OFFICE OF GIFT PLANNING

TECHNIQUES

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CALIFORNIA INSTITUTE OF TECHNOLOGY

An Activist for Asteroids

The late **Eleanor "Glo" Helin**, a powerhouse in planetary astronomy at Caltech and JPL for nearly four decades, led the way in the search for asteroids that could fly near—or crash into—Earth. She was a pioneer in more than one way.

"It was really Glo who was the driving force, initially," remembers Don Yeomans, a senior research scientist at JPL and the author of *Near-Earth Asteroids: Finding Them Before They Find Us*. "Frankly, people at the time dismissed this as something that wasn't worth worrying about ... but she persisted with bulldog tenacity."

Her son, Bruce, says: "She was unique for her time and place. She was a tall, blonde, very pretty lady with a head on her shoulders. Not that there weren't other smart women out there. But here she was in this field of fellows and she had to scramble to maintain her position and respect.... She was quite a politician and good at it, and got people together. She figured out how to make the best use of existing programs to further her interests and get more data."

Over the course of her career, Eleanor helped stimulate asteroid research worldwide and personally discovered or co-discovered hundreds of asteroids. She earned a NASA Exceptional Service Medal and many other awards and was named to the Women in Science and Technology International Hall of Fame along the way. Before she and her husband, **Ron (BS '53)**, passed away in 2009 and 2006, respectively, they created a bequest to fund an exhibit at Palomar Observatory that will highlight her work and encourage interest in asteroids.

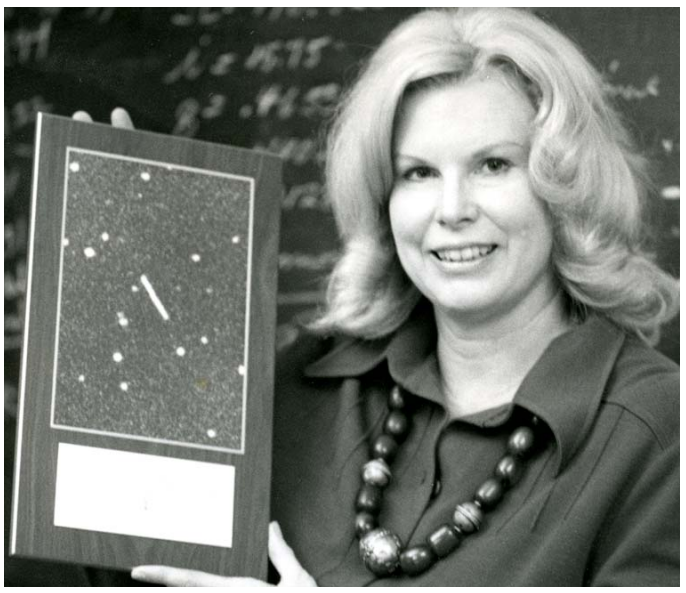


Photo courtesy of Caltech Optical Observatories.

Eleanor Helin holding the discovery image for asteroid Ra Shalom in 1979.

"Frankly, people at the time dismissed this as something that wasn't worth worrying about ... but she persisted with bulldog tenacity."

Trained as a geologist, Eleanor began studying asteroids—including many that made it into Earth's neighborhood—in 1960, as the custodian of Caltech's meteorite collection. Soon, she joined investigations that helped confirm asteroid impacts as the primary causes of lunar craters.

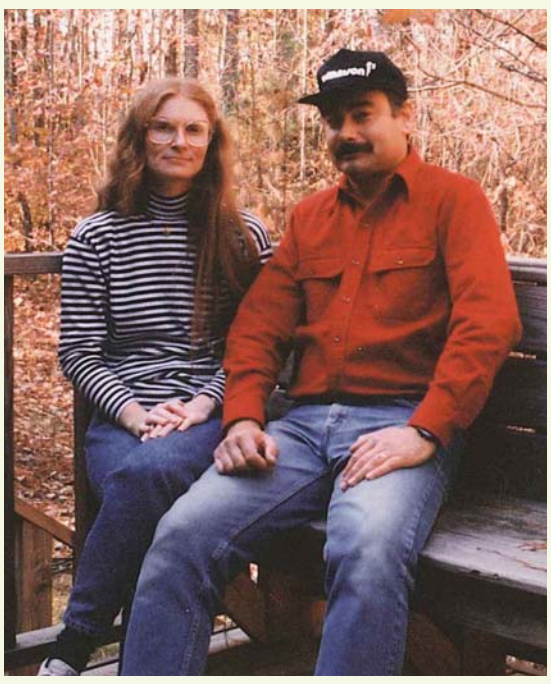
Eleanor co-launched the Palomar Planet-Crossing Asteroid Survey in the early 1970s. In that effort, researchers used the 18-inch Schmidt telescope—the first operational telescope at Palomar Observatory—to capture and compare successive images, seeking differences that revealed moving objects. The survey ran until 1995, providing insight into asteroid populations, orbits, characteristics, and impact potential. Eleanor made several major discoveries—including

An Activist for Asteroids, continued on page 4

A Donor Describes How Planned Gifts Increase Her Retirement Security

Colette Burrus spent only one term at Caltech before transferring to Occidental College. So what motivated her to make two planned gifts to Caltech, one with her husband and one on her own? For starters, she gives to further science and technology. She also gives because her weeks on campus evolved into a lifelong connection through friendships, reunions, and her marriage to alumnus **Steve Burrus (BS '76)**. Finally, she gives for financial reasons.

The Burruses made their first gift when they were in their 40s, after speaking with Caltech's gift planning staff about stock they acquired as IBM employees.



Collette and Steve Burrus (BS '76)

"Steve wanted to sell the appreciated IBM stock to diversify our investments," Colette remembers.

Concerned about capital-gains taxes, the Burruses discussed charitable options with Caltech and transferred stock into a charitable remainder unitrust that would pay them a percentage of its value each year for life.

"By transferring the stock to the trust, he was able to sell it and spread the taxes owed on the capital gain over multiple years, since the beneficiary only pays tax on the income that they receive in a given year," Colette says. "We had also both just done Roth IRA conversions, so we used the charitable deduction to offset taxes on those conversions."

A Donor Describes, continued on page 2

A New Nobel Prize

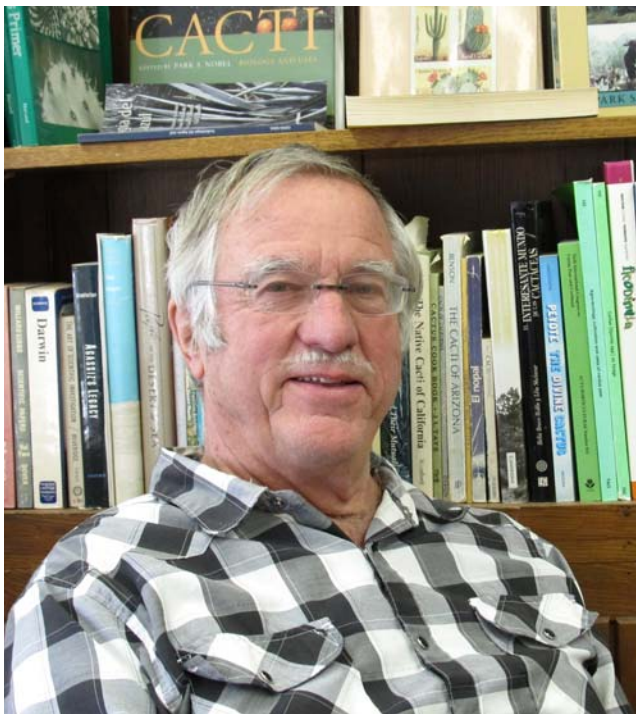
UCLA Distinguished Professor Emeritus, **Park Nobel (MS '63)**, has made gifts to Caltech and three other universities that will create prize funds to encourage excellent undergraduate and graduate biology students. He made the gifts out of thankfulness to his current academic home and to his alma maters—including Caltech, where one year changed the direction of his life.

Nobel came to Caltech in 1961 to pursue graduate work with physicist Rudolf Mössbauer, who had recently proved the existence of an effect called recoilless nuclear resonance absorption—a discovery with ramifications across physics, chemistry, and biology. "I actually built a Mössbauer effect apparatus after I graduated from Cornell," Nobel remembers. Then, just weeks after Nobel arrived at Caltech, Mössbauer won a Nobel Prize and took a distinguished chair in his native Germany. "That left me without the opportunity that I thought I was going to be working on for my PhD," Nobel says.

Stymied and fishing for inspiration, Nobel took a biology course in which 10 eminent scientists each taught for a week. Nobel was intrigued and signed up for another undergraduate biology class. Professor Charles Brokaw's syllabus included a field trip to the beach. "I told him I'd love to, but I can't, because I'm a graduate student in physics and I really don't have the time." Nonetheless, the day of the field trip, Nobel changed his mind. He was the only student to show up. He and Brokaw spent their time together looking at intertidal animals and discussing the work of biologists. "It was a turning point," Nobel says.

Today, as a plant biophysicist, Nobel is known for his work on cacti and agaves. His studies of the physics of air flow close to the surface of these desert survivors have shown how a boundary layer helps them conserve water, take in carbon dioxide, and manage heat.

In a life full of unexpected twists, Nobel appreciates guarantees. The deferred charitable gift annuity he established at Caltech, which will one day fund the Park S. Nobel Prize for Excellence in Biology, is providing him guaranteed income each year for the rest of his life. "I like the idea of lifetime income," he says, laughing. "You don't know exactly how your life is going to work out."



Park Nobel (MS '63)

A Simple Way to Create a Paycheck and Make a Difference

Powerful financial benefits put charitable gift annuities (CGAs) among Caltech donors' top three planned gifts. These one-time gifts of cash or appreciated securities provide immediate income-tax deductions and pay income to one or two beneficiaries from a specified start date until the end of their lives. Donors with appreciated securities use CGAs to spread capital gains over years of payout. People also use CGAs to realize income from securities that pay low or no dividends. Best of all, the remaining funds in a Caltech charitable gift annuity provide vital support for education and research.

A special type of gift annuity called a deferred CGA offers higher income payouts and more tax savings for people who can wait until a future date for payouts to begin; the later the start dates and the older the beneficiaries, the higher the payout rates and potential income-tax deductions. Some Caltech donors have created a series of deferred annuities, gaining a succession of tax deductions followed by a rising stream of retirement income that helps protect them from inflation. Part of the payout is treated as tax-free income, part as capital gains income (if the CGA is funded with appreciated securities), and part as ordinary income.

With simple contracts and an accessible minimum funding amount of $25,000, deferred CGAs appeal to a broad range of Caltech supporters, including those who are just beginning to think about funding their retirements. CGAs are among the easiest deferred gifts to create: donors work with a member of Caltech's gift planning staff to choose a start date for payments, establish the payout rate, complete the contract, and fund the gift. To date, donors have invested more than $35 million in pioneering science and technology at Caltech using CGAs.

Gifts Increased a Donor's Retirement Security

Continued from page 1

Steve chose to retain management of their trust in order to focus investments on science and technology. When he passed away in 2002, Colette took on the management of the fund and has honored his investment strategy.

After working for two decades as a programmer and project manager and a few years as an author of programming books, Colette retired young, so she manages her finances to maximize retirement income. Recently, she needed to offset taxes on another Roth IRA conversion. She worked with Caltech to create a deferred charitable gift annuity, gaining a tax deduction. The annuity will build her retirement income by paying her a steady amount annually for life after a start date that she deferred for 10 years, since longer deferrals yield higher payouts.

"Since I retired so early, I need to create my own paychecks from investments, so when the time comes for me to receive payments from the annuity, it will be another source of income for me," Colette says. "Working with the Office of Gift Planning was great. They answered all my questions quickly, and made it very easy to set up the annuity."

When asked if she would recommend a planned gift like her trust or annuity, Colette doesn't hesitate. "Absolutely! It gives the beneficiary a predictable income stream for life and income-tax deductions for the gifts that are made, and the remainder goes to a worthy cause."

Recognize This Alumnus?

This student contributed more than his share to Caltech history. He played on the 1944 football team that gave Caltech an undefeated, unscored-upon season—an achievement that landed him and his teammates in the International Scholar-Athlete Hall of Fame. He also astonished his fellow students by boating the Colorado River upstream. As he tells the story, he and Ward Vickers, a friend who was also in the V-12 Navy College Training Program, met legendary boatman Harry Aleson by chance and joined him in setting a record for upstream travel on the river. Avoiding several of the most dangerous rapids by pulling the boat along the riverbank, they made it to Diamond Creek where they emerged from a canyon at Peach Springs, Arizona, and hitchhiked back to Caltech.

Caltech contributed to his history, too: it was a Caltech geologist who encouraged him to get a master's degree in geology when he returned from service in World War II to finish his BS in civil engineering; an alumnus gave him his first geotechnical job; a Caltech bulletin board displayed the posting that launched his life's work as an engineering geologist; and friendships forged at Caltech fueled his lifelong love of mountaineering and travel. He met his wife, **Margaret**, three blocks from campus at the Academy cinema.

After he graduated in 1948, life got in the way of a close connection to Caltech as he and Margaret raised their children, Catherine and William, in Fullerton, and he traveled extensively for work. He worked for the State of California evaluating foundation conditions for bridges, and, in 1954, he cofounded a geotechnical consulting company, Moore and Taber, that has put thousands of bridges on sound footing.

Now, in retirement, he and Margaret are building a Caltech legacy that outshines his student exploits. The couple has enjoyed a longstanding membership with the Associates, he continues to visit campus to attend alumni and Torchbearer events, and they are helping fund Caltech's most promising projects, now and in the future. They created a charitable remainder unitrust at Caltech in 1991 and included a provision in their living trust that will establish an additional charitable remainder unitrust in the future for the benefit of their daughter before the remaining assets go to Caltech.

Clearly, **Return "Ret" Moore** is still keeping his eye on the ball!

News from Your Gift Planning Team

The Office of Gift Planning (OGP) is pleased to announce four promotions within our team and one within Caltech.

Debbie Bills, former Manager of Trusts and Bequests, is applying her deep institutional knowledge in her new role at the helm of Project Advance, a Caltech effort to refine business practices in Development and Institute Relations and implement a new development management database.

Natalie Piega fills Debbie's shoes as the Manager of Trusts and Bequests, overseeing Caltech's robust trusts and bequests program in coordination with the Institute's investment, finance, general counsel, provost, and president's offices, and with partners at Kaspick & Company and U.S. Trust.

Promoted to Assistant Manager of Trusts and Bequests, **Frank Bernal** assists Natalie with the administration and investment of the Institute's trusts and bequests program.

Newly named Gift Planning Coordinator **Shelley Lei** helps manage OGP's donor stewardship efforts, prospect management, and marketing activities.

In his new capacity as Deputy Director of Gift Planning and Senior Gift Planning Officer, **Jim Ehlers** assists in the management of OGP's overall operations, while continuing to visit and work with alumni and friends of Caltech who may be interested in making planned gifts.

Congratulations to all!

Torchbearers of Caltech

In recent months, Caltech has added 21 new members to the Torchbearers of Caltech Honor Roll:

Graeme (BS '60) and Cathryn Blake
Rosaria A. Bulgarella
Ron (PhD '68) and Peggy Cole
Stephen Emanuel (BS '58)
Gordon Glattenberg (BS '58)
Hideo (MS '64, PhD '73) and Yoshiko Ikawa
Clayton (BS '68) and Audrey Jacobsen
Richard R. Kenyon
E. David (BS '59) and Rosalind Kipping
Shawn Logan (MS '80)
David (BS '51, PhD '55) and Doris Manning
Thomas (MS '66, PhD '68) and Carol McCord
Richard Rubinstein (BS '69)
Dee Tanner
One Torchbearer wishes to remain anonymous.

Estate Gifts

The generosity and foresight of alumni and friends are crucial to Caltech's success. Below are just a few of the many individuals who have supported Caltech through estate gifts.

Tway (BS '44) and **Joyce Andrews** named the Institute as a beneficiary of their family trust, which distributed a gift of $7,500 to the Caltech Fund.

Mario Calderon provided for Caltech through an unrestricted bequest of $223,450.

From the estate of **John Kariotis (BS '49)**, Caltech has received a bequest totaling $425,000 to date for its general educational and charitable purposes.

From the estate of **Robert E. Townsend**, the Institute received $74,900, which will provide support for Caltech Athletics.

Contact Us

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 gifts, please contact the Office of Gift Planning:

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What's Inside

Recognize This Alumnus?

This alumnus hails from Long Beach. He belonged to the Geology Club and ASME. He participated in football and track and likes mountain climbing, fishing, and stamp collecting. He was one of the many married men in his senior class and began work right away on a master's degree in geology. (Information courtesy of *Big T*)

See inside for more.

Class of '47

An Activist for Asteroids

Continued from page 1

asteroid 2062 Aten, the first asteroid found with an orbit smaller than Earth's.

Eleanor's husband contributed to the upkeep of the vintage 1936 telescope. "Here's dad with an engineering degree from Caltech, and here's an ancient telescope, even at that time, with creaks and groans, a wonderful instrument," Bruce remembers. "My father was wonderful at being able to keep that all functioning and actually improving and fixing things." But the telescope's days were numbered.

Asteroid discovery exploded in the 1990s thanks to the arrival of CCD cameras, computer-assisted observation, and NASA funding. "It was a brave new world," Bruce says. "All of a sudden you'd just punch in some numbers." The telescopes and computers did much of the work that previously had required hands-on effort.

Eleanor used these breakthrough technologies as principal investigator of JPL's Near-Earth Asteroid Tracking program, an automated project that found more than 36,000 previously undiscovered objects in the solar system, including over 400 near-Earth asteroids.

Despite the powerful new tools, however, the Helins loved the 18-inch Schmidt telescope and talked about organizing an exhibit to showcase it. Bruce thinks his parents wanted to demonstrate how a painstaking process and a beautiful, basic piece of equipment yielded remarkable discoveries for decades, until new technology facilitated a quantum leap. The exhibit—a fitting tribute to the Helins' advocacy for asteroid science—is now open at Palomar Observatory.

For more on the exhibit and the lovingly refurbished Schmidt telescope, visit **http://bit.ly/HelinExhibit**.

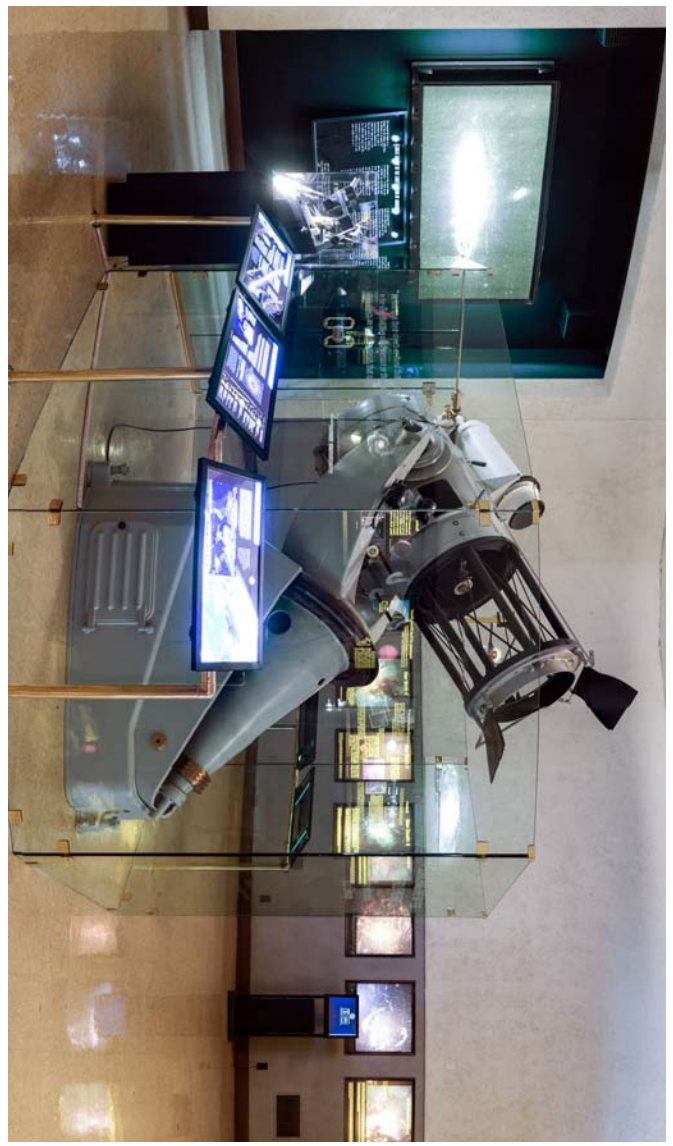

Photo courtesy of Caltech Optical Observatories.

The creation of the Helin Commemorative Exhibit was an ambitious project that included the meticulous restoration of the 18-inch Schmidt telescope. The completed exhibit features interpretive panels and videos about Eleanor Helin's discoveries, the telescope, the search for near-Earth asteroids, and asteroid impacts on Earth.