The California Tech

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Fearlessness, Community, and Unfinished Work: Rosenbaum on His Caltech Presidency

(Photo: Caltech News)

Damian R. Wilson
News

As Thomas F. Rosenbaum prepares to conclude twelve years as Caltech's president, the Institute stands between continuity and transition. Under Rosenbaum's tenure, Caltech expanded its physical campus, deepened its investment in quantum science and sustainability, increased the proportion of Pell-eligible students, and navigated a turbulent national climate for higher education and federally funded research. In July, Ray Jayawardhana will become Caltech's next president.

Rosenbaum spoke with the *Tech* about unfinished work, student well-being, federal science policy, JPL, the role of universities in American democracy, and what should remain stubbornly Caltech.

This interview has been edited for length and clarity.

As you prepare to conclude twelve years as Caltech's president, what feels most unfinished?

There are a number of efforts we started but haven't completed. The Linde Center for Science, Society, and Policy is one that is close to my heart. I've felt that Caltech has something special to say here, because we do deep science and deep technology, and we can provide information and perspective to people who have to make policy about those kinds of issues. It's a new avenue, and it's starting well, but I would have loved to see it a little further along.

The Center for Quantum Precision Measurement is another. It brings together individuals from across campus who use quantum entanglement for many different purposes: chemists, physicists, astronomers, people working on LIGO, quantum computation, sensors like nitrogen-vacancy centers in diamond. I would have loved not only to see people come together in that building, which will be occupied this fall, but also to move on to the next stage: a quantum engineering analog. The combination of the two would position us for continued leadership in quantum theory and experiment for decades to come.

The Resnick Sustainability Institute is doing well, and I'm very excited that the undergraduate labs have opened there. What I like about that is that you embed the pedagogical aspect of learning how to do laboratory science in a building where frontline research is happening. Even when students are doing labs where the answers are known, they are surrounded by people using similar techniques to answer questions where the answers are not known. That is a natural connection we can make at Caltech: guesswork segueing into the creation of knowledge.

One of the things I am proudest of is that we have gone from roughly 11 or 12 percent Pell-eligible students to 20 or 21 percent. But we have to solidify that, and we have to get the story out: if you are a creative scientist who is passionate about discovery, Caltech is a great place for you to come. If you don't have the money to afford us, that should not stand in your way.

Continuing to make the case for why Caltech is essential for JPL is also unfinished work. The interconnection of campus and JPL scientists is essential for JPL's future success. Our co-investment in robotics,

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The Work Continues

Damian R. Wilson
Letter to the Community

Serving as Editor-in-Chief of *The California Tech* has meant learning that a newspaper is never simply present to itself. Each issue arrives as if final (laid out/proofed/printed/distributed) but it is also always provisional. A trace of arguments not fully resolved, conversations still unfolding, absences we could not quite make visible, and futures we did not yet know how to name.

In that regard, editing the *Tech* has been an exercise in responsibility to what exceeds the page. The work is not only to record what happened, but to listen for what is being deferred: the question not yet asked in a faculty meeting, the student experience not yet intelligible to administrators, the institutional contradiction that appears only in the margins.

Journalism — at its best — keeps faith with those margins. It refuses the comfort of closure while still accepting the discipline of print.

I'm deeply grateful to everyone who has made that work possible: our writers, editors, layout team, contributors, readers, critics, alumni, and the many people across Caltech who trusted us with their stories. Whatever the *Tech* has become, it has become through them.

It is also a joy to announce that rising senior Emily Yu will serve as the next Tech Editor. Emily, an ESE and HPS double major (hum double majors represent!) brings precisely the range of attention this paper deserves: scientific seriousness, historical imagination, philosophical care, and a deep commitment to the Caltech community.

As for me, I will remain with the paper next year as Editor Emeritus — an intentionally pretentious title that sounds more conclusive than it is. The trace remains; the work continues. I'm excited to support Emily and the next editorial board as they make the paper newly their own.

With gratitude and love for the written word, this newspaper, and this community,

Damian R. Wilson
Editor-in-Chief

CDS Responds to Reddit Post Alleging Issues at Browne Dining Hall

Emily Yu
News

On May 19, an anonymous Reddit user posted in r/Caltech, a Reddit forum for Caltech-related posts, alleging food safety, sanitation, and workplace issues at Browne Dining Hall. The post appeared under the username "No-Environment-3923" and was titled "PSA from a former cook: Be very careful eating at Caltech Dining Halls (Browne)." The *Tech* messaged the user through Reddit, who accepted the message request but did not reply before the account was deleted.

In the post, the user claimed to be a former Caltech Dining Services (CDS) cook with 15 years of professional kitchen experience, though the *Tech* has not independently verified the poster's identity or employment history. The post alleged several food safety and workplace issues, including cross-contamination and allergen-separation concerns, temperature-control problems, grease buildup, pest concerns, an electrical hazard, and concerns involving a manager's conduct and a dog being brought to facilities. The post also stated that the author had filed a complaint with the Pasadena Public Health Department (PPHD).

Later that evening, Food Committee (FoodComm) Chair Sophia Steven (CS '26, Venerable) sent an email to undergraduates that included a

Browne Dining Hall. (Photo: Emily Yu)

statement from CDS saying, "All Caltech dining facilities are subject to regular inspection by the Pasadena Public Health Department (PPHD). These inspections are unannounced and typically happen quarterly. Inspection reports and results are publicly available on the PPHD website (search for Caltech). No [CDS] facility has ever received a rating lower than an A-equivalent within the last 10 years that we have records available." The email also stated that CDS reached out to PPHD "to proactively engage them in this case."

In conversations on May 29, May 31, and June 1 with the *Tech*, Director of Dining Services Jaime Reyes addressed the claims in the Reddit post and discussed the May 27 inspection report. The week after the post appeared on Reddit, a PPHD representative came to Browne Dining Hall on May 27 and conducted an inspection. Jaime reiterated that CDS immediately reached out to PPHD on the day of the post and said PPHD does not notify facilities before inspections. He said Browne did not prepare for an inspection after the post, adding that his policy is not to prepare for inspections but to make changes afterward based on the findings.

The resulting placard displayed in Browne listed a "Conditional Pass" and a score of 72. On June 1, a PPHD health inspector returned around

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noon to update the placard after PPHD identified a scoring error. In an email from PPHD to CDS reviewed by the Tech, PPHD stated, "When an inspection results in a Conditional Pass (a score below 85) 12 points is automatically deducted from the original score. However, that is only the case during the reinspection. Since this is not a reinspection, I have adjusted the score back to the original score which was an 84. My apologies on this mistake." The follow-up inspection will be conducted on or before June 15. The prior PPHD report for Browne was a Feb. 3 routine inspection, which listed a rating of "Pass" and a score of 96.

According to Pasadena's Retail Food Field Inspection Guide, scores are determined by deducting the point value assigned to each violation from an initial score of 100: 4 points for a major critical risk factor violation, 2 points for a minor critical risk factor violation, 1 point for a good retail practice violation, and 26 points for an imminent health hazard. A 12-point deduction applies "when a food facility has been issued a Conditional Pass and a major violation is observed during a follow-up inspection, or when the facility was unable to earn a score of 95 or above during the inspection."

The May 27 inspection report reviewed by the *Tech* listed four minor violations and eight good retail practice violations, accounting for 16 of the 28 points deducted. Those counts were also detailed in the inspection summary provided to the *Tech* by Jaime and Sophia. Access to the summary requires signing in with a Caltech Google account.

The four minor violations related to dry hand-washing stations and glove use, temperature control, food-contact surface cleaning and sanitizing, and pest concerns. The eight good retail practice items marked out of compliance involved equipment maintenance, warewashing, ventilation, garbage facilities, storage of personal items, vermin-proofing, and floor cleanliness. Among these items were unused equipment in storage areas, a plastic measuring cup stored in a rice container, and garbage containers with lids left open.

The report did not list violations matching several specific allegations in the complaints and Reddit post. The inspection summary states that some corrective actions were completed during the inspection, while others had already been scheduled or were planned.

Before the May 27 inspection, FoodComm discussed the Reddit post at its May 21 meeting, according to the meeting minutes shared with committee members after the meeting. In response to cross-contamination and allergen-separation concerns, the minutes state that the Special Meals program has one cook in a separate special-meals kitchen. Materials are color-coded by allergen and equipment is sent to the dish room for washing and sanitizing after use.

On the post's claims about bugs in the salad bar, the minutes state that CDS buys prepackaged, washed lettuce and checks it before serving, though occasional bugs can be difficult to identify. The minutes also state that Browne did not have broken laminate and a pest control company consistently visits every other week, or sometimes once a week, depending on need.

The May 27 inspection reported three rodent droppings in the scullery room and one nymph German cockroach in the basement dry storage room, with no other evidence of pest or vermin activity observed. According to the summary, the droppings and cockroach were removed during the inspection, and CDS "is sealing gaps larger than ¼ inch, keeping exterior doors closed when not receiving deliveries, and continuing pest-control services."

The minutes also addressed the post's claim about overflowing grease interceptors. According to Jaime, large interceptors are cleaned every three months and smaller ones every six months for thoroughness, although they are not required to be cleaned that often. The minutes state that reports showed 11% to 25% fill levels, and the interceptors were "not even 50% full" when cleaned.

The May 27 report listed an out-of-compliance item for garbage facilities, including heavy grease accumulation on a grease collection container and the surrounding wall and floor. The summary says CDS cleaned the affected area and planned to restrict use of the container, which management said "was primarily being used by outside groups (grad students)." Management also said CDS has a separate main grease waste system under the facility.

According to the minutes, FoodComm also discussed reports that more workers appeared to be cleaning in Browne on the day of the Reddit post. The minutes state that only regularly scheduled employees were working and that CDS did not believe extra cleaning had taken place.

As for the dog referenced in the post, Jaime said the dog had not been in the kitchen and had stayed only in an office separated from the kitchen. He also said staff were not required to walk the dog. According to the May 27 inspection summary, "the dog was not present in kitchen areas and will not be brought into the facility until all required approvals (for Service Animals) are completed." In this context, Jaime clarified that "facility" referred to the office area of Browne, not the kitchen.

Jaime also said CDS buys the majority of its food from Sysco and receives three deliveries per week from the company, while most produce is delivered six days a week. "I am paying a little more, but I want to make sure that we're having fresher produce," Jaime said. Sophia added that CDS expenses also include labor and software for functions such as timekeeping.

A Reddit commenter claimed CDS generated a profit last year. The *Tech* did not find public financial records disclosing CDS's standalone profit or loss. Caltech's audited financial statement for fiscal year 2025 does not report CDS separately. The statement says, "Auxiliary enterprises expenses include the costs associated with revenue-generating supporting services, including undergraduate room and board, graduate and faculty housing, retail stores, and dining facilities."

Asked about the May 19 poster's identity, Jaime said CDS does not know who wrote the post. CDS has not had a cook resign since December, and the cook who left then did so for another job and remained on good terms. Jaime said CDS uses staffing companies, and the poster could have worked for one of them. The May 21 FoodComm meeting minutes also list a temporary employee from a staffing company as a possibility. The original post indicated that CDS employees are unionized, but they are not. A comment on the post addressed the discrepancy, and the original poster replied, "I stand corrected," before removing the reference.

Following the Reddit post and May 27 inspection, Jaime said CDS reviewed existing procedures and expanded its current checks. CDS increased kitchen sweeping at Browne from four to five times a day, added an extra spot check, added additional cleaning for the North Kitchen, and increased hood cleaning from twice to three times per week. The May 27 summary also lists increased hood-cleaning frequency and increased sweeping and mopping frequency as corrective actions.

In Sophia's May 19 email to undergraduates after the Reddit post, she included a link to an anonymous Google Form for students to share concerns, experiences, or questions. On May 31, messages in an unofficial group chat for parents of Caltech undergraduates reviewed by the *Tech* encouraged parents to email the president's and dean's offices about dining hall concerns.

The May 21 minutes also state that Jaime has an open-door policy and students can come to him with concerns. In a conversation with the *Tech*, he added that CDS events such as pop-up bistros, farmers markets, Midnight Madness, and the Halloween Maze are intended to help make students more familiar with Dining Services staff.

Both Jaime and Sophia emphasized that FoodComm is one way for students to raise dining-related concerns. Affiliated students can bring concerns to their house representatives, while unaffiliated students can reach out directly to the chair. Each week, the committee meets with Kristen Pineda, Administrative Assistant for Dining Services, and Jaime to discuss what went well and what could use work. "I'm really lucky because Jaime and Kristen and all of CDS have been really receptive to student feedback," Sophia said. "I know that other committees and other people on campus may be less receptive to student feedback, but [CDS] always takes what the students are bringing very seriously."

Sophia also said that all FoodComm representatives can access the weekly meeting minutes. Some CDS changes, including individually packaged Nutella and peanut butter instead of jars in Open Kitchen, came from FoodComm feedback. Jaime said he would like to see more participation in FoodComm, and Sophia said broader participation, including the possibility of adding an unaffiliated representative, could help students bring concerns forward.

Two Random Food Reviews

Victoria Davis

Column

Hi *Tech* readers! I've been very busy these past two weeks — nonstop lab work on weekends as I finished preparing for one beamtime, and am starting preparations for a second beamtime now! As a result, I did not have time to review any of the remaining restaurants in the SGV Food Passport yet. I will have more time in July, so I will try to swing by them then! For now — because I know you would feel deprived without a food review from me — I will just tell you about an adventure Kayane and I had when we were supposed to check out Edwin Mills. It was an unseasonably warm day in March, and Kayane and I planned to grab soaps from Bath & Body Works then walk over to Edwin Mills. When we parked, we stumbled upon an Etsy fair. We grabbed our soaps from Bath & Body Works, put them back in the car, then headed to the fair. Kayane bought a beautiful necklace at one of the booths. I bought two chocolate chip cookies at the Danielle's Cookies booth. The cookies were giant and amazing. 10/10. Would buy again. I actually think they're better than Cairn Cookies.

As we continued to browse, it got hotter and hotter. We decided not to walk in the blazing sun over to Edwin Mills and instead go to Panini Kabob Grill for lunch. It was not excellent in my opinion. I ordered the chicken Caesar wrap which came with a side of pasta salad and hummus. The chicken was dry and tasted stale. I stopped eating halfway through. Still hungry but unable to stomach the chicken, I then proceeded to peel the tortilla off of the second half of the wrap and dip it into the hummus to eat. Kayane ordered the lamb kabob with a side salad and rice. She seemed to like her dish. The restaurant was stuffy and warm, and it took far too long for us to get the check. I would not go back, sadly.

I am determined to go to Edwin Mills before the SGV Food Passport expires, so stay tuned for my review when the *Tech* returns during fall. Have a great summer everyone! Until next time!

S'mores Chocolate Chip Cookie by Danielle's Cookies.
(Photo: Kayane Dingilian)

Chicken Caesar Wrap, Pasta Salad, and Hummus by Panini Kabob Grill.
(Photo: Victoria Davis)

Lamb Kabob, Caesar Salad, and Rice by Panini Kabob Grill.
(Photo: Victoria Davis)

End of Term: Wishing You a Great Summer from Housing & Dining!

Miguel Campos
News

Hello everyone from Housing and Dining Services!

As the final stretch of the academic year wraps up, we want to take a moment to congratulate all of our students on completing another incredible term. To our graduating seniors, congratulations! We are so incredibly proud of everything you've accomplished during your time at Caltech, and we wish you the absolute best on your next adventure.

Before everyone heads off for break, we have a few critical year end housing deadlines, moving procedures, a celebration announcement, and a sneak peek at what's coming next.

Housing Updates

Please review these critical procedures for both summer residents and those departing campus to ensure a smooth transition and avoid penalty fees.

For Students Moving into Summer Housing The official Room Move period starts on **Saturday, June 13th**. You will transition to your summer assignment as soon as your new room becomes available.

- **Wait for Notification:** You will receive an email when your new assignment is ready. **Do NOT start moving beforehand.** You are highly encouraged to pack early, but do not place items in hallways or common areas prior to notification.
- **Check Your Email & PIN:** When your new room is ready, you will receive an official "Room Ready" email notification from Housing. Once received, you must log into **My Student Documents** to retrieve your new room combination or PIN. If you experience any technical issues opening your document, contact the Housing Office immediately.
- **Flexible Timing:** Because you are executing an internal room move, you will **not** be penalized if your move happens after 11:00 a.m. on Saturday, June 13th.
- **The 2-Hour Move Window:** Once you have retrieved your new combination/PIN and gained access, please complete your move within **2 hours** so staff can inspect and clean your previous room for its summer resident.
- **Carts & Check-Out:** Carts will be available to borrow while the Housing Office is open on Saturday and Sunday. Once your old room is entirely clear, you must immediately submit a paper Check-Out form to avoid a **$100 improper room move fee**.
  - ☐ *Form Submission:* Bring forms to the Check-Out tables in the Center for Student Services lobby on Saturday and Sunday (June 13–14) from 9:00 AM to 4:00 PM.
  - ☐ *After-Hours:* If moving outside these hours, drop your paper form into the after-hours drop box located to the right of the main Housing Office entrance on Holliston Ave.

For Students Checking Out for the Year The undergraduate housing contract officially ends on **Saturday, June 13, 2026, at 11:00 AM**. To complete your checkout successfully:

- **Clear the Room:** Fully vacate your assignment. Remove all personal belongings, including non-Caltech furniture, trash, and debris.
- **Reset Furniture:** Assemble and return any stored furniture that belongs to the room.
- **Submit Your Check-Out Form:**
  - ☐ *Before Friday, June 12 at 4:00 p.m.:* Submit an electronic form online at housing.caltech.edu/undergrads/undergraduate-moving-out/housing-check-out-form.
  - ☐ *After Friday, June 12 at 4:00 p.m.:* Submit a paper check-out form. If checking out after hours, use the Housing Drop Box outside the front doors facing Holliston Ave.
  - ☐ *Saturday, June 13 (9:00 a.m.–11:00 a.m.):* Submit your form in person to the Housing Office team in the Center for Student Services lobby.

Important Note on Fees: To avoid fee assessments, ensure your room is completely clear. Damage fees will be charged for missing or unassembled furniture, left-behind trash, excessive cleaning needs, wall damages (paint tears, pin holes, gashes), and floor damages (stains, tears, burn marks). Any items left behind will be discarded at the owner's expense.

If you have any questions, please email the undergraduate housing office directly at ughousing@caltech.edu.

The Dining Scoop

Midnight Madness is Coming! — As we move toward the final days of the school year, there is still plenty of excitement left on campus. We are edging closer to hosting our highly anticipated, super-secret Midnight Madness event for all undergraduate students! Our team is hard at work preparing an exceptional menu. We can't wait to host you all very soon with delicious treats, late night favorites, and a much needed chance to unwind and destress together during finals.

Commencement Viewing at Browne Dining Hall — For those celebrating our incredible graduates, we will be broadcasting the Commencement ceremony live inside Browne Dining Hall. If you have family, friends, or guests who aren't able to secure a seat under the main commencement ceremony tent, or if you simply prefer a cooler indoor environment to watch the milestone, come on by! Grab a seat, enjoy the air conditioning, and cheer on the Class of 2026 on the big screens.

A Fresh Look at Food Choices This Summer — We want everyone to look forward to an exciting new sustainability initiative rolling out during the very first week of the summer term! Organized in proud partnership with the Graduate Student Council (GSC) and Plant-Based Caltech (PB Caltech), this program will introduce a fresh, climate-conscious framework to help our community evaluate daily food choices. We are thrilled to bring this forward-thinking collaboration to campus, so please keep an eye out for our summer launch details!

Summer Hours of Operation — Planning to stay on campus for summer research, housing, or SURF projects? Please be sure to review our upcoming summer hours of operation. Dining schedules, service formats, and open locations will be adjusted from our regular term hours to accommodate the summer campus shift. You can find the fully updated calendar and operational matrix posted on our website at dining.caltech.edu as we head into mid-June.

Connect With Us!

Thank you all for an amazing year. It has been our absolute pleasure serving you, and we look forward to continuing to serve you and welcoming many of you back next school year. Until then, we wish everyone a fun, relaxing, and safe summer!

- **Dining Questions:** dine@caltech.edu | dining.caltech.edu
- **Housing Questions:** housing@caltech.edu | housing.caltech.edu

NASA to Compete JPL Management Contract as Caltech Prepares Bid

Damian R. Wilson
News

NASA announced on May 22 that it will open the next contract to manage and operate the Jet Propulsion Laboratory to competition, marking a potentially significant change in the nearly seven-decade relationship among NASA, Caltech, and JPL.

Caltech has managed JPL for NASA since 1958, when the laboratory was transferred from the U.S. Army to the newly established space agency. JPL itself traces its origins to Caltech researchers in 1936. NASA's current contract with Caltech began on Oct. 1, 2018, and runs through Sept. 30, 2028, with a potential maximum value of $30 billion if all options are exercised.

NASA said the competition is intended to ensure accountability, taxpayer value, and continued mission performance at the federally funded research and development center (FFRDC). In its announcement, the agency pointed to the growth of the U.S. space economy as a reason to assess whether a viable competitive market now exists for portions of JPL's programmatic and institutional operations. NASA also said beginning the process now would allow enough time for a full competition and award cycle while maintaining continuity for ongoing missions and laboratory operations.

In a letter to the Caltech and JPL community the same day, Caltech President Thomas F. Rosenbaum and JPL Director Dave Gallagher said the announcement "comes as no surprise" and that Caltech "welcome[s] a fair and open competition." The letter noted that Caltech had established a team last summer to prepare for the process and will respond once NASA releases a request for proposal.

Rosenbaum and Gallagher framed the competition as part of a standard federal procurement process. They pointed to NASA's earlier market research through a Sources Sought Notice and an Industry Engagement Day held in July 2025, both intended to gauge interest from potential competitors and seek broad participation in the procurement.

NASA emphasized that JPL's work remains "critically important" to the agency and said it is committed to maintaining continuity for active and future missions throughout the procurement process. The agency also stated that it is committed to keeping the FFRDC at its existing physical location in Southern California.

The letter from Caltech and JPL emphasized the historic achievements of the partnership, citing the first Mars rovers, the first U.S. soft landing on the Moon, and the only spacecraft to enter interstellar space. It also highlighted recent operational changes at JPL, including restructuring, cost-reduction initiatives, and a new contracting mechanism intended to expand reimbursable and philanthropic work.

Those changes, Rosenbaum and Gallagher wrote, are meant to help JPL adapt to the current environment while continuing work aligned with NASA priorities, including robotic exploration, support for human spaceflight, and contributions to U.S. national security.

(Photo: NASA/JPL-Caltech)

The announcement comes as JPL prepares for several near-term launches, with the letter identifying as many as five in 2028: FALCON, EAGLE, SkyFall, MoonFall, and GRACE-C. Rosenbaum and Gallagher said Caltech and JPL remain focused on delivering those missions as the contract process unfolds.

For the JPL community, the immediate message from both NASA and Caltech is continuity amid competition. NASA is opening the management contract to bids, but not signaling a retreat from JPL's role in the agency's science and exploration portfolio. Caltech, meanwhile, is positioning itself as an active competitor prepared to defend its long stewardship of the laboratory.

Editor's Note: We want to hear your perspective!

We strive to represent every voice in the Caltech Community with fairness, accuracy, and impartiality in our news reporting. If you think we missed something, or just want to share your thoughts about a topic we've reported on, I encourage you to submit a Letter to the Editor!

Send submissions or contact the *Tech* editorial team at

tech@caltech.edu

Submissions are due at 12 p.m. on the Saturday before each biweekly Tuesday publication.

Rosenbaum

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quantum, and space science, along with NASA's investment, makes JPL the premier place for robotic space exploration in the universe.

Those are some of the areas where we are either not there yet or are still along the pathway. But I've also learned that you are never going to finish everything you want to do. You come to terms with that. I hope some of the initiatives that have been started but not yet reached fruition will be embraced by my successor, but of course that is his decision.

When you arrived in 2014, what did you think Caltech most needed to become? Looking back now, where did the Institute change in ways you did not anticipate?

I didn't come in with a grand vision of changing Caltech. What I really wanted to do was understand the culture keenly and enhanced that culture. I came from the University of Chicago, which has a similar culture, but the intensity and ambition of Caltech are unparalleled.

My job, if you will, over these last twelve years has been to preserve that culture and make us the most attractive place for creative, original scholars from every background and perspective. I wanted us to have the resources to help them succeed. I wanted Caltech to be a place more accepting of a broader range of people than it is usually known for—all with the scientific chops, but with very different backgrounds. That is the kind of change I wanted to see: an enhancement of who we are.

In terms of buildings, I was involved in helping build more than I intended to. I didn't come in to build buildings. But I view them as tools: tools for people to accomplish the research they need to do. That modernization was an important element of keeping Caltech competitive.

But most of all, it's about people. Everything I've tried to do is make this the kind of place where, if you are fearless about attacking problems — whether you are a student, postdoc, faculty member, or staff member — you want to come to Caltech.

What should a new president protect most fiercely about Caltech?

The fearlessness of the scholarship. We want to hire people who surprise you with their insights. We want to provide an environment where people are challenged to become the best they can be. We want to allow people to switch fields if they feel their skills can be applied to a new problem that they haven't worked on before, but that may be more important or impactful.

We want to be a place committed both to fundamental discovery and to translating those discoveries into technologies that make people's lives better. I hope Caltech will remain a place where people can move back and forth along that continuum.

A lot of our peers wind up on one end or the other of that spectrum. The small size and intimacy of Caltech allow us to have exchanges in which people can move along that continuum and not feel pigeonholed. That intellectual freedom is an unusual part of Caltech. I am confident Ray will not only protect that fiercely, but work hard to make it an even more powerful aspect of Caltech's culture.

Are there areas where you think Caltech needs fresh eyes rather than continuity?

I think so. I was originally going to step down after about a decade, but the trustees asked me to stay a little longer. I do think it is important for people to come in with new ideas. Every president of Caltech has been hired from the outside, and every provost from the inside. Part of the reason for that is that you want somebody to step back and say, "This is great the way Caltech is doing it," or, "Caltech has done this for years, but why? Are there better ways?"

In a dynamically changing world, there are lots of questions about the shape of education, the size of an institution, particularly if federal funding is going to be decreased, the relationship between universities and industry, and the social compact. Universities educate the next generation of participating citizens and create knowledge that helps society, but we have not been terribly successful recently in making that case—the value of universities to American democracy.

So looking at this in a different way and asking which parts of Caltech work, and which parts do not work as effectively as they could, is perfectly appropriate.

We have a strong principle here of faculty governance. Whatever decisions are made to change direction, you need input from the community. If it's an academic aspect, that is clearly the purview of the faculty, but the students are extremely important as well and need to have a say. One of the things I've appreciated about Caltech is that we are small enough to have that exchange.

What risks come with a leadership transition at an institution whose culture is so decentralized and faculty-driven?

I'm a big believer in distributed authority, which is the notion that you try to push decisions down to the level where people have the most expertise. That is the decentralized aspect of Caltech, and I think it works very effectively, particularly in a community where you have strong-minded individuals with a lot of talent.

But you also need some cohesion, which is the central aspect. We tend to set standards centrally at Caltech and then allow the different units to meet those standards or requirements in ways that are consonant with their individual cultures.

There is always risk when you change leadership: can people adapt to that kind of system, get input from the requisite parties, and at the same time recognize that at some point you have to make a decision? I mean this in a general sense, not about Ray specifically. It is the challenge for anyone who comes into a new situation. Caltech has a very particular culture, and respecting that culture is very important.

What should students reasonably expect to change under a new president, and what should they expect not to change?

I don't think the Core is going to change in its fundamental structure. We are committed to the notion that students should be exposed to different ways of thinking about major problems, employing quantitative skills across a broad spectrum of disciplines. The Core may change in its details, but not in the philosophy of what we are trying to teach.

I don't think our research emphasis is likely to change. I don't believe that our commitment to maintaining a cross-disciplinary, interactive core campus will change.

Some questions about running other big organizations may change. We have the recent example of a collaboration with Amazon Web Services for quantum computing. Is that the kind of model we want to reproduce? We run the largest telescopes in the Northern Hemisphere. We run an early earthquake warning system up and down the West Coast. The American Institute of Mathematics came here. We are trying to set up an innovation center on Green Street.

Those elements are not core campus activities, but they are related activities that give Caltech the ability to have more impact on the world. The way you structure the organization between its core activities and related activities could change, depending on how much the next administration wants to think about that. Caltech's positioning with respect to the external world—interactions with government, interactions with industry—could take a somewhat different shape.

But I don't think the Caltech we know and love is going to change in fundamental ways. I hope not.

One recurring student concern is that Caltech's intensity can become isolating rather than inspiring. How do you assess the Institute's progress on undergraduate well-being?

We have invested hugely in trying to provide the resources for students to succeed, and to succeed in healthy ways. Part of that is providing opportunities outside the classroom. When I talk to students, I try to get across the notion that developing passions in life is part of what you come to college for. Making friendships that last a lifetime is part of it, too.

Obviously, you want to become a spectacular scientist or engineer, or follow whatever pathway you want in life. But you may also want to get involved in public service, sports, music, or the humanities and social sciences — to expand your view of the world, to learn about empathy, to spend time with your friends and not just in the classroom.

We've tried to provide not only encouragement for that, but resources that make it easier. Having said that, we have not cut back on the intensity of the academic experience. So there is a tension.

We've tried to provide more support in terms of mental health, having RAs in the residences, having faculty in residence in at least some of the houses. We count on the students themselves for a lot of leadership in this, and they are wonderful in that respect. But we have to be careful not to burden them too much. The ones offering help to their peers need to feel they have the support they need.

One of the things we changed that I was very committed to was building Bechtel. We didn't have enough beds on campus for people to stay on campus for all four years. Now we do. That doesn't mean all students stay for all four years, but they have the option, and I think that is very important in terms of feeling located and having that comfort.

We have a challenge in terms of providing enough housing for graduate students, however, and we are trying to work on that. That is another piece of unfinished business: trying to develop more support for graduate students in terms of affordable housing close to campus.

Decades ago, roughly two-thirds of our students graduated. Now roughly 95 percent of our students graduate. That is an indication that the support structures have improved. We have the Center for Teaching, Learning, and Outreach, which helps students maneuver their way through classes and helps faculty become better educators. We work a lot with young faculty in particular as they develop the skills not only to teach, but to run research groups involving both undergraduate and graduate students.

But there is still a lot of work to be done, no question.

What have students taught you about Caltech that faculty or trustees could not?

Let me answer it this way. The first night students arrive on campus, they come over to the President's House for dinner in the garden. To be honest, it is not Cathy's and my favorite event, because the students are just new on campus and a bit like deer in headlights.

We then instituted senior celebrations, where seniors come over, fifty or sixty at a time, to celebrate the fact that they are leaving in the sense of graduating, but will always be part of the Caltech community as alumni.

The contrast between those two events is extraordinary. What I've learned from students is their remarkable ability to develop as scholars and as human beings in a relatively short time.

The confidence students have — you are all going off to change the world in good ways. I think your generation has a lot of idealism. I recognize in it some of what I grew up with, since I grew up at the end of the 1960s and beginning of the 1970s. I think it's a wonderful thing, and I take a lot of hope from that.

For a lot of us, the reason we like being in academia is that every year we meet these extraordinarily talented young people who are going to go out there and change the world, and they are not thwarted by the belief that it is not possible.

As you get older, you sometimes tend to be more cynical about the ability to do that. Being in touch with students is a pleasure and a privilege.

Caltech's research enterprise depends heavily on federal support. How should the Institute defend basic science at a time when federal research funding has become more politically vulnerable?

We have tried to make an apolitical statement about the value of research to American society, whether it is improving people's health, creating jobs for the economy, or contributing to national defense. Science and engineering are critical for all of those.

Often, the public does not connect the dots in terms of how investment in science has made their lives better. Part of what Caltech can do is get that truthful story out. We launched the Caltech Science Exchange, which tries to bring the public unbiased reports of advances in different scientific fields, and importantly, to explain what we know, what we don't know, and why.

The other thing is that we have gone to court on a number of occasions to defend the research enterprise when we believed there had been unlawful actions taken by the federal government. My view is: if Caltech won't stand up for research, who will?

Beyond that, we continue to try to do the best research we can and make society as good as we can. I am optimistic that, long term, even if there may be damage in the short term, those contributions will be appreciated and lead to reasonable funding.

In the last budget cycle, Congress rejected the president's budget and was very supportive of continued investment in research. There is also a tension these days between industry and university research. There is a view in some quarters that industry can do everything. I don't think most industries believe that. One thing we can try to explain is that this is a complicated discovery and innovation ecosystem. You need the de-risking and longer-term research of universities, and you need the scaling and shorter-term implementation of industry.

It is not either/or, and the parts are not interchangeable. That is an important point that is missed in some of the more facile discussions about where American technology and innovation are going.

What is Caltech's responsibility to JPL during periods of NASA uncertainty, layoffs, or changing federal priorities?

JPL has been under a lot of stress. Its financial structure is different from the rest of Caltech's in that it has one patron, or largely one patron, and that patron is NASA. JPL is trying to diversify to some extent now, but when that patron turns a cold shoulder, there is little protection.

What has been disappointing to me is that the government has not understood that once you lose great people, and the capability that goes with them, it is very hard to put it back together. JPL has extraordinary people. It is the nation's reservoir of talent for deep-space exploration. Short-term measures can have long-lasting consequences.

Caltech's role is to make that case as effectively as we can: for philanthropy, not directly to a government lab, but to Caltech for collaborative efforts to support some of the workforce; and to make a value statement about why JPL matters. Not just for Caltech, but for the world as a whole.

We have been trying to do that, but the boundary conditions are not favorable.

How should Caltech communicate the value of basic research to a public that often wants immediate application?

I think what we have done better — and Shayna Chabner gets a huge amount of credit for this — is tell stories.

We all live in the world of equations, and we can probably exchange some and get some benefit out of it. But most people connect much better to stories of discovery or challenge that involve other humans and their personal journeys. We

have lots of those on campus, given the extraordinary people here and their very different life experiences.

We have tried much harder now to talk about science by relating scientific journeys to personal journeys. We have also done a better job with multimedia: videos, cartoons, whatever it might be. That is something we traditionally have not done very well.

We also have salons where we bring people together to talk about what is going on in science. A lot of this is targeted to policymakers, and we are engaged with industrial leaders as well. This is an area that could now be amplified, and I think we will see it amplified.

Parents also pay attention to universities in an extraordinarily deep way when their children are applying to college. The story we can tell about what it is like to come to Caltech, what the environment is about, and what our values are is another opportunity to get the Caltech story out to people who are paying deep attention, at least for a specified period of time.

Has the role of a university president changed since 2014? Is the job now more political than when you began?

It is hard to separate the effects of the pandemic, fire, social unrest, and government actions over the last five years from more general changes in the role of the university president. It has been a turbulent time.

I think the role has gotten more complicated. There have always been different constituencies to satisfy: students, faculty, trustees, alumni, government, general society. What is more difficult now is that a lot of those constituencies are at loggerheads. That makes it harder to maneuver.

The idea is not to be friends with everyone, but you do want to accommodate people's needs. What I could do was stay true to our values, explain why we were doing things, and be more transparent about process.

One of the biggest challenges in being a university leader is making sure the process is above reproach. People need to have true input. Obviously, you cannot do what everybody wants, and it may not be right to do what everybody wants. But you have to take seriously what people say and then explain why you are or are not doing what they are asking.

On the other hand, you are in an environment where you get to talk to really smart, interesting people and learn from them. Holding on to that is necessary to enjoy the job.

What does Caltech owe Pasadena and Los Angeles beyond employment, prestige, and scientific output?

It is really important that we are embedded in community. We have the 100th anniversary of the Associates coming up—a group of men at that time, and now of course men and women, who came together in 1926 to support Caltech philanthropically. There is something interesting about a university that owes its early days to Associates, members of the broader Pasadena and Los Angeles community.

Being embedded in community shapes an institution. It is also a practical back and forth, not just in the exchange of money and employment, but in creating jobs, in having people want to come to Caltech because of the joy of living in Pasadena, and in contributing to the cultural life of the community. We also benefit from the extraordinary institutions around us.

That was George Ellery Hale's original vision: that Mount Wilson would be the center of technology, the Huntington literature and art, and Caltech science. In different forms, we still see that kind of interaction. Together, the pieces make a whole.

There are a lot of universities that have very poor relationships with their surrounding communities — famously, Harvard and Cambridge. One of the great things here is that the relationship between Caltech and Pasadena and San Marino has been very good. I have gotten to know city leaders reasonably well, and we are in communication. I think we are aligned in trying to do good things for the general neighborhood.

You maintained a condensed matter physics research group while serving as president. How did remaining an active scientist shape the way you governed?

I view it as a value statement. One of the things I love about Caltech is that every academic administrator continues to do research, which is our mission: to create knowledge and educate the next generation of scientific leaders.

I do not teach lecture courses, but I do have graduate students and undergraduates working in our laboratory, so at least I get to be a mentor. That has been extraordinarily important for me. I really enjoy the juxtaposition — the multiplexing associated with my administrative job and then carving out space to think about science and how the world works in my research role.

Admittedly, I spend the vast majority of my time on the presidency. But the other part is both a personal respite and source of joy, and an important statement about what Caltech is about.

In terms of nuts and bolts, I am draconian about protecting Friday mornings to meet with my group. I have a very small research group, at most three or four students, and I have a senior scientist, Dan Silevitch, who helps run the laboratory day by day. In good conscience, I could not do what I do without Dan's help, because it would not be fair to the students.

I meet with my students every week. I try to understand what they are doing and help guide them. Caltech is one of the few places where one could imagine doing this in a reasonable fashion. That was one of the major attractions of coming to Caltech for me.

What will you miss most about the role?

The entrée I have had to meet interesting people. I can call up almost anybody, and most of them will take my call.

What advice would you give students who feel both proud of Caltech and exhausted by it?

I hope students will look back on their time here as a time when they were challenged, became better versions of themselves, grew in extraordinary ways, developed passions for a lifetime, and gave it everything they could.

I'm not sure exhaustion is a bad thing. If you feel you have been beaten down and have not been inspired to accomplish other great things, that would be negative. But I hope students are exhausted because they have been pushed to their limits in a good way and embraced all kinds of opportunities. I understand that is not true for everyone, but that is my hope.

What would I tell them? Continue to pursue your passions. Ignore people who tell you something cannot be done. Go try to do it. If it does not work one way, you will figure out another way to get where you want to go.

When Ray Jayawardhana takes office, what do you hope the Caltech community gives him that it gave you — or perhaps did not give you soon enough?

People are amazingly welcoming. Cathy and I had spent most of our careers in Chicago. I was at the University of Chicago for 21 years, and Cathy was at Northwestern for 27 years. When you move this late in your career, you do not know what to expect. How do you create community?

To our great joy, we found that coming here, we could create community. I think I know most of our faculty colleagues. I have met a good many students and postdocs, though of course the turnover there is quicker. I really felt this could be home.

I do not think that happens at a lot of places. Part of it is size, but part of it is the attitude about the kind of community Caltech wants to be. I do not know if you notice in my writing, but I harp on a lot about the importance of community. I care about it a lot. I think it is one of Caltech's greatest strengths.

Both Cathy and I have experienced the best parts of that, and I hope and fully expect that Ray and Catherine will feel the same.

If we did not feel that way, we would not have stayed. So we are voting with our feet.

If Caltech's next decade succeeds, what will be different here — and what will have remained stubbornly, recognizably Caltech?

The essential culture will stay the same: the belief that you want an interactive, interdisciplinary community that is extraordinarily ambitious. I have every faith that will continue.

I also hope we will be the kind of place that people from around the world and around the country, people who care deeply about learning science, creating knowledge, and making the world a better place, will want to come to. That constantly takes attention, but I think Ray will be starting from a good place.

What do you most look forward to in the post-presidency years?

I want to learn some more physics. I am really looking forward to having more time with my students. And, of course, our kids are east: we have one son and family in Chicago, and one son and family in New York. We will be spending more time with them.

Thank you so much for your time, President Rosenbaum.

My pleasure.

Cal-ArtGuesser

Can you guess how this was made?

Clues: 1) No computing device was used.

2) No animal (or human) was harmed.

3) The top-right picture has more clues.

(Credit: Jean-Luc Itti)

Senator Adam Schiff Goes Down the Quantum Rabbit Hole at Caltech

Damian R. Wilson
News

On May 27, California Senator Adam Schiff visited Caltech for a tour that moves from the hardware of quantum computing to the philosophical puzzles of quantum mechanics. Schiff, joined by his wife Eve, toured Professor Manuel Endres' lab, met with President Thomas F. Rosenbaum, and spoke with John Preskill about entanglement, hidden variables, many worlds, time travel, and what Feynman might have thought of AI-generated Feynman lectures.

Schiff came to campus not as a passive dignitary, but as a self-described quantum enthusiast. Asked what brought him here, Schiff said he has long been fascinated by quantum mechanics, "and by entanglement in particular." As the former chair of the House Intelligence Committee, he said, he received briefings on quantum computing and watched the field move from long-range possibility toward technological reality.

"I remember briefings from a decade ago, when there was still a great deal of technological uncertainty and profound questions about whether this was really doable — whether it was some phantom we would be chasing for decades," Schiff said. "Now it feels much closer to becoming a real, viable quantum technology. It is fascinating to see what that looks like in the lab, to be on campus, and to be on the brink of these discoveries."

That brink, in Endres' lab, looks like lasers, optical control, safety goggles, and the painstaking work of turning atoms into reliable carriers of quantum information. The tour included a look at in-lab optical qubit control, as well as discussion of quantum error correction, one of the central challenges facing the field.

The visit also gave Schiff a chance to connect scientific ambition with federal policy. Asked how Congress should protect long-horizon science from short-term budgetary politics, he argued that the United States' scientific strength has depended on attracting talent from around the world.

"What has always helped this country prosper is our ability to attract the best and brightest minds," Schiff said. "I saw that in the lab today, with scientists from Japan and Germany. I saw it all the time at JPL: our institutions have been magnets for brilliant people from around the world because of the strength of American science."

He warned that this advantage is precarious. Recalling a conversation at Reagan National Airport with a recent Johns Hopkins STEM graduate planning to work at NASA, Schiff said he told the graduate that NASA was facing a difficult budget moment. The student replied, according to Schiff, that in his entire graduating class, he was the only one who was not leaving the country.

"That was heartbreaking," Schiff said. "We are not only failing to attract some of the best and brightest minds; many are deciding to leave because of the perception of hostility toward science."

For Schiff, quantum computing sits at the interface of discovery, economic policy, and national security. Like artificial intelligence, he said, quantum technologies carry both promise and risk. They may enable new forms of computation, new approaches to privacy, and major advances in fields such as healthcare. But they may also threaten existing encryption systems and create new vulnerabilities.

"That is why it is so important to stay ahead in this race," Schiff said, "to develop the best defenses possible and to be prepared for anything."

After the lab tour, the visit shifted from quantum engineering to quantum interpretation. In a conversation with Preskill and Rosenbaum, Schiff asked about entanglement, hidden variables, the double-slit experiment, many worlds, and quantum cosmology — the kind of conceptual terrain that has made Caltech a natural home for both Feynman lore and modern quantum information.

Preskill sketched why entanglement isn't just the quantum version of opening two boxes and finding paired mittens: Bell-type experiments rule out any ordinary picture in which the answers were simply fixed in advance. Rosenbaum, speaking as what he called a "prosaic experimentalist," emphasized that measurement is not a mystical act of human attention, but a physical interaction that irreversibly correlates a system with its environment.

The conversation ranged from decoherence to many worlds, with Preskill describing measurement as a process in which the observer becomes entangled with the system observed. Schiff distilled this with admirable economy: "My takeaway is Spider-Man is real."

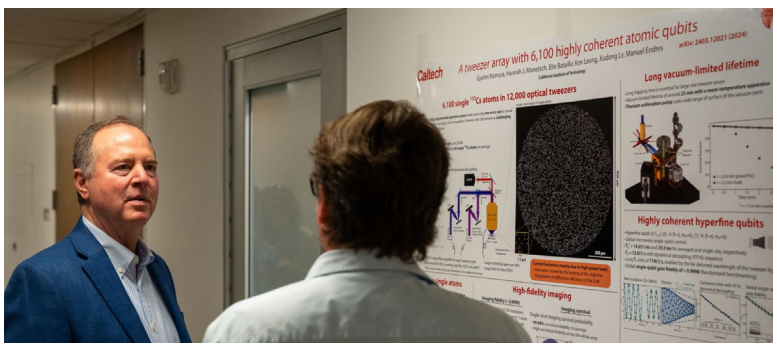
Preskill also pointed to quantum gravity and the origin of the universe as among the field's deepest open questions. Physics can trace cosmic history back remarkably far, he said, but eventually reaches a regime where spacetime itself fluctuates and familiar descriptions break down.

The setting — Bridge's Richard P. Feynman Lecture Hall — added its own resonance. Schiff noted the thrill of being in a room associated with Feynman, whose lectures he had listened to with reverence. Preskill, who overlapped with Feynman for four years, recalled him as charismatic, deeply curious, and full of stories. Asked what Feynman would think of AI-generated Feynman lectures, Preskill said he would likely be "rather appalled."

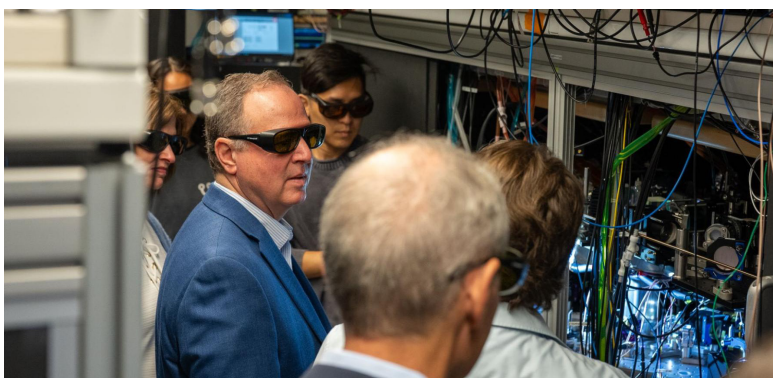
By the end, Schiff joked that he would like course credit. Preskill replied that the senator was ready for a PhD: "Those were great questions."

That exchange captured the odd charm of the visit. Schiff came to Caltech with the public responsibilities of a senator: funding, national security, immigration, technological competitiveness. But he also came with the inquisitiveness of someone genuinely bothered (in the best way) by the conceptual strangeness of quantum mechanics. The result was a campus visit in which policy didn't flatten science into talking points, and science didn't retreat into abstraction. Rather, for a morning, quantum computing was both a national priority and a metaphysical rabbit hole — both laboratory hardware and a question about what it means for the world to become knowable.

Senator Adam Schiff is greeted by Caltech Chief Communications Officer Shayna M. Chabner McKinney and Caltech President Thomas F. Rosenbaum. (Photo: Erin Byers)



Senator Schiff listens as Professor Manuel Endres describes recent research from his lab on their 6,100-qubit tweezer array. (Photo: Erin Byers)



Senator Schiff, in safety goggles, watches as the Endres lab's optical quantum computing apparatus is demonstrated. (Photo: Erin Byers)

Senator Schiff talks hidden variables, many worlds, and quantum measurement with President Rosenbaum and John Preskill, Richard P. Feynman Professor of Theoretical Physics. (Photo: Erin Byers)

Crossword Solutions

Jean-Luc Itti
Puzzle

Solutions to last issue's crossword. Thanks for particpating!

raccoon Ubuntu 26.04 animal

enterprise Star Trek ship

Feynman Caltech physics professor, "the Great Explainer"

Richter Scale using $\log_{10}$

reddoor Caltech cafe

sojourner First Mars Rover

tau 2pi

orion Artemis rocket

oxygen ~21% of air

oganesson Last element in periodic table

mars Covered in Fe_2O_3

earth ~70.8% water ~29.2% dirt

einstein _____ Bros. Bagels (in Pasadena)

slackware Oldest surviving Linux distro

ubuntu Most used Linux distro

Aerogel Lightest solid on earth (99.8% air by volume)

SOS •••---•••

Fez Oldest University in the world (city)

MIT University that thinks they're better than Caltech (they're really not)

Windows Most used OS

Nikolai Last tsar of Russia (first name)

Alaouite Morocco ruling dynasty

ChatGPT OpenAI

Newton F=ma

Orange _____ trees on campus (fruit)

America Coming to _____ (movie)

Tarik Gibraltar old name (Jabal _____)

Cambridge John Harvard studied there

Vibecoding Coding with AI

lol Gen Z laughing term

Houston First president of Texas

Undergrads Most Caltech pranksters were _____

Atlanta Most used airport

Gypsum White Sands mineral

Tunisia Tatooine film location (country)

Demotic 2nd language on Rosetta Stone

Los Angeles 1984 Olympic Games city

Cardiff Welsh capital

Dynamite Alfred Nobel's first invention

amazigh Berber language

Haggis Scottish national dish

Blackpudding English pig's blood dish

Genie French word for genius

Steam Most popular PC game launcher

Tungsten One of the elements in ballpoint pen

Selenite "TV rock"

Salton California inland sea

Oryx Animal unicorn is based off

Alcatraz Jail that "you can get in, but you can never get out"

Qing Last Chinese dynasty

Opera's Rising Stars: The Pasadena Vocal Competition

Kayane Dingilian
Culture

All photos taken by Edie Tyebkhan Photography.

In the bubble of STEM academia, the ages 22-33 are reminiscent of college graduations, graduate studies, and perhaps a postdoc or two while navigating the faculty search process. Along the way, scholars may assemble portfolios and grants alike to request funding for their studies.

The musical world is not *too* different from ours.

On April 11, 2026, eight young classical singers showcased their portfolios and competed for grants in the final round of the Pasadena Vocal Competition (PVC) to further their own studies in classical voice. Each singer performed three vocal selections - two from opera (one in English) and one from musical theater.

The Mistress of Ceremonies was Soprano Jamie Chamberlain, a seasoned performer and master voice teacher with a flair for the dramatic at levels which I aspire to have in my own lectures.

Though the judges did not publicly divulge their criteria for ranking the contestants, the high overlap between their evaluations and mine suggests that I may have a promising side-career as an opera critic. So what was I looking for? Three things - (1) Diction - the listener should be able to understand the words, or at least discern them. (2) Acting - for opera is a performing art, after all, and even though they stand isolated on stage, all of the selected pieces belong to stories with the narrative conveyed through music. Finally, (3) Technique and musicality - the ideal singer demonstrates strong vocal technique without sacrificing the melody and musicality of the piece.

Soprano Emily Damasco singing "Adelaide's Lament."

Soprano Emily Damasco (Age 25, Curtis School of Music) opened the program with an awe-inspiring display of vocal finesse and power. I especially enjoyed her acting in "Je suis encore tout étourdie" from Manon by Jules Massenet, in which a young French woman delights in the new sights about her.

You can watch one of Damasco's performances of this aria here: https://www.youtube.com/watch?v=6DmEL8oe0wo

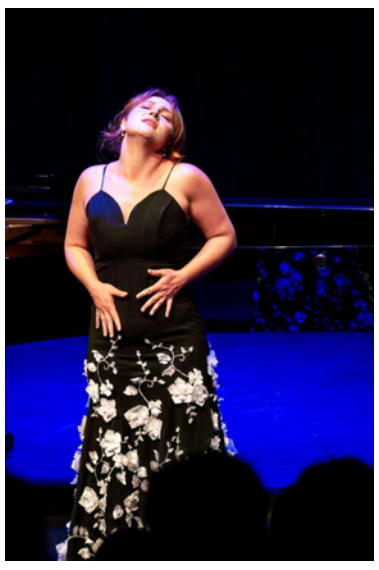
Her performance of "Adelaide's Lament" from the musical *Guys and Dolls* (Frank Loesser), full of accelerated rhythm and challenging enunciation, was a great closing piece to her set.

Damasco placed third in the competition. She is currently the Domingo Colburn-Stein Young Artist with the Los Angeles Opera. You can find her on Instagram at @emilyydamasco.

Those familiar with Shakespeare's works will recognize the play "A Midsummer Night's Dream", which has been adapted countless times for the stage and screen - including, for example, by EXPLICiT early in May - but did you know it was also adapted into an opera?

Bass-baritone Evan Lazdowski.

Bass-baritone Evan Lazdowski (Age 27, Manhattan School of Music, The Juilliard School) performed "When my cue comes, call me" from Benjamin Britten's adaptation. In this piece, the protagonist Nick Bottom wakes up from his misadventures in the fairy world and searches frantically for his fellow actors. Though Lazdowski did not place in the competition, I especially enjoyed his creative use of the environment - stage, doors, and even the piano - in setting the scene.



Mezzo-soprano Ashlyn Brown.

Mezzo-soprano Ashlyn Brown (Age 28, Indiana University) won second place and the Audience Favorite award, undoubtedly for her second piece, "I don't have to do a thing" (also known as the Ice Cube Aria) from *If I were you* by Jake Heggie. Her exceptional vocal performance was enhanced by her sly and smug facial expressions as she sang the part of the Devil, disguised as a bartender who compares the predictable descent of humanity to an ice cube that slowly melts in a beverage.

You can watch Brown's haunting performance of this aria at http://www.youtube.com/watch?v=wNbo-HSkIT8

Ashlyn Brown has most recently performed with the Opera Theatre of Saint Louis and the Music Academy of the West. You can check out her full bio and sample performances at [www.ashlynbrown.com] (http://www.ashlynbrown.com/).

Bass Son Jin Kim. I couldn't pick just one photo.

The star of the show, the first place winner, and my personal favorite was Son Jin Kim (Age 30, Seoul National University, The Juilliard School), whose certain victory was heralded by the deafening applause at the conclusion of his performance.

Kim's first selection, "La calunnia" from Rossini's The Barber of Seville, was sung with such technique and fortitude that when I closed my eyes, I believed myself in a grand theater

All singers, the pianist (left), and the mistress of ceremonies (right).

with an experienced veteran. It was Kim's second piece, "I'm a lonely man, Susannah" from Susannah by Carlisle Floyd, that - in my opinion - secured him the first place position that night. His piercing stare and deep, dark tones captured the character's twisted loneliness as he becomes infatuated with the titular Susannah.

I'm no expert in Italian, but for his English pieces, including his third selection, The Impossible Dream from The Man of La Mancha, Kim's enunciation was impeccable.

You can watch some (or all) of a special recital by Kim at this link: https://www.youtube.com/live/iw65PLKXs7s?si=3j0D57uScyYLp8Yb

Son Jin Kim also has an Instagram account at @bass_sonjin_kim.

I'm eager and excited to follow Kim's professional career. I am confident he will captivate and mesmerize audiences as he did myself and the judges that night. Rest assured that if he returns to perform in the LA area, I will purchase whatever tickets necessary to watch him again.

Coloratura soprano Sunwoo Park.

The last finalist I want to mention is soprano Sunwoo Park (Age 32, Seoul National University, University of Southern California), who was the final performer in the competition. It was a special delight to watch Park, who is a coloratura - a technique that characteristic of complex embellishments in the melody. Sopranos (or any voice part, for that matter) who sing in this style are expected to deliver pitch precisely while performing demanding vocal acrobatics.

You can learn more about Sunwoo Park at her website sunwooparksoprano.com.

The final act of the night – while the judges were deliberating – was the winner of the Chevalier award for the best performance of an aria by a composer from the African diaspora. Soprano Candace Williams (Age 29) performed "Whisper Walk" from The Snowy Day by Joel Thompson. Her melodic voice floated like soft snowflakes in this musical depiction of winter.

The Chevalier award, sponsored by actor Courtney B. Vance, is named after violin prodigy and composer Joseph Bologne, Chevalier de Saint-Georges (1745-1799), who was of French and African descent. I personally discovered this composer on one of my eighteenth century rabbit holes several years earlier. He has often been compared to Mozart for his vibrant orchestration but slightly predates the famous Austrian. He is a very fascinating figure, both historically and culturally, and I highly recommend any of the wonderful sources on his life and music.

Following the awards announcements, audience members (including myself) went to the stage to congratulate our favorite participants. I appreciate that everyone at the competition was a winner – those who did not place received smaller sums of grants – and that the atmosphere was one of celebration and community.

Once again, I applaud all the singers at the Pasadena Vocal Competition for their brilliant performances and all the years of training that led up to those special moments I cannot wait to watch next year's program and meet the next ensemble of the young stars of opera.

Catch all the latest updates at https://pasadenavocalcompetition.org/.

Editor's Note: We want to hear your perspective!

We strive to represent every voice in the Caltech Community with fairness, accuracy, and impartiality in our news reporting. If you think we missed something, or just want to share your thoughts about a topic we've reported on, I encourage you to submit a Letter to the Editor!

Send submissions or contact the *Tech* editorial team at

tech@caltech.edu

Submissions are due at 12 p.m. on the Saturday before each biweekly Tuesday publication.

When Science Meets the Streets

Camilla Fezzi
The Outside World

In Chen 100, the evening's panel wasn't your typical academic climate discussion. Sure, there were JPL scientists who operate Mars rovers and analyze biodiversity with terabytes of satellite data. But these researchers had something else in common: they're also union organizers, tenant advocates, and community activists who've learned that solving climate change requires more than just better science.

"The issue isn't that we're missing some amazing scientific discovery that will save us all," the moderator opened, cutting through a common misconception. "It isn't that we're not doing enough science communication." The real question, posed against the backdrop of last year's devastating fires that left seven in 10 victims still displaced a year later, was starker: Why is there such a disconnect between scientific breakthroughs and actual climate action?

A Rover Operator Whose House Burned Down

Brandon Francis operates the Curiosity and Perseverance rovers on Mars — robots studying a planet that experienced catastrophic climate change billions of years ago. It's fulfilling work, he said, helping humanity understand worlds beyond our own.

Then he went home to Altadena. Or rather, what used to be his home before the fire consumed it.

"That experience has given me a lot to think about, about my relationship with the power company," Francis said, his voice measured but weighted with lived experience. The fire, widely attributed to the utility company, forced him into the maze of insurance claims and corporate bureaucracy that disproportionately punishes Black and brown communities, renters, and the working class.

The irony wasn't lost on the audience: a scientist studying ancient planetary climate catastrophe while navigating a present-day one created by "insufficient policies from those in charge."

Meanwhile, back at JPL, Francis faces a different kind of crisis. The Mars Sample Return program — nearly complete after collecting 40 samples chosen specifically to unlock Mars' climate history — faces cancellation as NASA priorities shift toward what he called "the new space economy" rather than science for understanding's sake. Even the active Perseverance rover has been cut back to five-day weeks.

The Privatization Threat

Sam Burrows, a biodiversity researcher at JPL, laid out a more insidious trend: the quiet movement to privatize scientific data itself.

"What we're beginning to see in this administration is a shift towards privatization," Burrows explained, pointing to a recent NASA request for information exploring "science as a service." His translation was blunt: "How can we use public funds to transition the ownership of satellites and scientific products to private companies so they can sell that data for profit?"

The implications are staggering. Satellites cost millions to build and launch. The data they produce is often one-of-a-kind. When private companies hold monopolies on this data, Burrows argued, they can charge whatever they want. Scientific proposals will need to budget for data access, limiting who can do science and implicitly favoring proposals from those same private companies.

"New science will be focused on how can we make an additional buck, not what's best for humanity," he said.

But Burrows didn't stop at critique. He's helping organize a union at JPL to ensure science benefits society as a whole. And outside work, he's applying the same organizing principles to climate action.

This is where the panel shifted from diagnosis to prescription — and where the energy in the room became palpable.

Burrows described how Pasadena 100, a coalition he helped organize, is pushing Pasadena to reach 100% carbon-free electricity by 2030. The key? Pasadena has a public utility.

"City Council members are elected representatives and thus are accountable to the people who elect them," Burrows explained. "Because we have a public utility, we as people have power over the direction of our utility."

Over four years, the coalition built political power by organizing 23 Pasadena-based organizations, flooding public meetings, and embedding themselves in technical advisory committees. It worked. The city is now on track to hit that 2030 target, with rates structured equitably and protections for workers in the transition.

"This would not be possible if we had an investor-owned utility," Burrows emphasized. Investor-owned utilities answer to shareholders seeking returns, not residents seeking clean air. They charge twice the national average, cause more outages, and disconnect customers more frequently.

The contrast was stark: democracy versus profit. People versus shareholders.

A Chemist Who Can't Escape the Profit Motive

Gabby, a researcher with degrees in chemistry and earth science who's worked in environmental labs, chemical manufacturing, and petroleum quality control, brought the profit problem into sharp relief.

"Whether I was testing drinking water, corrosion inhibitors, or petroleum products, the limit to how well I could do my job boiled down to one word: profit," she said. "Which is crazy to me, especially with drinking water. I didn't understand why the word profit was even relevant."

She's worked with brilliant scientists — "the smartest people I know" — who have the drive and passion to help society but must fit their brilliance "within this tiny little for-profit box."

"Problems like climate change and extreme weather events cannot be confined within a for-profit box," Gabby insisted. "We need innovation, we need to be as creative as we can, and to prioritize people and the planet."

Her activism extends beyond the lab. As an immigrant who grew up in South Central LA, her earliest memory is of teachers and parents successfully organizing to relocate a polluting factory operating across from her elementary school. "When we lead with love," she said, "we can make the impossible possible."

Teaching Climate Solutions, Not Just Climate Doom

Lalo Vargas, an environmental science teacher in LA Unified, brought the discussion back to a critical gap in climate education.

A year after the Eaton Fire ravaged Altadena, climate scientists are asking uncomfortable questions about why breakthrough discoveries aren't translating into climate action — and finding answers in community organizing. (Photo: Camilla Fezzi)

"Students know that there's something wrong with the climate," Vargas said. Young people in California aren't debating climate change — they've lived with the wildfires and extreme weather their entire lives. "What our curriculum doesn't spend enough time doing is talking about what are the solutions."

His analysis cut to the core: "In our country, we have a system of capitalism, which means that things are really only produced when they provide a profit for someone. Everything is a commodity — housing, food, water, even the air we breathe."

The system, he argued, "takes all of the risks that we have collectively, but it individualizes the solutions" — buy your own air purifier, protect your own home — "as opposed to giving us a collective solution where we can all exert our power."

Vargas shared a micro-example of collective power: organizing with tenants in his building to fight rent increases. They won not just lower rent, but dignity — kids could play in the yards again, families could celebrate posadas at Christmas. "That was a tangible shift that happened because they got organized."

The lesson? "That is what we have to apply at the community-wide level, at the state-wide level, and ultimately at the national and global level."

By the end of the evening, the answer to the moderator's opening question had crystallized. The disconnect between scientific knowledge and climate action isn't a communication failure or a research gap.

It's a power problem.

When insurance companies can deny claims to fire victims, when utilities answer to shareholders instead of communities, when scientific data becomes a commodity sold to the highest bidder, when profit determines which problems get solved — no amount of better science will translate into action that protects people and planet.

But the panel offered something rarer than critique: a roadmap. Organize unions. Build coalitions. Embed in advisory committees. Fight for public ownership. Make the connections between climate justice, labor rights, housing justice, and immigrant rights.

"We've tried capitalism and it's not resourceful," Gabby said. "It exploits our labor and exploits the planet only to benefit a very small group of people."

The scientists in that room had made their choice: they would no longer limit their contributions to the lab. They would show up in city council meetings, on picket lines, and in tenant organizing meetings — anywhere the collective power of ordinary people could challenge the profit-driven logic that's cooking the planet.

Because when you study climate change on Mars while your house burns on Earth, academic detachment becomes impossible. And perhaps that's exactly the perspective we need.

Seeking Student Perspectives on the Honor Code and In-Person Exams

Tech Staff
The Inside World

The *Tech* is collecting student input for future coverage on the Honor Code, exam formats and related topics.

Caltech's Honor Code states, "No member of the Caltech community shall take unfair advantage of any other member of the Caltech community." In classes, the Honor Code is often reflected in rules about collaboration, outside resources, exams and tools such as large language models.

Recent campus conversations around academic integrity have raised questions about how course policies are enforced, including how instructors respond to concerns about outside resources. In-person exams have been implemented as one response.

If you have thoughts on the Honor Code, in-person exams, large language models, workload, academic pressure, or the Board of Control process, the *Tech* is asking you to share them through the form linked with this article.

Responses may be quoted or summarized according to each respondent's stated preference. Emails will be collected to help verify that responses come from Caltech students and will not be published or used to identify respondents, unless they ask to be quoted by name. Full responses will only be read by the outgoing and incoming editors-in-chief.

Submit responses at https://forms.gle/Qjfgn45LEjWEZD7c6 or by scanning the QR code with this article.

Those who want to discuss these topics further are welcome to submit letters at tech.caltech.edu/write. Students can also reach out to their Academics and Research Committee or Board of Control representatives about academic policies and the Honor Code.

Who Gets Believed Under a Warming Sun?

Damian R. Wilson
Culture

On May 16, in Frautschi Hall, Katherine Vondy's *The Heat of the Sun's Rays* received a staged reading as part of MACH 33, Caltech's festival of new science-driven plays. Two earlier glimpses of the play had already entered the campus conversation: on April 11, during festival auditions at TACIT House, and on April 21 — during Earth Week — when the Resnick Sustainability Center hosted a reading of a selection from the script. Once the fully staged reading arrived in Hameetman, the play's questions had begun to feel particularly suited to Caltech — not simply what science discovers, but who gets credit for discovery; not simply what scientists know, but whether anyone listens in time.

Vondy's play braids together three timelines. In 19th-century Seneca Falls, Eunice Newton Foote (Anya Janowski) conducts experiments on the heating properties of gases, arriving at an insight about carbonic gas (what we now call carbon dioxide) long before the modern climate crisis would make her work seem prophetic. In ancient Troy, Cassandra (Sara Acevedo) foresees catastrophe and is dismissed. In present-day Phoenix, Megan (Monique Rangell-Onwuegbuzia) and her grandmother Nana Grace (Nedra Gallegos) endure a historic heat wave as the power grid falters and ordinary life becomes increasingly untenable.

The formal conceit risks becoming schematic (three women, three eras, three kinds of warning). But in performance, the play's connections felt less drawn than discovered, with Foote's tubes, Cassandra's visions, and Phoenix's brownouts all posing the same question from different angles: What happens when a society has been told the truth, but cannot — or will not — recognize it as such?

Arden Thomas, MACH 33's Associate Artistic Directory, suggested that the play's timelines are joined by a crucial revision of the Cassandra myth: the choice not to have Apollo curse her. That is, Cassandra is not disbelieved because a god magically makes her unbelievable; she is disbelieved because the people around her find disbelief more convenient. In that regard, the myth is less ancient than contemporary. The curse — no conjuring of the supernatural — is institutional.

This perspective also sharpens Foote's arc, with Janowski giving her a keen, intelligent gravity. The drama doesn't just restore a forgotten woman scientist to the historical record (though it absolutely does that). It stages the strange pain of being both right and unheard. Foote's work is accepted, published, circulated; yet, her conclusion is diminished, overlooked, or reabsorbed into the reputations of men. The play's comic portrait of John Tyndall (whom I had the privilege to portray) and Thomas Henry Huxley (played by exquisite TACIT regular Sullivan Braun) as wine-soaked, pompous, and merrily self-important lands not because it argues men in science to be uniquely ridiculous, but because it recognizes how easily confidence can pass for authority.

The play is often funny. Nana Grace's asides, Cassandra's wry narration, and the recurring jokes about wine, cookies, and tubes keep the piece from becoming a dutiful historical lecture. But the comedy has a surgical function: it makes the play's grief bearable without dissolving it. All of the main characters' knowledge is tragic: Cassandra's because it can't save Hector; Foote's knowledge because it can't save her from erasure; and Megan's because — unlike Cassandra or Foote — she isn't discovering the danger, but lives inside its aftermath. For Vondy, the pleasure of the writing derived from discovering connections among things that might not initially appear connected. "There's something really magical about theater," she said, "where you can find connections between things people don't think about being connected." In this play, those connections are temporal as much as thematic. Scientific insight, mythic foresight, and lived climate anxiety echo one another across centuries.

The staged reading also foregrounded the development process. Director Jessie Lee Mills described the reading as a moment of disciplined discovery: after workshops and rehearsal-room investigation, the team arrived at a "locked reading draft" and resisted the impulse to keep changing the script in response to every instinct. The point, Mills suggested, was to let the play reveal itself to an audience. A first reading offers information that can't be obtained by guessing in rehearsal: where the humor lands, where the emotional architecture holds, where the audience begins to understand what story's being told.

That process is central to MACH 33's premise. The festival situates playwrights in conversation with scientists, not to turn theater into a lesson plan, but to make scientific ideas theatrically alive. This year's slate showed the range of the approach: two plays about Hubble and the history of cosmology, *River of Night* and *Redshift*; *Parity*, about Chien-Shiung Wu and the discovery of parity violation; *Sing for Me*, a music-centered work about AI, race, identity, and performance; and *Haunt Me*, a horror piece about dementia and, if only indirectly, artificial intelligence. The works suggested that "science-driven theater" doesn't mean theater about facts alone; it means theater about the human systems through which facts are meaningful, contested, institutionalized, misremembered — the long, uneasy passage by which knowledge becomes story, and story becomes the world we agree to inhabit.

The science advisors for *The Heat of the Sun's Rays*, environmental scientists Olivia Alcabes (ESE G3) and Zhaoyi Shen (a postdoc at the Climate Dynamics Group), helped shape that conversation. Shen said that learning the history of Foote was itself a process from which she "really benefited," while Alcabes described the collaboration as a "super valuable" lesson in public communication: a playwright approaching science from outside the field could illuminate what the general public knows, needs, and responds to in ways that scientists themselves might not always anticipate.

That may be the play's profoundest fit with Caltech. A Caltech audience hardly needs to be persuaded that scientific work matters. But Vondy's play asks a more uncomfortable question: What does it take for scientific knowledge to become part of public life? The answer, of course, far transcends mere accuracy. It also takes story, credibility, timing, and power. Scientists must learn how to tell their stories, as one audience member reportedly observed after the Earth Week excerpt — not because storytelling is an ornamental supplement to research, but because public understanding necessitates it.

Thomas offered one of the evening's most resonant formulations: "Hope is unknowingness, and the possibility." It is an apt description of the play's emotional logic. Cassandra's tragedy is that she knows too much; Foote's pain, that she knows something before the world knows how to value it; and Megan's fear, that the future may already have arrived.

And yet the play isn't hopeless. Its hope — its abundant hope — lies in the fact that it is being read now, in a room full of people being asked to listen. Theater can't undo the erasure of scientific history, or cool a city in a desert strained beyond belief.

But it can create a temporary public, gathered in the dark, practicing the act that the play demands: hearing a warning before it becomes only elegy.

The Heat of the Sun's Rays *was performed May 16 as part of MACH 33, a festival presented by Theater Arts at Caltech (TACIT). Cast, from left: Sullivan Braun, Damian R. Wilson, Taryne Moyse, Jeff Wack (Ph G3), Anya Janowski, Sara Acevedo, Monique Rangell-Onwuegbuzia, Nedra Gallegos, Max Gorbachev, Anthony Rutowicz, and Elizabeth Xiao.* (Photo: Arden Thomas)

From left: Jessie Lee Mills, TACIT Director Brian Brophy, Arden Thomas, Katherine Vondy, and Solvin Sigurdson (CDS G3) prepare for the April 21 Earth Day reading at the Resnick Sustainability Institute. (Photo: Arden Thomas)

The other MACH 33 plays were Parity, River of Night, Redshift, Sing for Me, *and* Haunt Me. (Image: TACIT)

The Invisible — On Mental Health Awareness Month

Camilla Fezzi
Humans of Caltech

The Body That Betrayed Me, the Mind That Wouldn't Stop

There is a specific kind of silence that lives inside high-achieving students. It is not the silence of a quiet library or a sleeping dorm room. It is the silence of a mind that has been running for so long, so loudly, that the noise has become indistinguishable from who you are. You are not able to shut it off, you struggle falling asleep, you feel nothing every single day.

I grew up in Verona — the city of Romeo and Juliet, but the love story I was living was not the one tourists came to see. Mine was a quieter, more dangerous romance: a love affair with perfection. By fifteen, I weighed less than the textbooks I carried. I had a system for everything. The number of times I read a chapter before I trusted myself to have understood it. The number of bites I was allowed to take before the food on my plate became too much, before it became a moral failure, before it became proof that I was losing control of the only thing I believed I could control: myself.

This is the part of my Caltech application I tucked into the "Additional Information" section, in 150 careful words. At 15, I battled with anorexia. That was the sentence. Tidy. Past tense. Already healed.

But Mental Health Awareness Month — observed every May, this year under NAMI's theme "In Every Story, There's Strength" — exists precisely because the past tense is a lie we tell to make other people more comfortable. So this month, I am writing the sentences I did not put in my application. I am writing about the perfectionism that came before the eating disorder, and the obsessive-compulsive rituals that came with it, and the way all of it became a single, invisible architecture inside me — the kind of disability you carry to class, to lab, to the dining hall, and that no one, no one, can see.

II. The Disability You Cannot See

The U.S. Department of Education estimates that roughly 21% of American undergraduates report a disability, and the majority of those disabilities are invisible — mental health conditions, learning differences, chronic illness, neurological disorders (BestColleges). The Invisible Disabilities Association defines an invisible disability as "**a physical, mental or neurological condition that is not visible from the outside, yet can limit or challenge a person's movements, senses, or activities.**"

Harvard Health estimates that invisible illness affects roughly 10% of the 61 million Americans living with a condition that limits their daily lives (Harvard Health). And among college students specifically, the United Health Group's 2026 survey found that 69% of college students experienced a mental or behavioral health concern in the past year (UnitedHealth Group). But statistics, as a Caltech student, I have learned, are how we make ourselves feel rigorous about things we are too afraid to feel directly.

So let me translate.

One in five of the people you passed walking from Avery to Caltech hall this morning is carrying something. We are everywhere. And we are very good at hiding.

III. Perfectionism Is Not a Personality Trait. It Is a Symptom.

I want to be precise here, because precision is — fittingly — both a gift and a prison.

There is a growing body of research, summarized in a 2022 paper in Frontiers in Psychology, showing that maladaptive perfectionism is a transdiagnostic mechanism linking obsessive-compulsive disorder, anorexia nervosa, anxiety, and depression. The same study notes that perfectionism actively mediates the development and persistence of these conditions.

Another study published in Eating and Weight Disorders found that high academic achievement is associated with elevated risk of eating disorders, and that perfectionism is the bridge between the two. The very traits that made me good at school — the discipline, the obsessive attention to detail, the refusal to accept anything less than total mastery — were the same traits that were quietly killing me.

The Society for the Advancement of Psychotherapy puts it bluntly: anorexia nervosa is "highly comorbid" with OCD, anxiety disorders, and depression, and perfectionism is the thread that ties them together. Because here is what people who have never lived inside a perfectionist mind do not understand: perfectionism is not ambition. Ambition is a fire. Perfectionism is a cage made of fire. You are not chasing excellence; you are running from a version of yourself you have decided is unacceptable. Every A is not a triumph but a brief, conditional reprieve. Every B is not a setback but a referendum on your right to be worthy, to deserve something.

And when you cannot control your grades, you turn to the one variable left in the equation. Your body.

IV. The Things You Do Not See

The eating disorder was the visible part. Eventually. After my body collapsed in school and the secret could no longer be kept by my too-large sweaters and my elaborate excuses about already having eaten. But the OCD lived underneath it, older and quieter and far more persistent. The OCD was the engine. The eating disorder was just the smoke. The things people did not see:

The way I had to read every line of a textbook twice — not because I did not understand it, but because if I did not, I would have not gotten the best result in the exam. I did not believe this, exactly. But I could not not believe it.

The way I counted my steps from the piazza to my front door, and if the number was wrong, I would walk around the block until it was right.

The way I rewrote my notes three times — once in pencil, once in blue, once in black — because the wrong color on the wrong day meant I had not really learned the material.

The way I weighed every bite of food in grams, in calories, in moral worth, until eating became a mathematics problem I could not solve without failing.

The way I had to take a perfect grade in every single class, presentation and exam otherwise I would have felt meaningless.

This is what the International OCD Foundation calls "invisible compulsions" — the rituals that happen entirely inside the mind, that leave no trace, that cannot be seen by parents or teachers or roommates or admissions officers. They are exhausting in a way that has no English word. In Italian we sometimes say ***logorante*** — something that wears you down, grinds you to dust, while you are smiling and acing your exams.

V. Verona, the Hospital, and the Sun That Was Not the Sun

In my Caltech essays I wrote about the city-wide blackout in the piazza, about realizing that life held more than solitary knowledge, about my mother's neurological collapse and my brother's surgery and how love became the language I learned to speak. All of that is true.

But I did not write about what happened to me, inside me, during those years. I did not write that while I was caring for my mother — adjusting her pillows, decoding her medication schedule, joking that her forgetfulness was like Dory in Finding Nemo — I was simultaneously refusing food, counting calories, hiding in bathrooms, and recalculating the precise number of laps I needed to walk around the hospital corridor before I was allowed to sit down beside her.

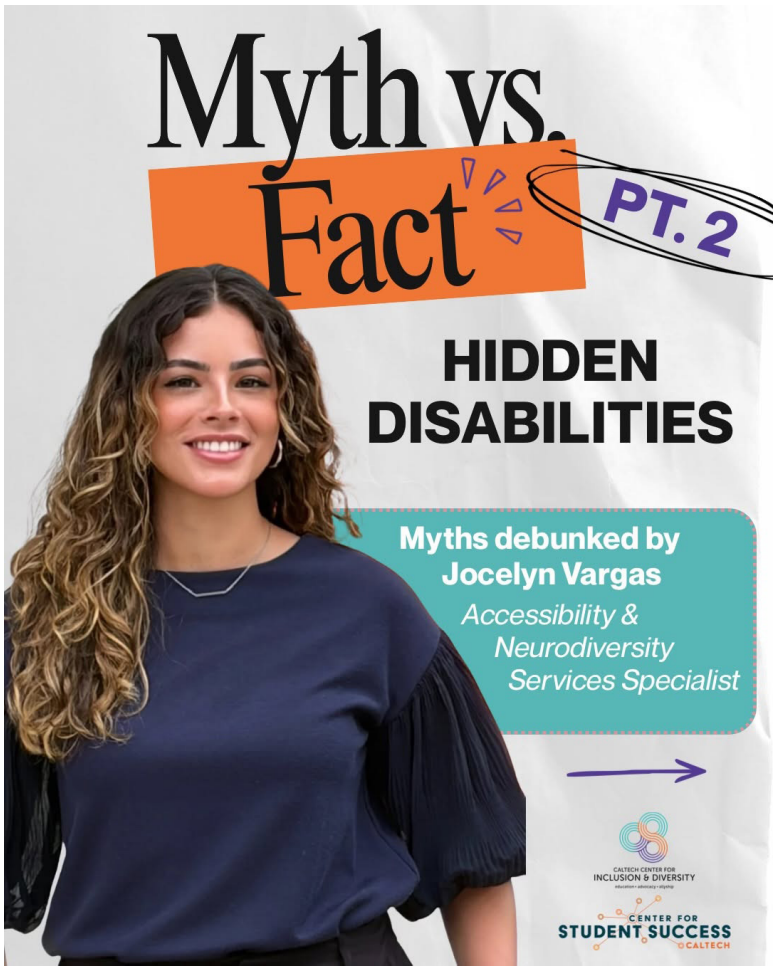
I did not write that the most invisible disability of all is the one you develop while caring for someone else's visible one. That a fifteen-year-old girl tending to her mother's frightened body can also be a fifteen-year-old girl losing her own, and that no one will notice because everyone is, understandably, looking at the mother.

VI. What Caltech Does Not Know About Us

Caltech has a Student Wellness Services office, and a counseling team, and a Mental Health Resources hub that links to the Jed Foundation, and a new phone number — (626) 395-8331. These resources matter. But what Caltech — and Columbia, and Brown, and Princeton, and every institution that takes students like me and lights us on fire and calls it education — what these places do not always understand is that the students most likely to be suffering are the students least likely to ask for help.

A landmark study by Suniya Luthar at Arizona State University found that students at high-achieving schools experience clinical depression, anxiety, and substance abuse at rates 3 to 7 times higher than the national average Suncloud Health summary. At places like Caltech — where the median student was the smartest person in their high school, where failure is structurally engineered into every problem set, where everyone around you is so impressive that your own suffering feels like an embarrassment to admit — this number is almost certainly higher. This is simply a very wrong structure.

We do not ask for help because asking would mean ad-



mitting that the engine that got us here is also the engine that is destroying us. We do not ask for help because the same perfectionism that landed us at Caltech tells us that real Caltech students do not need counseling — they need more sleep, more discipline, more mastery, more, more, more.

This is a lie. And Mental Health Awareness Month exists to puncture it.

VII. What Recovery Actually Looks Like (Hint: Not a Triumphant Essay Ending)

I want to resist the urge — the deeply ingrained, application-essay-shaped urge — to wrap this up with a redemption arc. To tell you that I am healed. That horse riding saved me (it helped). That literature saved me (it helped). That my family's love saved me (it helped). That I am now a perfectly recovered, perfectly grateful, perfectly functional Caltech student.

THAT IS ABSOLUTELY NOT TRUE

The truth is that recovery from an invisible disability is a daily, hourly, sometimes minute-by-minute negotiation with a brain that, occasionally, or continuously tries to convince you that your worth is contingent on a number — a grade, a weight, a GPA, a count of intrusive thoughts you have successfully ignored. The truth is that I still sometimes recount my steps. That I still sometimes look at a plate of food and feel a faint, familiar fear. That I feel like I am defined by my GPA, which definitely sophomore year did not help. But the truth is also this: I no longer believe the brain that tells me these things. I have learned, slowly and imperfectly, to treat that voice the way a researcher treats a hypothesis that has been falsified — with curiosity, not obedience.

This is what NAMI means when they say "In Every Story, There's Strength."

Strength is not the absence of the struggle. Strength is the refusal to let the struggle have the last word.

To you reader,

If you are reading this, and you recognize yourself in it — if your perfectionism has begun to feel less like a virtue and more like a hand around your throat, if your relationship with food or sleep or your own body has become a battlefield, if you are achieving everything and feeling nothing — I want you to know three things.

First, you are not alone. You are not the only Caltech student carrying this. You are not the only person in your study group, your lab, your house. The data says one in five of us is carrying something. The honest truth is probably higher.

Second, invisibility is not a strength. It is a symptom. The same culture that taught you to hide it is the culture that is, slowly, killing you. You do not owe anyone the performance of being fine.

Third, you can tell one person — one professor, one friend, one RA, one TA, one stranger. You do not have to have the right words. You do not have to have it figured out. You just have to break the silence by a single decibel.

Because here is what I have learned, in my long and ongoing recovery from a disability that no one can see: the moment you say it out loud — to one person, in one sentence, in one halting attempt — the architecture begins to crack. Not collapse. Just crack. And through that crack, for the first time in a long time, something gets in.

Light. Help. Another person. A future. A sun that is not a metaphor for achievement, but a sun that is, finally, just a sun.

Resources

Caltech Student Wellness Services: (626) 395-8331 — wellness.caltech.edu/counseling

988 Suicide & Crisis Lifeline: Call or text 988

NAMI HelpLine: 1-800-950-NAMI (6264) — nami.org

National Eating Disorders Association (NEDA) Helpline: 1-800-931-2237

International OCD Foundation: iocdf.org

The Jed Foundation (young adult mental health): jedfoundation.org

Sources consulted in this piece include NAMI's 2026 Mental Health Awareness Month toolkit, SAMHSA, the Invisible Disabilities Association, Harvard Health Publishing, peer-reviewed research on perfectionism comorbidity and academic achievement and eating disorders, and the United Health Group 2026 survey on college mental health.

As We Scatter to the Winds

Jieyu Zheng
The Inside World

May 27, 2026, marked my fifth anniversary of my arrival at Caltech, when I was freshly off the boat – or rather, off the plane. Here in Southern California, the weather seems almost unchanged from one day to the next, and the lack of dramatic seasonal shifts can create the illusion that time is stagnant (unless you are a birder paying close attention to migrants). But as we approach this year's commencement, I cannot help but reflect on how quickly time has passed.

Out of more than 8 billion people on Earth, a few hundred of us spent the past few years together on this tiny campus. For many of us, those years amount to more than ten percent of our lives so far — perhaps more than 20% for some of you Caltech prodigies. Isn't life a strange encounter built on coincidences?

The feeling of coincidence, of repeatedly crossing paths with brilliant people, comes to me almost every day, especially given how small Caltech is. As a graduate student, I have spent nearly every workday with my lab mates (except for a few night owls who seem determined to arrive only after sunset), and we have become almost as close as siblings — close enough to know exactly how to annoy one another. Even though graduate students and undergraduates often live in different worlds, our paths still intersect. We meet in the crowded cafeterias, on the walk between buildings, or at opportunistic club events with free food. At those moments, when your eyes recognize a familiar figure, your little concept neurons fire and trigger a cascade of memories: "Ah, that senior from my elementary Spanish class said she was moving to Seattle." "She helped me catch a mouse when it ran away." "That person always sat in the front row and somehow always asked the best questions."

Even if it feels as though the same people appear in your life over and over again, we are not the same people who entered this river a few years ago. It is not just about the knowledge we accumulated, the courses listed on our transcripts, or the papers we published.

It is about all the experiences that made us members of this community. You may remember a lecture where, instead of drifting to sleep after staying up all night finishing a problem set, you suddenly became captivated by a question in your field and realized that it was something you wanted to pursue for the rest of your life. You may remember a late-night discussion in a dorm lounge that made you laugh hard. You may remember in your first year, introverted and isolated during the COVID-19 pandemic, you tried to make some connections by sending rainbow-colored memes on Discord. You may remember under a smoky, vermilion night sky lit up by wildfires, you and your friends drove out of the town to escape. Events like these are personal and communal at the same time, and they wove our years together.

It is also about the qualities we acquired here. Many of us arrived carrying the pride of being near the top of our classes, drawn from schools and communities around the world. Then we sat down next to people who seemed impossibly talented — "How could they know everything already in high school while I was still playing with mud?" The initial excitement was then followed by bewilderment and a deep entanglement of impostor syndrome. After years of struggling with impostor and panic attacks over failing at any given minute, you eventually reach a quieter realization: we are all just ordinary humans trying to do difficult things.

More importantly, it is about the connections we built — and sometimes lost. Some of us found the loves of our lives here, and to those celebrating engagements or marriages, I offer my warmest congratulations. Others accumulated a collection of exes whom we carefully try to avoid at department events. Such is campus life. Yet alongside the heartbreaks, I will always remember the friendships during the most stoic moments. The phone calls that were picked up after just a few rings. The food that was ordered when experiments failed. The texts from my readers who appreciated my nerdy wildlife column. Those moments of humanity are among the things I value most from my years here.

And ultimately, it is simply about the time we shared. The changes are written into every part of us: in millions of altered synapses, in new habits of thought and behaviors, perhaps even in a few extra wrinkles. No single article can summarize them. Years from now, you may not consciously think much about your time at Caltech. But every so often, some fragment of it will return unexpectedly: a familiar hallway appearing in a dream, a phrase that could have come from your PI, a little turtle in a souvenir shop that brings back a memory of the Turtle Pond, or a light scent of burned food that recalls the Mongolian stir-fry. A small piece of this place will continue traveling with you. And I hope those memories are mostly happy ones.

To remind readers that I am still your loyal wildlife columnist: A juvenile ring-billed gull (me) salutes its juvenile conspecific (you) that is soaring high with food in its beak (whatever you are up to next). (Photo: Jieyu Zheng)

Having spent five years here, I have witnessed many commencements and inaugurations. I have a particular fondness for them because I have served as a graduate orientation leader nearly every year I have been here, and because my lab is located right next to Beckman Mall where the commencement ceremony happens. Universities like Caltech renew themselves continuously. The ceremonies remain mostly the same each year (and so does the orientation food, if you were wondering), and the incoming students are always roughly the same age. Yet every year is different because the people are different. For you and me, this has been a unique journey because of all the experiences, qualities, connections, and time we shared.

The people leaving this year — us — will pass our roles in the story to those who come next. They will inherit the lab work, the house traditions, the subsidized apartments; the opportunities, the frustrations, the friendships; and the responsibility of shaping this community in turn.

I simply wanted to say that it has been a great pleasure to meet all of you here. And now, as we scatter to the winds, may you soar as high as you wish.

(Note: This is not a farewell. I am still working on my manuscript and thesis... Such is life.)

From Nightclub Door Lists to Fashion's Front Row: The Unlikely Journey of Melissa Magsaysay

Camilla Fezzi
News

There's a particular kind of audacity required to fail spectacularly at being a cocktail waitress and somehow turn that failure into a career-defining opportunity. Melissa Magsaysay has made a career out of this kind of alchemy—transforming what others might see as limitations into launching pads, and using fashion journalism to reshape who gets to be seen and heard in an industry notorious for its gatekeeping.

Today, as host of the LA Times Studios podcast "Living Well," a contributing writer for Business of Fashion and Vogue Philippines, and co-founder of Duster—a fashion brand built around the Filipino house dress—Magsaysay has become something her 11-year-old self, thumbing through fashion magazines in the San Francisco Bay Area, might not have imagined: a voice who uses fashion as a lens to examine larger questions of representation and cultural heritage.

The Education of Curiosity

While most children might casually flip through magazines, young Melissa consumed them with precision. "I would actually just lay on my bed and I'd color in the models' faces, I knew everybody's name, I knew what agency they were with, I knew all the editors' names," she recalls. "It was just my thing."

By high school, she had joined the school paper. In college in Boston, she wrote for the Boston Phoenix and interned at the Boston Globe. "I kept just taking the next thing, like whatever opportunity was available to me," she explains.

But when she arrived in New York after college, armed with published clips and unshakeable determination, she hit the wall that stops most aspiring fashion journalists: "People started telling me like, it's really about who you know in fashion." The solution? Get a job where knowing people was the actual job description.

The Door, the List, and the Power of Seeing

Amy Sacco, the nightlife impresaria behind some of early 2000s New York's most exclusive venues, recognized what Magsaysay herself might not have fully understood yet: her value was in her eye—her ability to curate, to see what fit and what didn't. "She saw what a terrible cocktail waitress I was," Magsaysay admits with characteristic candor. "She's the one who said, 'Well you dress really cute, I know what you want to do. I'm going to put you at the door, I know you can do that and you put on an outfit and talk to people, but you cannot do anything inside the restaurant.'"

That door became Magsaysay's real internship. Standing outside in freezing temperatures, she wasn't just checking names—she was building a network, one conversation at a time. "People wanted to get in and I kind of inadvertently used that opportunity to curry favor and meet people," she explains. Those conversations led to her first fashion week internship doing "front of house"—checking people into shows.

The lesson wasn't lost on her. When she finally landed her first real job at Women's Wear Daily, she sent Sacco an email: "I got this job and it's not the front row, but I can see it."

Los Angeles: The Unfashionable Frontier

In 2004, Women's Wear Daily offered Magsaysay a job that most New York fashion editors would have considered career suicide: covering the West Coast. Los Angeles was dismissed as the land of swimwear, premium denim, and fast fashion—decidedly unglamorous compared to the haute couture houses of Paris or the established New York fashion week circuit.

Magsaysay took it. What the New York establishment failed to see—but what Magsaysay's training in curiosity helped her recognize—was that LA was on the verge of a fashion explosion. "The West Coast really exploded during that time," she notes. "Like, really exploded." As the only major fashion trade reporter on the ground, Magsaysay had access to an entire ecosystem of innovation. She visited factories in Vernon, met with the skate and surf brands in Orange County, covered the premium denim revolution that was redefining American casual wear, and watched as fast fashion pioneers like Forever 21 reshaped retail.

For three years at Women's Wear Daily, then five more as style editor at the LA Times—where she launched their first standalone style section called Image—Magsaysay helped define how the industry understood this new geography of style, one where celebrity culture, streetwear, and manufacturing expertise were creating something new.

The Pivot to Beauty: The Lipstick Index and Human Stories

The 2008 economic downturn forced another evolution. "It was really hard to talk about fashion to such a mass audience" during a financial crisis, Magsaysay explains. So she pivoted to beauty—a sector that thrives during downturns, thanks to what economists call the "lipstick index," the phenomenon where consumers continue to purchase small luxuries even when cutting back on bigger expenditures. But Magsaysay's approach to beauty coverage created stories that served her audience's actual needs, like her drugstore beauty feature where she and a makeup artist went to CVS, tested products, and rated what actually worked. "What people do on TikTok today, like all the time," she notes. "This was just a lot more rigorous."

This instinct—to serve the audience's reality rather than the industry's fantasy—would become a hallmark of her work and would later inform her approach to building Duster.

Cultural Identity as Editorial Strategy

As Magsaysay progressed in her career, she began to notice something remarkable: Filipino excellence emerging across the fashion and beauty industries in unprecedented ways. In a six-month period in 2023, she had interviewed more Filipino people for various stories than in her entire previous career.

"I had interviewed more Filipino people just for random other stories that had nothing to do with being Filipino, just fashion, beauty, whatever stories," she recalls. "And they were in really big positions, they were doing really cool things."

This observation became a story for Elle magazine, profiling Filipino leaders across fashion and beauty: Raisa Gerona, chief brand officer at Revolve; Rhuigi Villaseñor, creative director at Bally and founder of Rhude; Jian DeLeon, men's fashion director at Nordstrom; and Frederic Aspiras, Lady Gaga's hairstylist who won an Oscar for his work on "House of Gucci."

The piece resonated deeply. "Filipinos I think are just by and large not used to seeing themselves front and center in Western media," Magsaysay observes. "I got a lot of feedback from the community that it was good and it resonated."

The Barong Story: Personal History Meets Cultural Journalism

Perhaps no story better illustrates Magsaysay's unique position than her CNN piece on the barong tagalog, the traditional Filipino formal garment for men. The barong is made from piña (pineapple fiber) or abaca (jute rope), features intricate embroidery, and is designed to be airy and sheer for the Philippine climate. Magsaysay noticed young Filipinos wearing barongs in increasingly creative ways—with tattoo art incorporated into the design, styled in contemporary contexts, reclaimed from its purely ceremonial role.

But she also had a personal connection to the story: her great uncle was Ramon Magsaysay, president of the Philippines after World War II, who made the barong formal wear as part of his "Philippines First" campaign. Before his presidency, the barong was considered a common person's garment. Ramon Magsaysay intentionally wore locally made barongs, pants, even shoes, to promote Philippine manufacturing and assert cultural independence after centuries of colonization.

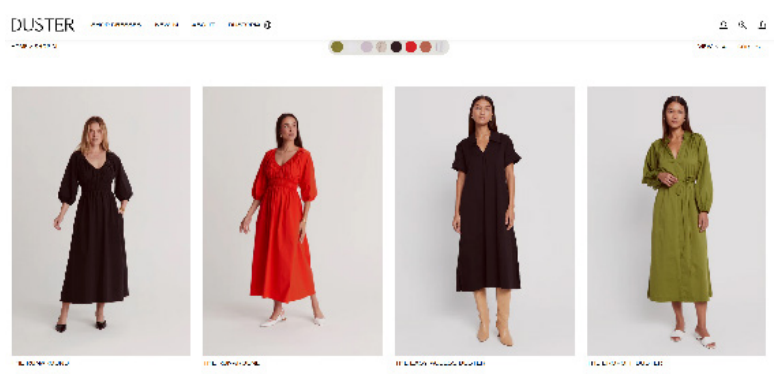
"He was very intentional about that," Magsaysay explains. In her story, she wove together contemporary fashion trends, interviews with academics and Ramon Magsaysay's children, and the larger cultural significance of how clothing becomes a statement of national and personal identity.

Duster: When the Storyteller Becomes the Builder

In summer 2023, Magsaysay made her most significant departure from journalism: she co-founded Duster, a fashion brand built around the Filipino house dress.

The traditional duster is what women in the Philippines wear at home because of the heat—comfortable, practical, but not something you'd wear to a meeting or event.

The concept behind Duster addresses a practical problem: women need clothing that works across contexts. "We're running to lunch with a girlfriend or a business meeting, and then we have to go do school pickup, right? So I don't want to think about changing. I



want to wear one thing," Magsaysay says.

But Duster is also addressing something deeper—visibility and value. The traditional duster symbolized care and caregiving, but was confined to the domestic sphere. Magsaysay's version says: the work of care and the work of leadership aren't separate. You can be comfortable and be taken seriously. As Magsaysay describes them: "Not floaty, moomoo-y, just like a little more sophisticated and elevated and modern." In building Duster, Magsaysay brings her journalist's understanding of storytelling to brand building. "How do you even make this a brand in the same way that's going to resonate with somebody?" she asks. "Why am I going to think about that brand? Why am I going to buy that brand?"

AI, Adaptation, and the Future of Creative Work

Magsaysay's relationship with artificial intelligence reveals her characteristic pragmatism about industry disruption. She's lost contracts to AI—a startup founder recently told her she'd use AI for copywriting because "I don't need it to be amazing, it needs to just be good enough." "I totally agree with her by the way, for a startup you're very scrappy with your funds," Magsaysay says, without bitterness.

But simultaneously, she's an advisor to Illuminate AI, a company using spectroscopy—the science of light—to revolutionize how beauty products are matched to skin tones. The technology drowns out ambient light when you take a selfie, accurately reading your skin tone and undertone regardless of lighting conditions.

"Something like 90% of women wear the wrong foundation shade," Magsaysay notes. The beauty industry, a $500 billion sector, has been operating essentially blindfolded, relying on consumers to self-report their skin tone using subjective descriptors. Illuminate AI uses science to solve this problem, creating better data for consumers and better product development insights for brands. Magsaysay's role? Translating the science for consumers and connecting the startup with editors and publications, helping tell the story in ways that resonate beyond papers and academic journals.

"So yes, I am losing work to AI, but I am also figuring out ways to get work through AI," she says. This flexibility—the ability to see how technology changes the landscape and find your place in the new terrain—echoes her career.

The Through-Line: Remaining Curious

Speaking to students and researchers at Caltech—an audience of scientists and engineers—Magsaysay identified the common thread: curiosity. "I think the through line for me is curiosity. I'm sure you guys are all hyper curious people. It's like what fuels what you do," she told them. "That is what helps me evolve into other forms of media, new media. I still do write and participate in legacy media, but just remaining open and figuring out different ways to be a storyteller and reach an audience and highlight what someone might be doing that I think is interesting."

It's why she noticed the Filipino excellence emerging across fashion before it became a trend story. It's why she saw the potential in Los Angeles when New York editors dismissed it. It's why she understood that the duster could be more than housewear. In her podcast "Living Well," this curiosity manifests as conversations with founders, doctors, plastic surgeons, longevity specialists, and beauty innovators—many of them AAPI leaders like Tower 28 founder Amy Liu or Jennifer Aniston's trainer Dani Coleman.

The Exhaustion and the Reward

Magsaysay is frank about the costs of working in an industry driven by relentless newness. When asked if she gets tired of the hustle, she doesn't hesitate: "Yes."

"The consumer demand for newness and speed is insane," she explains. "Insane. Unless it's like a steep discount, the only thing that's moving the needle for your business from an e-commerce standpoint is new." This creates a capital-intensive environment with smaller margins where brands must constantly produce content that signals innovation, whether or not actual innovation is happening. It's exhausting for creators, brands, and arguably for consumers too.

But Magsaysay also recognizes that "if you're very intentional about, you know what, we're going to really create this like very focused campaign and it's going to be beautiful and it'll be this, and it's intentionally slow and drawn out... you can kind of still cut through the noise and do something different rather than compete with speed."

The Door Is Still Open

Twenty years after standing outside a Manhattan nightclub with a clipboard, Magsaysay is still, in a sense, managing a door. But instead keeping people out, she opens spaces for voices and stories that fashion media has historically excluded.

She has a point of view. and in an industry often criticized for superficiality, a clear point of view—about who matters, what stories need telling—might be the most valuable commodity of all. The door is open. Melissa Magsaysay is still deciding what's worth letting through.

Caltech Y Volunteers Remove Ivy at the LA Arboretum for Make-A-Difference Day

Damian R. Wilson
News

On April 11, Caltech students traveled to the Los Angeles County Arboretum and Botanic Garden in Arcadia for a Make-A-Difference Day service project organized by the Caltech Y. Volunteers spent the morning removing Algerian ivy from tree trunks and root systems, helping protect the Arboretum's plant life from invasive overgrowth.

The 127-acre Arboretum, established as a public garden in 1947, sits on historic Rancho Santa Anita, once known to the native Tongva people as Aleupkigna, or "the place of many waters." Developed by Elias J. "Lucky" Baldwin in 1875, the site now serves as both a public garden and a conservation space for plant species native to Southern California and beyond.

Otis Otieno (ACM '27, Blacker), who helped organize the trip, described the Arboretum as a distinctive ecological and cultural site within Los Angeles. Originally, he said, the Arboretum was founded in part to provide protected space for endangered Southern California plant species, including Engelmann oaks. The Engelmann oak, also known as the California blue oak, has long provided food, material, and spiritual connection for Indigenous communities. In recent years, Otieno said, the Arboretum has also expanded to include plant species from other parts of the world, helping create a rich habitat for resident and migratory birds.

"This has enhanced urban biodiversity," Otieno said, "as various resident and migratory birds now consider it a vital sanctuary."

For volunteers, the day's main task was removing ivy. Otieno explained that Algerian ivy competes with intended plant species for water, nutrients, and space. During the service project, students saw how ivy could wrap around trees and send roots into nearly every available crevice in the ground.

"This is the equivalent of a human being constricted by mini-pythons all working together," Otieno said. Some ivy, he added, climbs trees in search of sunlight, competing with the host tree's own foliage.

For Elin Stenmark (Ay/Planetary Science '26, Venerable), the work was both useful and restorative. Stenmark, who grew up around forested Swedish landscapes, said she was especially excited to spend time outdoors.

"It was satisfying to see the instant results of our weeding, which scaled proportionally with effort," Stenmark said, "something that is not a regularity in my day-to-day life of problem sets and research undertakings."

She added that the Arboretum was "gorgeous" and that it was a privilege to play a small role in its stewardship. Though she had never visited before the Make-A-Difference Day assignment, she said she plans to return before graduation.

Beyond the immediate ecological task, Otieno said he hoped volunteers would leave with a broader sense of humility and responsibility.

"My bare minimum for volunteers is just to take a break from Caltech, or life in general," Otieno said. "Being outdoors instills humility in volunteers that there are bigger forces in life and the knowledge that while man is the biggest evolutionary force in the world, he can also be a steward of the natural world."

He also hoped the visit would encourage students with interests in plants, birds, and conservation to keep those passions alive. During the trip, he recalled being impressed by a student who spent time spotting birds and describing their behaviors after the volunteering activity.

Caltech Y volunteers remove ivy from plant life at the Los Angeles County Arboretum and Botanic Garden. (Photo: Otis Otieno)

For Stenmark, Make-A-Difference Day has become a personal tradition: a way to step outside Caltech and give back to the broader Pasadena and Los Angeles community. She noted that the timing, early in the term, makes it easier for students to participate before workloads intensity.

"I'm also appreciative of the generous Caltech Y staff and volunteers, and student site leads, who go to great lengths to make MAD Day an accessible and enriching experience," Stenmark said. "The programming from the Y has absolutely inspired me to seek out more volunteering opportunities at Caltech and beyond."

The Caltech Y has worked with the Arboretum for several years. Otieno said this was his third year volunteering there, and that relationships with the Arboretum predated his own involvement. In the past, students have often volunteered individually, but he sees potential for a more sustained relationship.

"There is the possibility of setting up consistent volunteer opportunities," Otieno said. He added that volunteers may also be able to participate in a program to become certified arborists, an opportunity he hopes to pursue and make more accessible to students.

For now, students and community members can get involved through weekend volunteering and the certified arborist program. Otieno also said there have been discussions about a future Caltech Y 5K through the Arboretum, with funds donated to support the garden.

"Lots of planning," he said, "but there is more coming for sure."

Scan the QR code to explore volunteer opportunities at the Arboretum.

Integrated Core, One Year Later

Damian R. Wilson
News

On a Saturday afternoon this spring, part of Caltech's inaugural Integrated Core cohort found itself somewhere few first-year lab sections go: wandering the aisles of Home Depot.

They were looking for tubing, buckets, connectors, and whatever else might help them build small-scale carbon capture systems from scratch. One group was growing algae. Another was working with limestone. A third was thinking through carbonate chemistry and industrial slag. The problem was not to follow a protocol, but to design one: take carbon from the atmosphere, or find a way to store it, and prove that something had happened.

The sensors, it turned out, were not especially helpful. Graduate TA Yuri Tamama (GPS), who helped run the geology labs, recalled testing inexpensive CO_2 sensors that had arrived from Amazon. In a nitrogen chamber, some still read ordinary atmospheric CO_2. When exposed to methane, they interpreted it as carbon dioxide. In a vacuum chamber, they crashed entirely.

"They were total bums," Tamama said.

It was, in other words, a lab failure. It was also exactly the point.

"I think it really gave students valuable insight into what science and research is actually like," Tamama said. "There's a distinct difference between what you do in standard classes and in science. Because in science, you design experiments and figure out what materials you need, and you're basically doing something where you don't know whether it works."

Last fall, the Tech reported on the launch of Integrated Core, Caltech's pilot first-year alternative to the standard Core curriculum. Organized around the theme of energy, the program brings a small cohort of first-year students through a 27-unit, three-term block spanning physics, chemistry, biology, mathematics, earth science, and humanities. The premise was ambitious: rather than asking students to discover connections between disciplines after the fact, Integrated Core would make those connections the curriculum itself.

At the time, much of the program still existed in future tense. Fall would use space travel to connect mechanics, fuel chemistry, planetary science, and ethics. Winter would turn to bioenergetics. Spring would take up carbon capture and climate. The humanities sequence, taught by Dean Jennifer Jahner, would move from space law and ethics to Caltech archives and hydropower, then to Octavia Butler's *Parable of the Sower*.

Now, after two more terms, the pilot has become less a proposal than a lived experiment: sometimes polished, sometimes improvised, sometimes overfull, and, by many accounts, unusually beloved.

"I'm honestly really impressed with the degree of coherence between subjects," said Vedant Ganesh, a member of the inaugural cohort. "I wasn't 100% sold when I signed up. There was this degree of uncertainty, as there is with every experiment. It really has gone well."

From Owens Valley to Big Creek

If fall began on the road to Coso, Mono Lake, and Manzanar, winter brought the road back to Pasadena.

Dean Jahner had known from the beginning that she wanted Integrated Core students to spend time with the Caltech Archives. As she saw it, the archives offered more than institutional memory. They offered a humanities laboratory: a place where students could confront objects whose meanings were not already settled.

"We have an incredibly rich institutional history that's right down in the Beckman sub-basement," Jahner said.

Peter Sachs Collopy, Caltech's University Archivist and Head of Archives and Special Collections, joined Jahner in co-teaching the winter humanities term. Together, they designed the course around the history of water, power, and Los Angeles: especially the ways Caltech's early development overlapped with the rise of hydroelectric infrastructure in Southern California.

The first-year field trip had already introduced students to the hydropolitics of the region, including Owens Valley and the Los Angeles Aqueduct. Winter asked them to trace a related history: how electric power, money, engineering, and institutional ambition flowed through Pasadena and Los Angeles in the early 20th century.

"What we found as we looked at the relationship between the history of hydroelectricity in Southern California and the history of Caltech," Collopy said, "was more and more points of contact between them. More than we expected!"

One starting point was the building now known as Linde Hall, originally constructed in 1923 as the High Voltage Research Laboratory. As Collopy described to the *Tech*, the lab was funded by Southern California Edison as a place to test transmission equipment at very high voltage. It also housed a million-volt transformer designed by Royal W. Sorensen, the founder of electrical engineering at Caltech.

The building's history unfolded like that of twentieth-century science in miniature: from high-voltage electricity to X-ray research to medical physics to early particle acceleration.

For Collopy, that story opened onto a broader regional history. California's electrical system developed differently from much of the United States, relying heavily on hydroelectricity rather than coal. Investors, engineers, architects, and institutions moved between Caltech and the electric industry. Henry Huntington invested in the Big Creek hydroelectric project. The architect Gordon Kaufmann designed both Caltech buildings and Hoover Dam. John B. Bock, whose donation helped build the Athenaeum, worked in engineering assessments of hydroelectric projects.

"There are these people who are moving, whether they're engineers or bankers or architects, between Caltech and the hydroelectric industry and creating these persistent connections," Collopy said.

Students were asked to build digital exhibitions around these connections. Each exhibit had to weave together three objects: one from the Huntington Library's Southern California Edison collection, one from Caltech's physical archives, and one from another source. The resulting projects covered topics from electrical substations and corporate partnerships to Theodore von Kármán's interest in hydraulic infrastructure.

The result, Collopy said, became something like a collective scholarly project on a subject that doesn't yet have a book.

"There is no scholarship on the relationship between Caltech and hydroelectricity," he recalled telling students at the start of the quarter. "This isn't an established subject. We're figuring it out in this course."

That uncertainty was part of what made the class unusual. In many courses, Jahner noted, instructors teach toward a known outcome. Here, she and Collopy were discovering the material alongside the students.

"A lot of this was just so much fun," Jahner said, "to be on the ground floor of something where you genuinely didn't know what you were going to find."

As students reported, the archival work was integral to the later fabric of the course. First-year Selene Wang described winter humanities as a shift into "Caltech history specifically," with students studying how energy and power were delivered to Los Angeles, how that infrastructure was built, and how Caltech was linked to it.

Gene Huntley, another student in the cohort, called the archival project one of his favorite parts of the year.

"We went to different archives and literally — half of our assignments, I'd say — were going to the archives and requesting some kind of document we had to interpret," he said. "Primary, secondary documents we could hold. Like the original copy that was literally falling apart."

The same equations, everywhere

While humanities explored the region's infrastructural past, the scientific side of winter focused on cellular bioenergetics: how organisms obtain, convert, and store energy. For Wang, the term stayed close to its theme. Biology leaned into metabolism and phosphorylation; chemistry covered thermodynamics and kinetics in biological contexts.

Still, Integrated Core's most revealing moments often came when the official theme receded and the same mathematical structure appeared in multiple scientific settings.

Professor of Geology and Geochemistry Paul Asimow, one of the program's central organizers, gave one example from winter. Teaching Professor of Biology and Geobiology Justin Bois had developed a problem involving first-order kinetic rate equations for how the body metabolizes alcohol and acids. Asimow recognized the same equations from geochemistry, where they describe radioactive decay chains.

"I looked at the solution and said, that is exactly the same solution to exactly the same equations in geochemistry," Asimow said. "So let's just ask it as the geochemistry question instead of the biochemistry question."

For Asimow, these were the moments that made the Integrated Core concept feel real. When students learned diagonalization in linear algebra, faculty from across the sciences began finding places to apply eigenvalues and eigenvectors: seismology, climate data, chemical systems, biological systems, physical systems.

"As soon as they learn a new method in linear algebra, we're all jumping in and figuring out what we can do with it," Asimow said. "That's the concept, but it's been amazing to see it happen."

Students noticed. Huntley said many of the strongest "integrated moments" appeared not in lectures, but in problem sets, when a technique that had seemed abstract suddenly became useful.

"You get to work it out and go, oh shoot, so that's where it came from," he said.

Winter also brought new forms of assessment. Professor of Electrical Engineering Glen George, teaching physics from the standpoint of practical energy technology, asked students to write a textbook to complement the winter physics material rather than take a conventional exam. Professor of Biology and Geobiology Dianne Newman's hypothesis-oriented research proposal assignment

Excited Integrated Core students on the first day of fall classes. (Photo: Caltech Core Curriculum)

Professor Gil Refael demonstrates a physics concept for Integrated Core students. (Photo: Selene Wang)

Integrated Core students visit the Huntington Library and Botanical Gardens as part of their spring study of Octavia Butler. (Photo: Caltech Core Curriculum)

Integrated Core students and Tamama work on a cross-disciplinary "C" problem set in the program's dedicated BBB B101 classroom and lounge. (Photo: Selene Wang/Caltech Core Curriculum)

matured into a format modeled on the NSF Graduate Research Fellowship proposal.

For Asimow, that was a "nice twist": an assignment that could have been a SURF-style proposal become practice in a format many students may encounter again if they apply to graduate school.

First-year Michelle Lu also pointed to the proposal project as one of the year's most meaningful experiences. Students chose a complex scientific problem, identified a knowledge gap through literature review, consulted Caltech faculty, and developed a specific, falsifiable hypothesis with a proposed way to test it. In winter, that work culminated in a five-minute chalk talk or elevator pitch; in spring, it expanded into the NSF-style written proposal.

"This project was especially valuable," Lu wrote over email, "as it provided us early training into becoming thoughtful and professional scientists in the future."

For Lu, the unusual assignments were part of what made the pilot valuable. Integrated oral exams, chalk talks, the space-travel ethics project, and the NSF-style proposal all asked students to do more than absorb content. They had to adapt, collaborate, and keep working inside a course whose own shape was still being refined.

"I truly believe that IC taught me not only the foundational knowledge," Lu wrote, "but trained me with the necessary skills like intellectual adaptability and collaborative perseverance."

That same adaptability shaped the curriculum itself. The program was still changing as it ran: faculty meetings generated new connections, assignments shifted, and the rhythm of lectures, problem sets, labs, and integration had to be discovered in real time. That, too, was part of the pilot. Integrated Core was not only asking students to work across disciplines; it was testing, week by week, what interdisciplinary teaching could look like.

For first-year Maxwell Yu, that improvisation did not mean the larger structure disappeared. If anything, he said, the second and third terms asked students to take more responsibility for seeing the connections themselves. Fall's space-travel theme had been more explicit, while winter became, in his phrasing, "energy on our world": biological ecosystems, ecosystems, atmospheres, power distribution, and the history of electricity in Los Angeles. Spring then turned toward "the future of energy on planetary timescales," through carbon capture and climate.

"It's more on a day-to-day level that things became less like planned from the start," Yu said, "which is not necessarily a bad thing."

Professor of Physics Gil Refael described the same structure from the faculty side. Winter, he said, used electricity as a mechanism for teaching electromagnetism, electrochemistry, and bioenergetics, while spring paired geophysics and geochemistry on carbon capture with physics units returning to space travel, special relativity, and optics. Refael said he was less attached to a single overarching theme than to a set of themes (carbon capture, energy, space exploration) that faculty could engage at roughly the same time.

"I was timing the discussion of flagellum motors with the chemistry discussion of ATP," Refael said. "I think chemistry was aligning the discussion of electrochemistry with the discussion of batteries and static electricity."

Carbon, climate, Butler

In spring, the scientific theme shifted to carbon capture and climate. The geology component became especially project-based. Students heard from guest speakers working on carbon capture technologies, then split into groups to design laboratory-scale demonstrations.

Wang's group worked with microbes. Others explored industrial slag or carbonate chemistry. Ganesh worked on accelerated weathering of limestone: dissolving CO_2 in water at elevated pressure, then pumping it through limestone so an acid-base reaction would remove carbon from the gas stream.

His role was to verify that carbon had actually been removed from the inlet gas. To do so, he emailed researchers outside the Integrated Core faculty for advice on measuring CO_2 concentration, borrowed a trace-gas analyzer, and made his own gas samples.

"Everything is very do-it-yourself," Ganesh said. "I really enjoyed the option to design my own labs."

This was the spring lab's guiding philosophy. Students were not simply performing known demonstrations. They were deciding what counted as evidence, what equipment they needed, and what to do when the apparatus failed.

For Tamama, who will TA Integrated Core again next year, this made the course unlike any previous TAship she had done.

"When I taught classes with labs previously, it was pre-established," she said. "We had everything on a Google Drive and the equipment there. Now we're figuring out: We have this, not this, but does this equipment work?"

Asimow described the same experience as "running back and forth between Crellin and the IC building and various GPS buildings" to scrounge up lab equipment.

In another course, such improvisation might have been a sign of disorder. In Integrated Core, it became part of the pedagogy. The students were learning not only carbon chemistry, but the structure of experimental uncertainty.

"You don't know what's going to work," Tamama said. "It might fail. But hey, that's science."

Spring also brought the humanities sequence to Octavia Butler's Parable of the Sower. For Jahner, Butler provided the year's most resonant convergence. Butler was a native Pasadenan whose papers are held at the Huntington Library. Her novel, set in the 2020s, imagines a climate-ravaged, violently unequal Los Angeles and follows a young protagonist traveling north in search of water and survival.

"Butler sort of brings together the local Pasadena history that we were looking at in the winter quarter with Throop and Caltech," Jahner said, "but then adds a very distinctive lens that she would bring as a young woman growing up in Pasadena."

The move from Caltech's early elite circles to Butler's Pasadena was, Jahner said, "a big shifting in the ground." Winter had asked who built Caltech and the infrastructure around it. Spring asked who was excluded from that world, and what it meant to imagine futures from the perspective of a segregated city.

Students visited the Huntington to view Butler's papers, including journals, drafts of Parable of the Sower, and the newspaper clippings she collected on the science that informed the novel.

For Jahner, the visit underlined the unity of the year. Butler's novel looks to the stars, echoing fall's utopian and ethical questions about space. It is rooted in local history, echoing winter. It draws on climate science from the '80s and '90s, echoing spring's earth science and carbon capture work.

"I was surprised, actually, at how much coherency there was over the course of the year," Jahner said.

She had designed the humanities sequence to be more than a one-quarter requirement. She wanted it to function as a throughline — a reminder that humanities aren't something to be siloed into a single building or term, but an analytic lens students could carry into technical problems.

"There's clearly a version of Integraated Core where you just had an IC hum for one quarter and that was that," Jahner said. "I very much wanted students to come away with a sense that humanities is not something that you portion off for a term."

Students reflected that assessment. Ganesh said the humanities component gave students freedom and trust to pursue their own questions, whether space law in the fall or archival research in the winter.

"Dean Jahner is amazing," he said. "There's a large element of freedom and trust."

A Caltech in miniature

Integrated Core has always been both curricular and social. Its structure creates something like a small school inside Caltech: a cohort of roughly twenty students who share lectures, labs, problem sets, TAs, faculty, and a dedicated basement space.

The closeness has shaped the program as much as the coursework. Wang described the group as "very well-bonded," with students doing sets together, talking outside class, and spending long hours in their shared space in the BBB basement. TAs bring food. Ramen accumulates. Faculty dogs make appearances. The cohort has a 40-page quotebook, contents classified.

Blood on the Clocktower, introduced during the opening field trip, became a recurring social ritual. What began as a game in the Sierra Nevada turned into weekly sessions involving IC students and others outside the program.

Ganesh called it "basically a 9-unit class for me at this point."

That community has helped answer one early concern: that joining Integrated Core might isolate students from the rest of the first-year class. Ganesh said his experience has been the opposite.

"Rather than isolating, it's been enriching," he said. "Not only do I have the friendships I formed organically in the Houses, but I also have the friendships I formed in IC."

For first-year Delta Blendea, the program's small scale also made possible a kind of feedback and attention that would be hard to reproduce in standard Core. She described faculty as unusually responsible: sometimes, in her view, almost too responsive. If a problem set exposed widespread confusion, instructors could adjust quickly; in one case, Bois held an impromptu clarification lecture that same afternoon.

"Pretty much no notes," Blendea said, offering a glowing review of the year. But the praise came with a revealing caveat. The same attentiveness that made IC feel so unusually responsive could, she suggested, risk becoming too protective.

"This doesn't happen in regular Core," Blendea said, "and it's kind of incredible. One of the best parts of IC is how much attention the faculty can give you." Still, she added, "Maybe don't coddle us. We're Caltech students, like everyone else."

Lu similarly wrote that Integrated Core shaped her first year not only academically, but socially. Because students spent much of the day together, she formed close friendships through problem sets, shared frustrations, and the ordinary comedy of living through a new program together. At the same time, she said, IC didn't prevent her from building community outside the cohort.

"Outside of Integrated Core," Lu wrote, "I still got to socialize with my house and others who were taking normal Core as well."

Still, the program isn't frictionless. Students emphasized that Integrated Core can ask for more time than standard Core, especially in heavy weeks. Wang said the program is best suited for students who want to invest heavily in their first-year academic experience and are excited by interdisciplinarity.

"If you want to do one thing really well, then don't do Integrated Core," she said. "But if you want to get a lot out of your first-year Core experience... I think this is a great way to do it."

Huntley offered a similar appraisal. Students who already know they want to focus narrowly on one field may prefer standard Core and advanced coursework. But for students who want to explore the intersections of disciplines, he said, Integrated Core is "100% a must do."

He also pointed to one area where the program may still need adjustment: physics. Some students, he said, struggled when physics lectures moved too quickly or felt disconnected from the fundamentals. In the third term especially, physics could feel overwhelming.

"Sometimes the physics can jump from 10 to 100," Huntley said.

Such issues are part of what faculty expect to refine. Asimow said next year will follow broadly the same structure, but with the advantage of having built the course once already.

"Having the base for all the assignments, all the lectures, all the exams done at least once gives us time either just to turn the crank again, which would be boring, or improve it — iterate on it, make it better," he said.

Tamama expects the same. With one year of data, faculty and TAs have a better sense of how long problem sets take, where students struggle, and which lab equipment actually works.

"We have learned a lot about what works and what doesn't," she said.

What survives the pilot?

Integrated Core is approved for two years, with many of the current faculty committed to teaching it again next year. After that, its future will depend on further faculty discussion. Asimow said the faculty board approved the program for two years, and the team will need to report on its progress and seek permission to continue.

In the short term, Collopy said, the winter archives section will return next year, again co-taught with Jahner. Beyond that, he sees the course as evidence of what archival work can offer Caltech students whether in Integrated Core or elsewhere.

Archives, he said, are not simply repositories. They are tools for asking questions when the answers are not already organized.

For Jahner, the first year has validated the idea that humanities can remain present throughout an intensive scientific curriculum: not as ornament, but as method.

"For me, the point has been I've learned a tremendous amount in teaching and being involved in this course," she said. "The fact that humanities could be a part of that all the way through is realizing that kind of dream for me, too."

For Asimow, Integrated Core has offered a unique opportunity to teach science in the way he thinks science actually works: connected, improvisatory, mathematically recurring, and oriented toward real problems.

"From a faculty perspective, it's been enormously fulfilling and satisfying to teach this way," he said. "It's really the most fun I've had teaching."

Ganesh, looking back on the year, offered his own unifying theme. Officially, Integrated Core is about energy. In practice, he said, it was also about trust and freedom: trust that students were trying hard, and freedom to explore a problem deeply enough for it to become their own.

"I think IC has succeeded with flying colors," he said, "in its ability to give students the opportunity to come out of Core without becoming jaded by the number of assignments and by the grind that comes with Caltech."

By spring, the original question — could first-year science be taught as one edifice rather than many silos? — had become less abstract. It looked like students in the archives, piecing together Caltech's hydroelectric past. It looked like first-years reading Butler's climate future in the city where she grew up. It looked like a Home Depot run for a lab that did not yet exist, a bad CO_2 sensor in a vacuum chamber, and a group of students learning that science begins not when the apparatus works, but when it doesn't.

"The unifying theme of IC, if I may, is theoretically supposed to be energy," Ganesh said. "But I'd say the secondary unifying theme, in my experience, has been trust and freedom."

The California Tech Journalistic Principles

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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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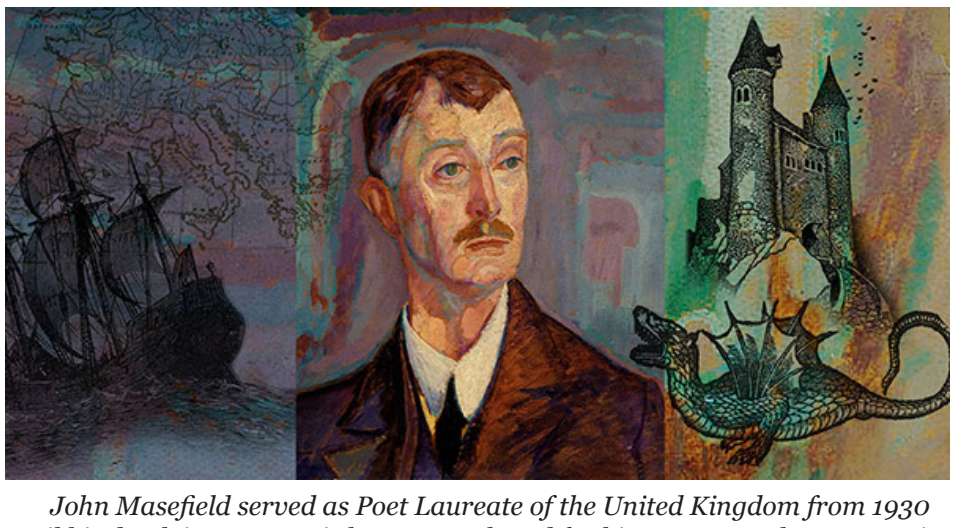
Tech Editor's Corner

On Growing Old

By John Masefield

Be with me, Beauty, for the fire is dying;
My dog and I are old, too old for roving.
Man, whose young passion sets the spindrift flying,
Is soon too lame to march, too cold for loving.
I take the book and gather to the fire,
Turning old yellow leaves; minute by minute
The clock ticks to my heart. A withered wire,
Moves a thin ghost of music in the spinet.
I cannot sail your seas, I cannot wander
Your cornland, nor your hill-land, nor your valleys
Ever again, nor share the battle yonder
Where the young knight the broken squadron rallies.
Only stay quiet while my mind remembers
The beauty of fire from the beauty of embers.
Beauty, have pity! for the strong have power,
The rich their wealth, the beautiful their grace,
Summer of man its sunlight and its flower,
Spring-time of man all April in a face.
Only, as in the jostling in the Strand,
Where the mob thrusts or loiters or is loud,
The beggar with the saucer in his hand
Asks only a penny from the passing crowd,
So, from this glittering world with all its fashion,
Its fire, and play of men, its stir, its march,
Let me have wisdom, Beauty, wisdom and passion,
Bread to the soul, rain where the summers parch.
Give me but these, and, though the darkness close,
Even the night will blossom as the rose.



John Masefield served as Poet Laureate of the United Kingdom from 1930 until his death in 1967. He is best remembered for his sea poems, long narrative poems, and magical children's novels. (Image: Plough)