

TECHNIQUES

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*What is the ratio of Caltech undergraduates to turtles living in the campus's Throop Pond?
Find the answer on the back cover.*

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CLASS OF
'59

Caltech

*Sarah Crucilla at Eureka Dunes,
Death Valley National Park, California*



Remotely Enthusiastic: Q&A with Sarah Crucilla (Class of 2020)

Crucilla was scheduled to speak at the 2020 Torchbearers Appreciation Luncheon, which was canceled in compliance with the Safer at Home order.

What made you decide to come to Caltech?

Caltech was a top choice, and I will never forget when I found out I was accepted. No one was home, and I just ran around the house screaming until a neighbor came over to see what was going on. But before I made my decision, I visited campus and had dinner at one of the houses. I loved the culture. I always knew Caltech had amazing research opportunities, but ultimately I chose to come here because I felt at home.

Did Caltech meet your expectations?

Definitely. I've done so many things that undergrads at most schools never get to do. I did two SURFs [Summer Undergraduate Research Fellowships], and last summer I worked at JPL. I have handled rare minerals and have been trusted to use highly sensitive, very expensive equipment. In fact, my experience using a mass spectrometer helped me land the job I'll start at Harvard after I graduate. And I absolutely love the house system and the people I've met.

Did you enjoy any opportunities you hadn't anticipated?

As a member of the Interhouse Committee, I have met with Caltech administration to present students' suggestions regarding house governance policies. It's empowering to come to the table and interact with people of authority who believe that I have ideas worth listening to. And here's something I really never imagined I would do: I helped paint a giant, crazy, bioluminescent structure of Atlantis for our Interhouse party last year.

Tell us about remote learning during your final term.

Professors have recorded their lectures and structured their courses in ways that encourage us to interact with them and with each other. And students can host their own small-group meetings on Zoom, so we're still doing collaborative projects. I'm also a teaching assistant for Ge1 [Earth and the Environment]. It's a course where we study rock and mineral specimens up close. It turns out there's an online resource for examining 3-D models, so it's even possible to teach a hands-on course remotely. What I miss most are the informal late-night house gatherings, but we're making the best of it. Every Friday at 6:05 p.m., which is when we sit down for dinner in Blacker House, around 30 or 40 of us get on Zoom and eat dinner together.

Do you have any special messages for the members of the Torchbearers Legacy Society?

I wish I could thank the Torchbearers in person. The spring term is not what I imagined or wanted, but, in a way, I have found value in this turn of events because it has shown me that people don't have to be physically in one place to be a community. Even here in New York, I feel a sense of connection with my friends, and I feel connected to Caltech's donors. Their support has given me so much—from exceptional research opportunities to basic supplies. After all, students will always need pencils! So, to the Torchbearers, I say: "Thank you for being part of Caltech's community. Thank you for caring. Without you, Caltech wouldn't be the amazing, unique place it is. The world needs Caltech, and Caltech needs you!"

Rushton Hays: A True Friend to Caltech

Rushton Hays (1938–2018) was not a Caltech alumnus; he graduated from Mississippi State University in 1955 and held senior management positions at a number of luxury resorts in California. As far as anyone knows, he never set foot on Caltech’s campus. His longtime friends Lloyd Bennett and Bob Summers knew nothing about Hays’s association with the Institute. Neither did anyone at Caltech—until his bequest of more than \$3 million to create the Rushton William Hays Memorial Scholarship Fund.

Bennett, who was Hays’s accountant for 35 years, describes his friend as a world traveler, wine aficionado, art collector, and patron of museums and the symphony. “Rushton was old school: a good man with a tough hide and a huge heart underneath,” Bennett adds.

Summers, who met Hays through Bennett, paints the picture of a Southern gentleman who lived well, worked hard, and, above all, had a heart for people. “There are stories of him helping workers at the resorts he managed buy cars and go to community college,” Summers says. “He loved education. He thought that was an important way to improve people’s lives.”

Although Hays worked in the hospitality industry, “Rushton had a bit of passion for engineering,” Summers notes. “And somewhere along the line, he focused on arguably one of the greatest engineering schools in the country. He really wanted to help kids who need scholarships attend Caltech.”

Summers, who served as Hays’s financial adviser for 26 years, observes that giving away money is not easy. “Rushton struggled with questions I think everybody who has a little bit of money struggles with: Where do I want my money to go? How am I going to make that happen?”

Torchbearers

HONOR ROLL

In recent months, the following people have joined Caltech’s Torchbearers Legacy Society.

Dennis Barrett (PhD ’63)

Maile Fries (PhD ’85, parent ’19)

Jeffrey Goldsmith (MS ’95)

Carl Imparato (BS ’74)

Todd Larson

Alan Lewis (BS ’72)

Robert (BS ’71, MS ’73)
and Susan Offermann

Victor and Jeanne Orphan

Marc Schatkun

Steven Wierenga (BS ’70)

Eugene Wilson

Andrew Yang (BS ’04)

ESTATE GIFTS

From the estate of **Eunice Goodan**, Caltech received over \$9,000,000 in unrestricted support.

From the estate of **Richard Jali** (BS ’55, MS ’58), Caltech received over \$500,000 in unrestricted support.

From the estate of **Richard Vasey**, Caltech received a partial distribution of \$1,300,000 to support undergraduate scholarships.



Susannah Blinkoff (left), Noel Corngold, and Jordan Corngold gathered at the Athenaeum in May 2019 to celebrate the creation of the Noel Corngold Fellowship.

Caltech Professor Helps Future Students

Two generations of Corngolds endow a fellowship for Caltech graduate students

At research universities, on Wall Street, and in scientific foundations and federal laboratories across the country, there are Caltech alumni who have Noel Corngold to thank for his part in their success. A professor emeritus of applied physics, he has mentored students for five decades. Now, Corngold and his family have extended that support far into the future by creating a graduate fellowship in his name.

To endow the fellowship, Corngold is completing a pledge with a series of contributions to *Break Through: The Caltech Campaign*. Son Jordan Corngold and Jordan's wife, Susannah Blinkoff, also are major contributors.

Noel Corngold timed his contributions so that he would gain four years of tax breaks (read an update on the CARES Act on page 6). In addition, the Gordon and Betty Moore Graduate Fellowship Match will provide an extra dollar for every two the family gives.

"Caltech is an important part of my life and my family's life, and we're very proud of the place," Corngold says. "I thought this would be a nice thing to do."

LE LIVRE C'EST MOI!

As a researcher, Corngold is known for elegant theoretical insights into how neutrons behave in reactors and, more generally, how large numbers of tiny particles behave collectively.

He also is highly regarded for his focus on teaching. Students had to attend his classes to succeed. When asked about a course textbook, he would respond, "Le livre c'est moi!" ("The book is me!") He asked for course evaluations early and honed his instruction in real time.

Corngold particularly cherishes graduate students, the core of the faculty's research enterprise. While they gain training, experience, and references, he explains, graduate students also help professors pursue more ideas than they could single-handedly.

However, he adds, professors must balance their ambitions with the availability of research grants or departmental budgets to fund graduate students. Those sources wax and wane. By contrast, endowed fellowships provide stability.

“Faculty treasure privately funded graduate fellowships for that reason,” Corngold says.

Students also put a premium on fellowships, which increase their independence. Corngold believes that new graduate students need the freedom that fellowships can confer to sample different research groups. “A new student doesn’t have a feel for what a given field is like and could get locked in,” he says.

NO DEAD WOOD

Corngold’s life was shaped by a fellowship that helped fund his graduate study at Harvard. The fellowship had been endowed a century earlier and named for Charles Whiting, a talented young Harvard physics professor.

Corngold completed his thesis experiments at Brookhaven National Laboratory, then stayed on as a theorist focused on reactor physics. He joined Caltech’s faculty in 1966 to help strengthen the Institute’s program in nuclear engineering. He and his family quickly fell in love with Pasadena, and he was excited by the academic environment. A Harvard professor reaffirmed his choice, saying, “I’ll tell you one thing about Caltech: There’s no dead wood there.”

A CALTECH FAMILY

Over five decades, Caltech has become integral to the Corngolds’ lives. Noel Corngold and his family participated in campus arts clubs, and their children were employed on campus. Son Jordan waited tables at the Athenaeum, which hosted many family celebrations; daughter Cara, while a teenager, organized the nuclear engineering library; and Noel’s late wife, Cynthia, created the

Gallery-Goers group at the Caltech Women’s Club. Emily Corngold, Noel’s present wife, was a Caltech publications editor. Noel, Emily, and Jordan Corngold and Susannah Blinkoff are members of the Caltech Associates.

“My dad is 91 now, and he still makes it in to his office,” Jordan Corngold says, noting that the Caltech community treats its members with dignity.

“The fact that his name will be part of Caltech forever means a lot,” Jordan Corngold adds. “As my dad would say, it’s a no-brainer to give back.”

CONTINUED FROM PAGE 2

Rushton Hays: A True Friend to Caltech

In the end, Summers says: “Rushton ended up with far more money than he probably thought he would die with. I love the fact that his scholarship fund will help so many scholars at Caltech. I think Rushton would be happy about that.”

Scholarship support is a high priority for *Break Through: The Caltech Campaign*. Currently, more than half of the Institute’s undergraduates receive financial aid, made possible in large part by generous alumni and friends. Thanks to his extraordinary gift, generations of outstanding Caltech students will have a true friend in Rushton Hays.

Recognize This Alumnus?



The first time he experienced the prestige associated with being a former Caltech student, this alumnus had not yet earned his BS. In fact, he had just dropped out.

He had enjoyed his first three years at Caltech, especially freshman chemistry, which was taught by one of his heroes, Linus Pauling. This alum lived in Dabney House and played on the water polo and swim teams. But he also held multiple jobs. He ran samples for a local physician, waited tables in the dining hall, administered third-party surveys for companies through Caltech's Industrial Relations Center, and distributed water and ashtrays at conferences for personnel managers.

As he juggled employment and academics, his schoolwork suffered. "I didn't have enough time to study," he says. "I couldn't pass the courses. I had to leave Caltech."

His prospects were uncertain. "It was the 1958 Eisenhower recession, and there were no jobs—not even as a car salesman on commission," he explains.

Luckily, he held in his possession a business card given to him at a conference by a supervisor from Grand Central Rocket Co. The man was impressed with his Caltech credentials and hired him as a lab technician. In a year, the alum had saved up enough money to return to Caltech. "But when I went back, I lived off campus and all my friends were gone," he shares. "In my heart, I'm the class of '58."

After graduation, he worked variously as an industrial engineer, a chemist, and an all-around problem solver for everything from workplace safety to sales. But his true vocation—kindled by his Caltech experience—was to educate and inspire others. Over 35 years as an elementary and high school teacher, he developed math curricula and imbued students with critical-thinking and problem-solving skills. Now, he counsels other instructors on innovative teaching approaches and pragmatic classroom management techniques.

In 2019, Torchbearer **Ronald Leonard (BS '59)** and his wife, Shirley, embraced the opportunity to ensure that current and future Techers can afford and enjoy their undergraduate education without financial hardship. The couple established a scholarship fund through a charitable gift annuity that provides them with dependable income for life.

"On top of it all, instead of paying a huge tax bill on appreciated assets, we received a tax break," he explains. Each payment from the Leonards' gift annuity reminds them that they are helping Caltech students achieve their dreams.



Ronald Leonard (BS '59)

Charitable Giving in the Age of the CARES Act

Congress passed and President Trump signed the Coronavirus Aid, Relief, and Economic Security (CARES) Act in late March 2020. The new law contains several provisions related to charitable giving, including:

An above-the-line income tax charitable deduction of up to \$300 in 2020

This break is available even to people who claim the standard deduction (\$12,400 for single or \$24,800 for married-filing-jointly) and do not itemize their 2020 income tax returns. The provision was inserted specifically to encourage charitable giving this year.

Increased charitable-deduction limit for cash gifts to Caltech for those who itemize

For the 2020 tax year only, people who itemize may elect to apply 100 percent of their adjusted gross income (AGI) limit to cash gifts to public charities. Cash donations to fund a charitable gift annuity (CGA) also apply.

Temporary waiver of required minimum distributions (RMDs) for 2020

Just as before, however, individuals who are 70-1/2 or older may still make distributions of up to \$100,000 to Caltech from their IRAs, if it makes financial sense for them to do so. For example, Noel Corngold (see page 3) decided to give from his IRA in 2020 as well as in previous years.

What's New at Caltech

BIONIC JELLYFISH: FUTURE OCEAN EXPLORERS?

A team led by John Dabiri (MS '03, PhD '05), the Centennial Professor of Aeronautics and Mechanical Engineering, and Stanford graduate student Nicole Xu (MS '15) developed a tiny prosthesis that enables jellyfish to swim faster and more efficiently. The device uses electrical impulses, similar to the way a cardiac pacemaker regulates heart rate. Designing steering controls and sensors are the next steps toward a future in which jellyfish help scientists monitor the ocean and climate change.

AN ALGORITHM FOR ELEMENTARY SCHOOLS

Three Caltech researchers have found a way to improve Pasadena Unified School District's open-enrollment lottery system. Adam Wierman, professor of computing and mathematical sciences, collaborated with Federico Echenique, the Allen and Lenabelle Davis Professor of Economics, and Laura Doval, assistant professor of economics, to design an algorithm that helps keep more children in the district by matching more families with their top-choice schools. The improved system may provide guidance for other school districts with multi-round open enrollment, such as Boston and New York City.

CALTECH AND COVID-19

As we shelter at home, your Caltech community continues to pull together, united in the knowledge that science and technology will deliver solutions to this and many other challenges. Our students have embarked on spring term in a new online environment. And to keep you informed and connected, Caltech has launched a webinar series featuring Institute experts who are studying the novel coronavirus from diverse perspectives. Your support empowers Caltech to address society's hardest problems. Caltech is here for you.



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Techniques is published by Caltech's Office of Gift Planning. For more information about the stories featured in this issue, or if you have questions about deferred or other planned gifts, please call or email us.

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FROM THE COVER



Typically, the ratio of Caltech undergraduates to turtles is about 10:1. But with Safer at Home orders in place, turtles currently outnumber undergraduate students on the premises. We look forward to returning to campus!