male supremacy has barred women's equality for hundreds of years?

Perhaps a common threat? The European Renaissance emerged after the Bubonic Plague claimed almost half its population. Continued fossil fuel consumption between now and 2058 could accelerate global health emergencies; pandemics could spread with greater speed and virulence; dwindling natural resources will push human society into conflicts.

I had recently read David Tacey's article, "Mind and Earth: Psychic Influence beneath the Surface." Linking colonialism with a misreading of the earth as the mother, the source of life, he wrote:

"Society is new and thinks of itself as being in control of its own destiny, but it has to reckon with a prior and deeper claim on its life, which only gradually begins to surface from the depths of its experience. In time, the land has to be respected as having a life and will of its own, quite independent from the designs of the colonizing ego. This kind of maturity and insight is hard won and does not come easily to a new nation full of its own dreams and aspirations. Gradually, a second or alien will begins to impress itself upon the society and makes its presence felt with peculiar and unerring force."

Building on this idea of the earth's organic response to extended depletion of its resources, it is possible that this "peculiar and unerring force" may be the only realistic catalyst to end fossil fuel consumption. The consequence for ongoing disregard for the health of animals, plants or people will be inflicted by Nature itself.

Jane Goodall once expressed her optimism that such a change in attitudes toward the earth will eventually come about. Her logic was simple: "Our lives depend on it." A turning point will occur when collective survival is at stake.

Instead of the Darwinian model, our collaborative solutions throughout the world, and leaders who lead us to a fair distribution of resources, will be needed to restore our planet's ecosystem and the health of its populations.

The need for altruism, collaboration, and mutual interdependence and a creative vision for the future put leadership skill in the foreground. As the meritocracy of skill rather than inherited status takes priority, the imbalance of power will find equilibrium. Women will continue to emerge as valuable societal leaders, healers, elders, doctors, architects, educators, lawyers, and guides with previous social barriers removed. Their status as experts increases their representation in every sphere of leadership.

Because the earth is more recognized as the mother of life, nature is protected. Rain rituals celebrate water and seasonal tides. Architecture fosters natural ecosystems. In urban housing, rivers, winds, and irrigation systems cool apartment towers. Community gardens cascade from balconies and orchards line the city streets. Energy comes from the ocean, wind and sunlight.

Prepared with my futuristic world-building, I entered the party as a "guest" freshly arrived from 2058.

Kari Coleman handed me a commemorative coin, saying I should find a guest whose participation inspired ideas about the future. Small, coded images on our name tags matched us with our target audience.

Time to mingle with strangers.

I most remember the young man who told me he was looking for work in renewable energy. His promising start-up folded after the Trump administration withdrew funding for clean energy. The company's mission had been poised to improve the electric infrastructure needed to make EVs as convenient as gas-powered cars.

It hit me.

This was the guy I was meant to meet at the party. I connected the dots; the loss of his company's funding was a serious threat to our future.

I noticed something else. I had recognized him in a more profound way.

Here was a human being whose life mission was to work on clean energy. The future he envisioned honored the earth and could sustain us for generations to come.

I found myself reaching for the coin in my pocket. As I gave it to him, I heard myself say things I hadn't rehearsed.

"I am here from 2058 to tell you not to give up," I said. "The world needs your leadership. I am sure that meeting you tonight is the reason I became a Time Traveler."

I described my fossil-free future. I showed him my notes on a future "World Garden."

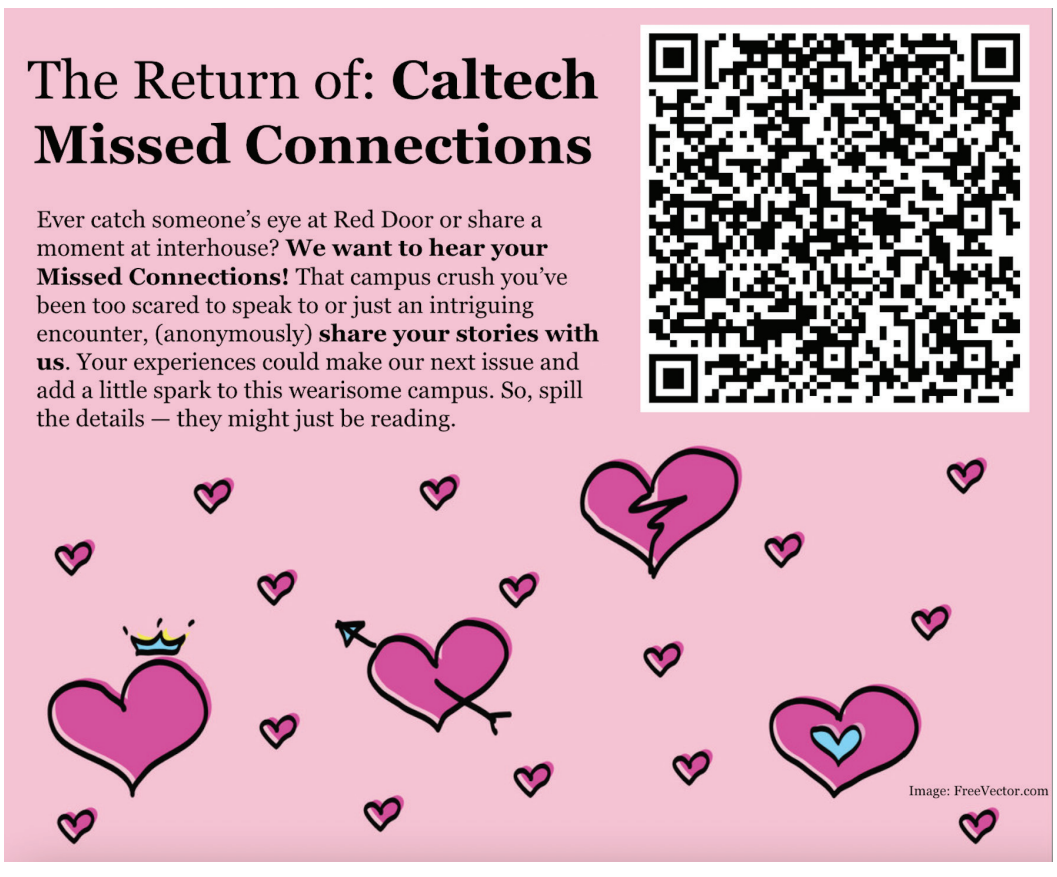
With some emotion in his eyes, he took the coin and said, "I accept this as a symbol that I should persist."

I agreed.

I saw him as an essential link to a beautiful future.

Charity Hume is a Pasadena-based writer and journalist whose work has appeared in the Los Angeles Times, Sky & Telescope, Ms., and HuffPost. She writes about science, culture, and the imaginative life.





From Pasadena to Palaiseau: A Semester at École Polytechnique

FASA Office
The Outside World

PALAISEAU, France — Rafael Crespo (BS '26) traded the familiar backdrop of California's San Gabriel Valley for the suburban outskirts of Paris for a term. As an exchange student at École Polytechnique, known on campus as "L'X," Crespo found an environment that challenged his Caltech routine in many ways.

The sprawling campus sits on a plateau near Palaiseau, a 40-minute train ride outside Paris. The institution traces its roots to 1794, during the French Revolution, and is one of the world's oldest and most prestigious elite engineering schools with fiercely selective admissions. Originally founded in Paris, the university migrated to Palaiseau in 1976. Like Caltech, the L'X campus functions as a bustling hub for cutting-edge research.

For Caltech students accustomed to a relentless barrage of weekly problem sets in every course, the pedagogical shift at L'X is striking. Most courses have a two-hour lecture with a subsequent two-hour petite classe (PC), or "small class." PCs operate as a hybrid of recitation and open office hours: teaching assistants distribute practice problems related to lecture, students collaborate, and the group reviews solutions together.

Classes meet just once a week, often leaving one or two entirely open days in a student's schedule. Crespo noted, "I only have classes on Monday, Tuesday, and Wednesday, but they go for a total of 4, 6, and 8 hours, respectively."

Final grades are based heavily on traditional assessment methods, typically consisting of timed, three-hour, in-person examinations utilizing pencil and paper. For those enrolled in the prestigious Ingénieur polytechnicien cycle, a majority of courses are delivered entirely in English.

The curriculum also accommodates immersive language training, which favors interactive coursework over written assessments. "I'm especially enjoying the French class," Crespo said. "It's an oral practice class, so we spend two hours just talking, acting from scripts, and practicing French pronunciation." The university funded theater tickets for the exchange cohort to attend an evening performance of Molière's "Le Misanthrope," the classic play upon which the class curriculum was based.

Exchange students are housed together in a residential building, fostering a close-knit community. An intensive orientation day introduces incoming students to the campus community and all of the student-led clubs, sports and social activities, collectively managed by the student government body known as the Kès. Reflecting on his arrival, Crespo noted that the campus community was exceptionally welcoming, with both peers and staff eager to offer a helping hand.

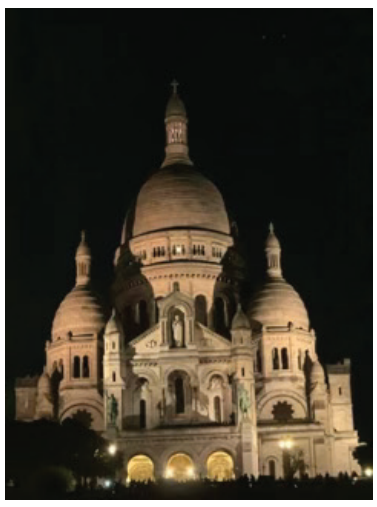
Living in France offers a great opportunity to improve language skills, though it requires conscious effort. Because classes and administrative paperwork are readily accessible in English, and international cohorts default to it, immersion must actively be sought. "While I'm still getting used to how different life is here, I've enjoyed practicing my French with not just students here but also doing typically mundane things such as grocery shopping or riding the bus," Crespo said.

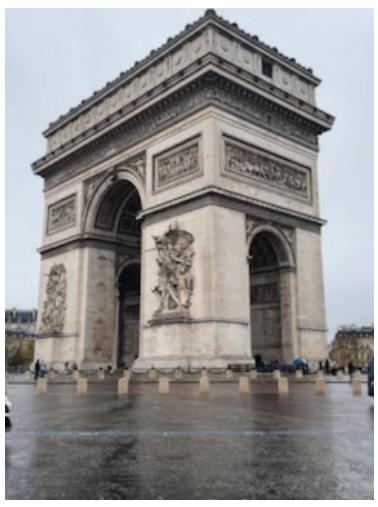
Ultimately, the structural shift in academics rewards exchange students with a profound lifestyle benefit. "It's also great having time to explore events, both on and off campus," Crespo stated. "I went with some friends to watch the event where they turn on the Christmas lights along the Champs-Élysées for the first time!"

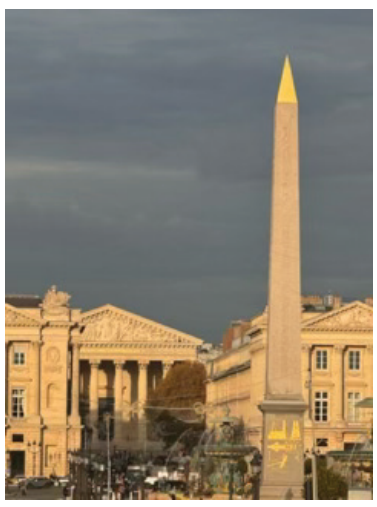
For Caltech students weighing the decision to study abroad, École Polytechnique delivers a comprehensive combination: a rigorous academic environment, a rich social environment, and experience with a different approach to elite engineering education.

The Caltech FASA Office is currently holding information sessions on all the Caltech Study Abroad programs that are offered. Please visit our events page fasa.caltech.edu/events to find out more. Applications are due January 25, 2027 so there is still lots of time to learn about how you can study abroad in 2027 and still graduate on time!

All photos by Rafael Crespo from Fall 2025.















Compact Disk — "Infection"

Annie Zhao
Humor



*sniffles in agony *

Your Hands, Your Responsibility

Jieyu Zheng
Opinion

Content note: This article describes unwanted sexual contact and harassment.

I was gasping for air, eyes welling with tears, white knuckles clutching my knees, unable to believe what had just happened. My date sat uneasily on the other side of the couch, searching for the right words. "I'm sorry, are you okay?" they tried. I shook my head, still out of breath and unable to get a word out. "I didn't want to choke you," they said. "I would have done it differently if I had meant to." And eventually: "You could have just told me to stop, you know that, right?" Those remarks threw me even further off balance.

In my five years at Caltech, this was not the first time I had heard that kind of spiel. A few of the people I've dated operated on the signals of "no" instead of asking for a "yes," like a robot vacuum that maps a room by bumping into the walls. Despite the sexual assault prevention training required of incoming Caltech students, I doubt my experience is unusual.

One of my friends even refused to take the Title IX online course, arguing that it was for people who couldn't control their urges. "Beasts that let their biological urges control them," they sneered. "I am a human, and I refuse to be educated like a pig."

Audacious as it sounded, I guess their implication was that civilized humans understand consent naturally. Well, my date from the beginning of this article illustrates how naturally we understand it: They put their hand over my mouth, sending me into a hyperventilating panic attack. For a moment they looked genuinely confused, thinking I was excited by the restraint, and asked if I was enjoying it. This was a poorly executed version of "no means no." In their eyes, proceeding without a no was fine, even when my mouth was covered and I couldn't have said no.

I've also made assumptions about consent. Years ago, at a party, I leaned in to kiss someone on the cheek, and they fled. I apologized profusely later and was forgiven verbally, but it was too late — a permanent mark was left on our friendship. The throng, the alcohol, and the hands in the dark might have pushed me toward that move. But nobody else put my hands, or my lips, on another person. I did.

Through these experiences, I've come to realize that our community doesn't always live up to its standard of affirmative consent. The idea isn't new. In the early 1990s, Antioch College, a small liberal arts school in Ohio, adopted a student-written policy requiring verbal consent at each new level of intimacy — and was promptly lampooned on "Saturday Night Live" for it. 12 years ago, California Senate Bill 967 required colleges like Caltech to define consent as "affirmative, conscious, and voluntary agreement to engage in sexual activity." Caltech's own policy uses that definition today (https://clery.caltech.edu/consent). The standard has been around for more than a decade, but the culture hasn't caught up.

Operating on "no" fails for a simple reason: Saying no is not always possible. Sometimes one is physically unable to say it. Sometimes it is too embarrassing to say it. Sometimes one is caught in a power dynamic that makes it unthinkable. That is why the three adjectives in the definition matter: affirmative, conscious, and voluntary. Assuming someone wants it is not a yes; it is one's own desire projected onto someone else. A mumble from someone who has been drugged and incapacitated is not a yes. Yielding to someone who has the power to fire you or give you an F in class is not a yes. And even a real yes doesn't cover everything that comes after it.

"So what, now I have to ask you every time I touch you?" My date frowned. I nodded. "I guess we are just not compatible," they said. For months afterward, I questioned myself. Was I really unable to say no? Was the panic attack an overreaction? None of these questions would have existed if only they had asked.

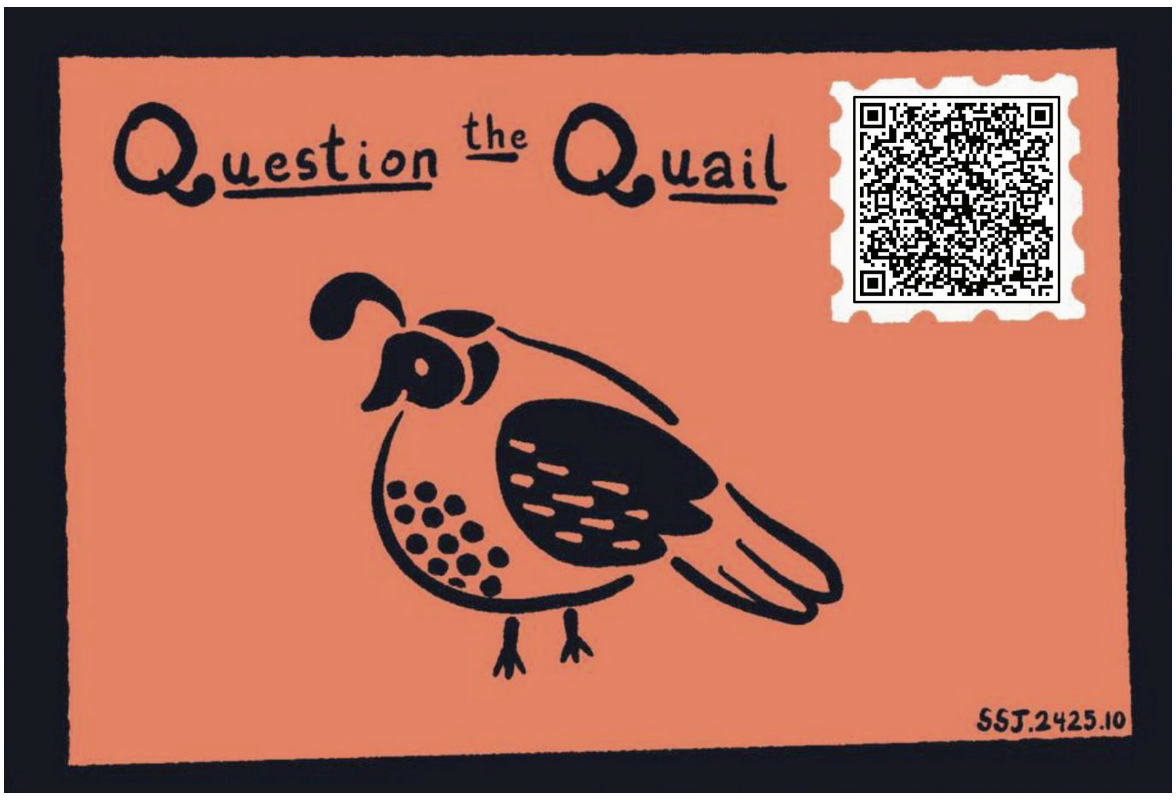
I wish they had asked before they took away my chance to say no. And I wish I had asked, too, at that Halloween party, before I leaned in. "Can I kiss you?" would have cost me no more than a few seconds of awkwardness.

I can see why "only yes means yes" is hard to follow. They saw asking for consent as a style of romance, not a basic requirement for interacting with another human being. In that view, my insistence on being asked is a failure to read the room: too dense, too rigid, a compatibility issue. That is where the gap lives. A policy is just a policy, a lecture during orientation week. It isn't a culture.

What does it take for a culture to change? Not a generic Title IX lecture in a large auditorium. Not a panic attack at the other end of a sofa. And probably not a cathartic article about one's experiences, either. What it takes is people asking. Asking feels awkward because few people do it, and few people do it because it feels awkward. Every person who asks for a yes out loud makes it a little less awkward for the next one. If enough of us ask, asking becomes the norm, and the person who doesn't ask becomes the strange one. The culture comes from us.

How do you ask for consent? Ask whenever you aren't sure what the other person wants. A sign of interest is not a definite go signal, and a yes from last time doesn't cover this time. Simple questions like "Is this okay?" or "Do you like this?" can go a long way. And if someone says no, accept it without taking it personally. If a friend confides in you about a "no," listen instead of judging what they should have done.

To anyone who stumbles upon this article: Own your part. Nobody else puts your hands on another person — not your desire, not the mood, not your power over them. Only you do. And before you do, you need a clear "yes," whether through words or actions.



Five Days on the Roof of Africa — Part II

Pizza at 4,630 meters, the Kissing Wall, and one very long summit night

Robert Otieno
The Outside World

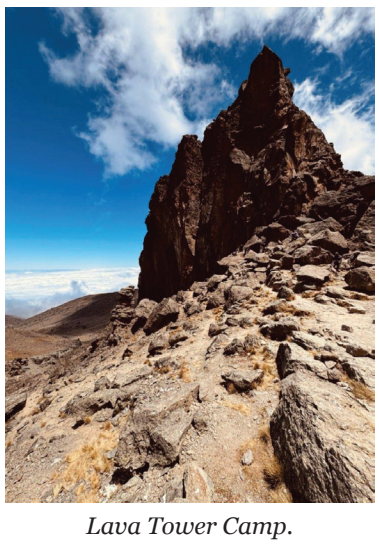
DAY 3
The Mountain, a Naughty Babe
Altitude gain: 120m

One thing about living in Southern California is the sheer amount of Spanish you absorb. Before Caltech, my Spanish was confined to movie references. Those references might raise eyebrows over stereotypes, but for a kid in sub-Saharan Africa, Narcos is about as Spanish as popular culture gets. Since then, I have challenged those stereotypes by meeting people, travelling, and learning about Spanish-speaking communities. In every sense, I strive to embody pura vida, while dishing out the occasional isu madres! in moments of awe, shock and disgust.

But beyond the popular phrases, one thing stuck with me: in Spanish, mountains are female. And not only because montaña ends in an a. Spanish-speaking communities in the Andes have long associated mountains with nature, and nature with Pachamama, the goddess of the earth. From then on, every mountain has been female to me — even Kilimanjaro, scary as she looks up close.

On Day 3, though, Kili was female not because of something I had learnt in class, but because of her mannerisms. After two days of forest and moorland, all of us were quietly hoping to reach her base. Which base? I couldn't tell you. A few ups and downs across a few ridges and I was impatient. I had hoped to see base camp sooner, and not just because I was tired. For three days, the view of Kili had been much the same: a huge sweep of rust-red and chocolate-brown volcanic scree pouring down from the ridgeline in one long slope, pitted with loose stones and creased by a faint footpath that zigzagged toward the top. Near the crest, the slope broke into dark, jagged rock, with buttresses and cliff bands in deep maroon and charcoal. Thin streaks of white snow and ice clung to the cracks and folds, so that the summit zone looked as if it were holding on to its last bit of winter.

Breathtaking as it was, I wanted something different. A new view. Kili, naturally, had other plans. Anyone who has ever chased someone playing hard to get will understand Day 3. She had given me exactly one flirtatious glimpse at dusk in Machame, then drawn the clouds shut like a curtain, with ridge after ridge guarding her base. Now she was doing it again: huge, close, and entirely unavailable for comment.



Lava Tower Camp.

The morning out of Shira Camp was a long, patient climb across bare, rocky moorland toward Lava Tower, the 4,630-metre volcanic plug we had sung about the day before. Lava tutapita, indeed. With every hundred meters, the plants got shorter, the air thinner and the rocks bigger. The guides' favourite phrase, pole pole (slowly, slowly), stopped being advice and became law.

That day, though, I felt more energized than on the previous days. The only real difference, as far as I could tell, was that Shane had offered me a nose strap. I hesitated for a few minutes, my stubborn desire for a raw hiking experience overruling reason. But after the first break, I asked myself: why not? Suddenly my nose was drawing in more air than it was used to, and my feet had more gas. I wasn't behind Shane. I wasn't behind our guides. I was simply gone, striding across the ridges and arriving at Lava Tower ahead of everyone.

The day also taught me more about the lads. Aside from the strong British accents, the age gaps and the farting, we were alike in many ways. They had all run marathons or ultras, loved hiking, and were always pushing themselves physically. For that, I respected them.

Then came the pizza our chef had prepared. To be honest, it shocked me in a conflicting way. Pizza high on a mountain is about as gas as lunch can get. But was my body going to process such a meal at such an altitude? Nope. Still, I couldn't pass on the pizza, and that turned out to be a bad decision. I fought a stomach ache for the rest of the leg to Barranco Camp.

The descent was the plot twist. The moonscape softened into the Barranco Valley, a forest of giant groundsels — those spiky, prehistoric plants that look like something Dr. Seuss sketched at 3 a.m. and are native only to East Africa's high mountains. At camp, the first order of business was not finding a chair to watch the setting sun. It was a restroom call.

The rest of the evening brought a few logical debates about the whole acclimatization method. Why would we haul ourselves up to 4,630 meters, eat lunch in the thin, cold air, then turn around and drop to Barranco Camp at roughly 3,960 meters? Better acclimatization, apparently. Blah, blah, blah. Maybe it was my achieving self, always striving high and wanting to stay there. Besides, it was exactly what a naughty babe would do: make you climb all the way up to her, smile, and send you right back down to earn it.

Then came Kili's boldest flirting yet. The Barranco Wall rose right above the tents, a sheer cliff we would climb in the morning, looking less like a route and more like a dare. This day was definitely complicated, dramatic and quite frankly, a little bit mean.

And I was already in far too deep to turn back.

DAY 4
Approaching Base Camp
Altitude gain: 680m

Day 4 had a simple mission: reach Barafu Camp, the base camp for the summit push, at 4,673 meters. Finally, the base I had been so impatient for. And barafu, as any Swahili speaker will tell you, means ice. A camp named after the weather rather than the mood should have been my first warning.

But first, the wall. The Barranco Wall is roughly 250 meters of scrambling up rock ledges and narrow paths, nicknamed the Kissing Wall because you spend half of it hugging the rock. This was where the bouldering experience I had been warned about finally paid off. Hands, feet, trust and, maybe, a kiss.

My hiking boots and light daypack earned their keep too. I clamped onto whichever rock felt steadiest, swung a foot toward the next ledge, and powered up through my quads. Grab, swing, push. Repeat. What left me in awe, though, were the porters. Luggage in hand, they slipped swiftly through the rocks, the certainty of each step betraying years of experience up and down the mountain. After scaling the wall, I had a brief moment of contemplation. Being a porter is grueling work. I had the lightest backpack in my group, which made trekking, and even summiting, seem more possible. Carrying 30 kilograms on my back is not a situation I would ever want to be in. Mad respect to all of them. To my surprise, there were female porters too. Few as they were, I could not help but acknowledge them on the route.

"*Mwanamke bomba*!" I saluted them, which roughly means "Awesome woman!"

Beyond the wall, the route rolled through the Karanga Valley, where we stopped for lunch before the final push up to Barafu. The landscape had stopped trying to impress. No flowers, no heathers, just rock, dust and wind under a sky that felt closer than it should. This was an alpine desert, and it did not do small talk. Barafu clung to an exposed rocky ridge and was about as cosy as a car park. Naps in car parks? I'm no stranger to that. I set my head on my backpack, pulled my Caltech Y hat over my eyes, and drifted off into la-la land.

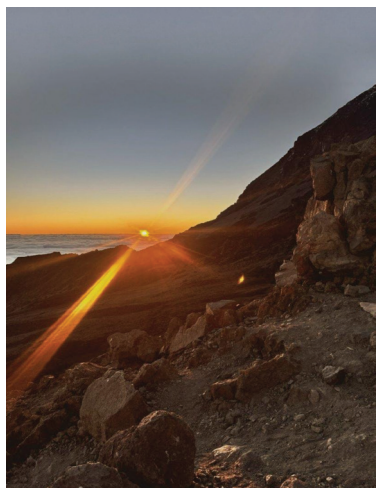
"I'm gonna kill you, you f****** c***!" Liam shouted, heading in my direction.

I jumped in shock, thinking the threats were meant for me. But he was shouting at Kili. Josh and Tim joined in, and for a moment there was an open invitation to join the mountain massacre. I steered clear out of the heightened reverence I have for such creations — a lesson drawn from my adventures in the Andes.

Still, here at last was what I had been begging for since Day 1: a new view. Kibo, Kili's summit cone, loomed right above the tents, close enough to size up the climb ahead.

Dinner was early and the briefing was serious. Lazaro laid out the plan: sleep a few hours, wake around midnight, layer up, check your headlamp, and start the final ascent in the dark so we would reach the top around sunrise. Silence filled the tent, the same silence that had filled the van on Day 1. My usually excited self was awfully quiet. This is it, I thought. The previous four days had all been building to this. At midnight, I would find out whether I was up for the challenge.

Outside, the stars took over the night in their thousands, spilling their light over the



Sunset at Barafu Camp.

flat white bed of clouds that stretched out from our camp. I lay in my sleeping bag at 4,673 meters, doing the maths of what lay ahead. Tomorrow was the reason for everything: the lost bag, the rented jacket, the citizen discount, the border, four days without a shower.

DAY 5
Summit
Altitude gain: 1255m

I woke at 11:45 p.m. and lay in my sleeping bag, thinking too hard about the task ahead. After being served coffee, I layered up, strapped on my headlamp and headed to the dining tent for breakfast. The stomach aches from Day 3 had dented my appetite, so I limited what I ate, a decision that turned out to be brutal hours later. It did not help to hear that Tim was feeling the effects of altitude sickness and had to drop to a lower camp. I was sympathetic, and having had altitude sickness myself, I understood his ordeal. Still, maybe, just maybe, he shouldn't have called the mountain the c-word.

We left Barafu into a dark so complete that the world shrank to the boots in front of me and the small circle of light beneath them. Summit night on Kilimanjaro is a long, steep zigzag up loose scree, and temperatures can plunge well below minus 10 degrees Celsius. Forty-five minutes in, I was feeling the combined effects of too little sleep, too little food and, of all things, somebody farting in front of me. This time the culprit seemed to be Liam rather than Shane, though I couldn't be sure: the earlier farts had been loud and public, but on summit night you only found out once you were already inside the blast radius.

Summit day, of all days, really? I had tolerated these lads' horrors on the previous days, but on summit day I expected them to behave. I was under-fed, my lungs were grabbing whatever oxygen was available, and now they had to figure out what was oxygen and what wasn't? I crashed. Instead of ruining everyone's mood, I let the lads go way ahead, leaving me to take my time and keep what little fresh air there was to myself.

Up to Stella Point, the lack of sleep wrecked me, and the endless zigzags didn't help. I was seeing waves, often drifting off the path before my guide came to fetch me. If I could reach Stella Point, I told myself, I could reach Uhuru Peak. Concentration, one step, one breath: that was all it took. At Stella Point, the crater rim at 5,756 meters, the slope finally eased and the sky began to change. The sun climbed above the clouds, and I felt hopeful. With hope came the energy to complete the task. Mawenzi Peak stalked us from behind, and beyond it lay a white bed of clouds with glimmers of urban light from the town of Moshi in the distance. We were over the ridge now, our sights set on Uhuru Peak.

We reached Uhuru Peak at 6:50 a.m. — 5,895 meters, the highest point in Africa. Uhuru is Swahili for freedom, and the peak took the name when Tanganyika gained independence in 1961. Three days earlier, I had sung Uhuru tutakwea: we will climb to Uhuru. Now I was standing on it. I came to the mountain to forget what was going on in my life, and for a few minutes at 5,895 meters, I did. The combination of standing on the highest point in Africa, so close to home, and everything the previous four days had thrown at me (limited gear, no shower, stomach aches, near heart attacks) weakened my knees. I fell to the ground, tears streaking down my face.

A few photos at Uhuru Peak, and then came the long way down, which nobody mentions in the brochures. Because everyone in our group was desperate for a hot shower, we decided to descend the mountain in one day: 5,895 meters down to about 1,800. Knees complained, legs wobbled, and the thick air of lower altitudes felt like a luxury. The only joy in the descent lay with the porters and guides, who were exhilarated at the thought of coming back to their families early. Later, though, that joy found us too: The thicker the air got, the more energy we found, until we were zooming down through the alpine forest to the gate.

The van down to Moshi gave me plenty of time to think. I had witnessed Kilimanjaro in all its magnitude.

Not in one giant leap, but in baby steps, with giant views ahead.

And when it got tough, all I relied on was the next step forward. After twelve hours in Moshi, I drove back to Kenya and saw her from the Kenyan side. There she was, the view I had wanted all along: all of her, at once. And what better way to celebrate her than to crack open a cold Kilimanjaro lager in the Swahili philosophy of baada ya kazi (after work)?

If I do lack words for the experience, if I had to narrow my experience into two words, they would be: Cheers, Kili.

All photos by Robert Otieno.



Uhuru Peak.

The California Tech Journalistic Principles

The News-Opinion divide
All articles shall be clearly and explicitly labeled as either News or Opinion/Editorial.
News articles report on topics that have been thoroughly researched by Tech staff writers, and should be impartial to any one point of view. In a News article, the writer shall not insert their own personal feelings on the matter; the purpose is to let the facts speak for themselves. The Tech assumes full responsibility for all content published as News.
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Fair Reporting
All facts of major significance and relevance to an article shall be sought out and included.
If an assertion is made by a source about a specific person or organization, they shall be contacted and given a reasonable amount of time to respond before publication. In other words, no second-hand information or hearsay shall stand on its own.

Quotes and Attribution of Information
Facts and quotes that were not collected directly by Tech reporters shall be attributed. Articles shall clearly differentiate between what a reporter saw and heard first-hand vs. what a reporter obtained from other sources.
Sources' opinions are just that — opinions. Expert opinions are certainly given more weight, as are witness opinions. But whenever possible, the Tech shall report facts, or at least corroborate the opinions. A reporter's observations at a scene are considered facts for the purposes of a story.

Sources
All sources shall be treated with respect and integrity. When speaking with sources, we shall identify ourselves as Tech reporters and clarify why we would like to hold an interview. Sources for the Tech will never be surprised to see their name published.
In published content, we shall put our sources' quotes into context, and — as appropriate — clarify what question was being answered.
We always ask that a source speak with us on the record for the sake of journalistic integrity. We want our audience to receive information that is credible and useful to them. Named sources are more trustworthy than unnamed sources because, by definition, unnamed sources will not publicly stand by their statements.
That being said, we realize that some sources are unwilling to reveal their identities publicly when it could jeopardize their safety or livelihood. Even in those cases, it is essential that the Tech Editor-in-Chief knows the identity of the source in question. Otherwise, there can be no certainty about whether the source and their quotes were falsified.
This also applies for Letters to the Editor and Opinion submissions to the Tech. If the author requests that their piece is published anonymously, they must provide a reason, and we shall consider it in appropriate circumstances. No truly anonymous submissions shall be published. Conversely, no submissions shall be published with the author's name without their consent.
When we choose not to identify a source by their full name, the article shall explain to readers why.

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The QR code will be hidden somewhere within or immediately around the pictured area.

Tech Editor's Corner

The Little Ghost

By Edna St. Vincent Millay

I knew her for a little ghost
That in my garden walked;
The wall is high—higher than most—
And the green gate was locked.

And yet I did not think of that
Till after she was gone—
I knew her by the broad white hat,
All ruffled, she had on.

By the dear ruffles round her feet,
By her small hands that hung
In their lace mitts, austere and sweet,
Her gown's white folds among.

I watched to see if she would stay,
What she would do—and oh!
She looked as if she liked the way
I let my garden grow!

She bent above my favourite mint
With conscious garden grace,
She smiled and smiled—there was no hint
Of sadness in her face.

She held her gown on either side
To let her slippers show,
And up the walk she went with pride,
The way great ladies go.

And where the wall is built in new
And is of ivy bare
She paused—then opened and passed through
A gate that once was there.



Edna St. Vincent Millay (Credit: Carl Van Vechten, poets.org)