

TECHNIQUES

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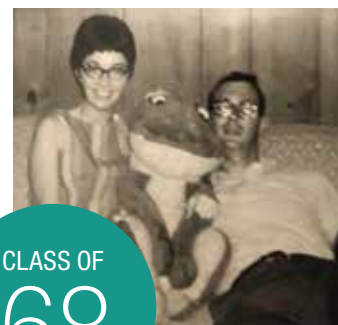
What have we here? Situated next to Noyes and Braun laboratories on campus—farewell, Mead Lab—the building rendered above is slated to open in 2024. Turn to the back cover to discover what will happen inside this 75,000-square-foot facility.

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CLASS OF
'68

Caltech

Father-Son Bond Lives on with a Gift to Caltech

The late experimental nuclear physicist William Rodman (Rod) Smythe (BS '51, MS '52, PhD '57) lived life according to a distinctive ethos. First, he believed that problems worth solving were those that could fit into an equation. Second, if something worked for his father, then it could work for him, too.

Guided by these principles, he determined that it made sense for him to attend Caltech. As an undergraduate studying electrical engineering, he was surrounded by analytic minds—including his father's. William Ralph Smythe, a longtime Caltech physics professor, was known for offering some of the school's most challenging classes.



William Ralph Smythe, Caltech professor of physics from 1923 to 1964

Over the course of his four-decade career at Caltech, Ralph Smythe, as he was known by friends and family, taught many esteemed scholars, including Nobel laureates Carl Anderson (BS '27, PhD '30), Edwin McMillan (BS '28, MS '29), and Charles Townes (PhD '39). He also taught his own son. Although Rod never divulged the grade he received in his father's class, he assured his daughter Stephanie Smythe that he passed. Not flunking was an accomplishment in itself.

"Grandpa was a role model for my father," Stephanie says. She notes that it was not unusual for her father to select an investment adviser, a retirement home, or even a camping trip based



The family gathered to celebrate Rod and Carol Smythe's 25th wedding anniversary in 1979. Back row, from left: Reed, Deborah, Will, and Ralph Smythe; Carol's mother, Ruth Morgan. Front row, from left: Rod, Carol, and Stephanie Smythe.

on his father's choices. "My dad never articulated it in this way, but I think there was always a piece of him that wanted his father's approval."

Still, Rod was his own person. As a professor at the University of Colorado Boulder, he helped build the school's particle accelerator. The cyclotron, which causes particles to spiral at fast speeds and high energy levels, was used by researchers for more than 25 years. He also had an adventurous streak. He hiked, went mountain climbing, and flew airplanes well into his retirement, Stephanie says.

As the son of a faculty member, Rod received free tuition after qualifying for admission at Caltech. He saved more money by opting to live with his parents in Sierra Madre instead of in student housing.

"It did not cost him anything to attend a premier educational institution," Stephanie says. "But he understood the challenges associated with paying for college when he had children and grandchildren."

Rod provided generously for his children's education and was committed to ensuring that others, too, enjoyed access to higher learning. In 2000, he used his inheritance to establish the William Ralph Smythe Scholarship at Caltech in honor of his father. After Rod died in 2020, his bequest bolstered funding for the scholarship.

As an endowed fund, the Smythe Scholarship will support generations of students and help Caltech continue to attract bright and hardworking

young people. Currently, more than half of Caltech undergraduates receive financial assistance.

"It takes a lot to make it at Caltech," Stephanie says. "Students need to show the drive, the skill, and the interest. My father created the scholarship to remove obstacles for these talented students. He wanted to make sure they would not be limited by lack of funds."

Year-End Giving to Caltech in 2021

As 2021 draws to a close, there is still time to plan a gift that will provide tax advantages for you while supporting world-class teaching and research at Caltech.

The Consolidated Appropriations Act of 2021 extends some provisions of the Coronavirus Aid, Relief, and Economic Security (CARES) Act through December 2021. If you itemize your tax returns, you can deduct your cash gift to Caltech in an amount up to 100 percent of your adjusted gross income.

Additionally, when planning your IRA withdrawal strategy, you may want to consider a qualified charitable distribution to Caltech as a way to satisfy your required minimum distribution without increasing your income taxes. If you are 70-1/2 or older, you may be able to give up to \$100,000 tax-free.

Your gift is a tremendous way to make a lasting impact as Caltech scientists and engineers tackle the most pressing challenges facing science and society.

Legacy Society

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

Jeffrey J. Deeter and
Carol R. Deeter

Jeffrey S. Engle and Valerie S. Engle

Lance M. Optican (BS '72) and
Donna C. Optican

Gary T. Rodriguez (BS '83)

Dorlene A. Root

Thayer Scudder and Eliza Scudder

ESTATE GIFTS

From the estate of **George L. Cassat**, Caltech received \$1,000,000 for endowed scholarships.

From the estate of **Thomas B. Howes** (MS '55), Caltech received \$10,000 in unrestricted support.

From the estate of **Sophia S. Yen**, Caltech received \$300,000 to endow the Yen Scholarship.

From the estate of **Mary F. Zirin**, Caltech received \$1,160,000 to benefit the Owens Valley Radio Observatory.

Thayer “Ted” Scudder, Caltech professor of anthropology from 1964 to 2000, now professor emeritus



One Professorship, Two Gifts

There are almost as many ways to make a gift to Caltech as there are reasons people decide to support the Institute.

Retired faculty member Ted Scudder and his wife, Eliza, for example, set their sights on the future of social sciences research and teaching. Their estate plans include two gifts to Caltech.

A leading expert on dams and their long-term effects on communities and global ecosystems, Ted Scudder joined the Caltech faculty in 1964. Over the course of his career, he conducted numerous studies spanning multiple generations to help predict the environmental, economic, and sociocultural effects of relocating populations for river basin development. His work has helped preserve the lands and livelihoods of millions of people across Africa as well as in India, Nepal, Jordan, Indonesia, Malaysia, the Philippines, Sri Lanka, and the United States.

“I’m gratified to know that my research has benefited, and continues to benefit, millions of people around the world,” Scudder says.

Throughout his tenure at Caltech, Scudder appreciated the Institute’s trust in him. As a researcher who always focused on longitudinal impact, he says he can’t imagine any other institution that would have afforded him the freedom to embark on projects nearly 50 years in scope.

The Scudders have returned that trust with their endowment gift to create the Eliza and Thayer Scudder Professorship in the Social Sciences.

A CUSTOM-MADE PROFESSORSHIP

The Scudders worked with development officers at Caltech to design a plan best suited for the assets they wanted to give. After exploring their options, the couple decided to combine two giving vehicles: a bequest of a brokerage account

paired with a retained life estate gift.

Each gift reduced the Scudders’ estate tax liability and will simplify the responsibilities of the executor for their estate.

A bequest is one of the most straightforward forms of planned giving, which makes this a popular option for donors. But some individuals, like the Scudders, gladly delve into the more involved route of retained life estate gifts because of the particular benefits they reap.

A retained life estate gift is an irrevocable gift of a partial interest in real estate. This giving vehicle provides an immediate charitable deduction in the year it is made, with an additional five-year carryforward for any unused deductions. Through this type of plan, the Scudders gave the remainder interest in their property to Caltech, but they will continue to reside in their home for the rest of their lives. When the retained life estate ends, Caltech will use proceeds from the sale of the property to fully fund the Scudder Professorship.

The Scudders view their gift as an investment that will enable Caltech scholars to undertake ambitious, yet-to-be-defined inquiries for generations to come.

Financial situations and assets vary widely from person to person. If you own real estate that you would like to continue to use as a residence, but also would like to earn a sizable tax deduction by donating it to Caltech, a retained life estate gift might be the right giving vehicle for you. Staff members in Caltech’s Office of Gift Planning are prepared to help you identify opportunities to be altruistic and financially savvy at the same time.

Here’s to Great Engineers

Earlier this year, Dorlene Root faced a big decision: Whom would she name in her will? She was pleasantly surprised to discover that some of life’s biggest decisions end up being the easiest ones.

In their 40 years together, Dorlene and her husband, George Root (BS ’62, MS ’63), had never given much thought to what would happen to their estate. But when George passed away in March 2021, Dorlene realized it was time to think about beneficiaries. “I asked myself how our hard-earned savings could make a difference in this world,” she says, “and Caltech was the answer.”

A MATTER OF THE HEART—AND MIND

Dorlene’s connection to Caltech is one step removed: George earned his degrees nearly two decades before they met. After completing his studies, he remained in the Pasadena area, working briefly at a small engineering company and then at JPL, where he thrived for 16 years. In 1981, a year after he and Dorlene met on a cycling tour in New Zealand, the couple married and moved to Colorado. He enjoyed the remainder of his career at Ball Aerospace and Hughes Aircraft Company.

“George was a brilliant man—also humble and very shy,” Dorlene says. “He never talked about himself or his accomplishments, but his Caltech degrees spoke volumes and helped open doors for him.”

Thus, Dorlene’s decision to name Caltech as the main beneficiary in her will was, in part, a decision of the heart. She wanted to celebrate and support the institution that launched her husband’s fruitful and fulfilling career. “One of his supervisors told me that George was among the top 10 infrared-sensor designers in the country,” Dorlene recalls. “He truly excelled in his career, and Caltech fostered the confidence that helped him shine.”

But Caltech was also a pragmatic choice. Dorlene credits the Institute with providing the right environment

George and Dorlene Root



for the best and brightest to make scientific discoveries and technological breakthroughs for the betterment of humankind.

THE GEORGE AND DORLENE ROOT FELLOWSHIP

George received scholarships as an undergraduate at Caltech, and that sparked Dorlene’s idea to support aspiring scholars. But she opted to focus on graduate students. As she points out, a BS from Caltech is versatile, and when undergraduates leave, they take myriad career paths. Her particular interest, however, is in preparing future generations of engineers. So, she decided to invest in those who are further along in their educational paths and thus more likely to stay the course.

A former law enforcement and probation officer, Dorlene recommends that no one ask her technical questions about computers and other electronics. (You may, however, approach her if you require assistance apprehending a criminal, she says.) “I don’t have a brain for technology and gadgets—most people don’t—which is why I want to support students who have proved they belong at Caltech,” she explains. “The world will always need great engineers.”

After she made her decision, Dorlene emailed Caltech’s Office of Gift Planning and was introduced to director of development Rick Robertson. He walked her through the steps of creating a fund by bequest, a process she describes as “straightforward and pleasant as can be.” He also gave her a new way to think about the gift. “It was Rick who suggested a name for the fund,” Dorlene shares. “I thought I was going to make a donation to help students get an exceptional education at Caltech, and that would be that. But now Caltech has the George and Dorlene Root Fellowship, which sounds nice.”

Recognize This Alumnus?



This alumnus wrote part of his dissertation at Santa Monica State Beach. He would study the DNA of bacteriophages, then look up to enjoy views of the ocean with his first wife, Marilyn Huskey. The couple, who spent most of their youth in landlocked Norman, OK, rarely plunged into the Pacific Ocean’s cold surf.

He had pursued mathematics at the University of Oklahoma and planned to become a high school teacher until a simple experiment demonstrating how the sun affects the growth of plants illuminated for him the beauty and complexity of nature. He was hooked. After he earned a master’s degree in botany, a professor told him that if he wanted a doctorate, there was only one place he should consider: Caltech.

As a Caltech graduate student in the 1960s, this alumnus met a number of trailblazing scientists. He worked as a graduate student in the laboratory of Robert (Bob) Edgar, whose contributions to molecular biology included pioneering investigations into viruses that attack bacteria. And this alumnus remembers defending his thesis in front of three Nobel Prize winners: Max Delbrück, Ed Lewis (PhD ’42), and Roger Sperry.

“Everyone was on a first-name basis at Caltech, from the first-year graduate students to the Nobel laureates,” this alumnus recalls. “There were times I felt intimidated by what the faculty knew, but they never showed off in any way.”

Outside of the lab, he joined fellow graduate students for camping trips and games of touch football, basketball, and tennis. On Thanksgiving, Bob Edgar often welcomed

students into his home for dinner with one condition: Lab members either had to hike to Mt. Wilson or help cook. This alumnus gladly took on the role of sous chef.

After earning his PhD, he enjoyed a brief stint at Syracuse University before joining the faculty at the University of Virginia in 1969. He spent the next 32 years at UVA and became associate dean of graduate studies. In that role, he championed research assistantships and affordable health care for students. As a tribute, the UVA Graduate Student Council created an annual research exhibition in his name in 2001.

“I owe Caltech an awful lot,” he says. “Caltech’s reputation helped me land both my first and second jobs.”

With gratitude for the opportunities Caltech provided, Torchbearers member **Robert (Bob) Huskey** (PhD ’68) established a charitable gift annuity (CGA) with the Institute. CGAs offer donors tax breaks and a lifetime of reliable income for gifts of cash, securities, or property valued at \$25,000 or higher. In turn, CGAs help jump-start world-changing research at Caltech. Huskey has directed the charitable portion of his CGA to the Division of Biology and Biological Engineering, to be used in any way academic leaders see fit.

“The people at Caltech know how best to use the money, and I trust they are going to make good decisions,” Huskey says.



Robert (Bob) Huskey and his late wife, Elizabeth Breeden

Good News from Caltech: Celebrating a Transformative Campaign

On September 30, 2021, Caltech concluded the most successful and far-reaching fundraising initiative in its history. *Break Through: The Caltech Campaign* raised \$3.4 billion to support extraordinary faculty and students, advance interdisciplinary research in fields ranging from neuroscience to sustainability to quantum computing, and create state-of-the-art facilities that strengthen teaching and research and enrich campus life.

Caltech is the smallest university ever, in terms of alumni, students, and faculty, to complete a campaign of this magnitude. We owe this phenomenal achievement to 14,801 campaign donors—including 6,268 first-time donors to Caltech—who share our confidence in the power of science and technology to improve lives.

Here are a few campaign highlights:

- \$3.4 billion raised
- 15 interdisciplinary centers, institutes, and initiatives launched or expanded
- \$778 million invested by alumni—46% of alumni made a gift
- \$482 million for faculty support
- \$416 million for student financial aid
- 56% of gifts were committed to endowment
- Approximately 20% of gifts were planned gifts

“This provides us with a very firm foundation to go forward into unknown territories,” says David Lee (PhD ’74), who concluded nine years of service as chair of the Caltech Board of Trustees in October 2021. After all, the breakthrough is just the beginning.

Visit <https://breakthrough.caltech.edu> to learn about campaign donors and the researchers and initiatives bolstered by their support.



Young alumni trustee **Mason Smith** (BS ’09) was in his 20s when he endowed a scholarship with his first campaign gift to Caltech. He

has also supported the **Freshman Summer Research Institute**, an academic support program offered by the Caltech Center for Inclusion and Diversity.



Bren Professor Ralph Adolphs (PhD ’93) studies the neural and psychological basis for human social behavior. He is an affiliated faculty member of the **Chen**

Institute for Neuroscience, launched with a \$115 million campaign gift from first-time Caltech donors **Tianqiao and Chrissy Chen**.



Azita Emami developed a prototype microdevice that potentially could roam around our bodies and deliver medications or

diagnose problems. She has received research support from trustee **Richard Merkin** and endowed professorial funding from trustee **Peggy Cherng** and her husband, **Andrew Cherng**.



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About the cover image: In September 2019, Stewart and Lynda Resnick pledged an unprecedented \$750 million to Caltech to further environmental sustainability research and education. The Resnick Sustainability Center, which will be located on the east side of South Wilson Avenue between Del Mar Boulevard and San Pasqual Street, will house state-of-the-art undergraduate teaching laboratories and serve as a hub for the Resnick Sustainability Institute's four core research initiatives: sunlight, climate, water, and ecology.