

Chemist's Legacy Grows, Thanks to His Sister

In 1922, 15-year-old **John “Jack” Kirkwood** visited Pasadena with his family to escape the Kansas winter. An intellectually curious boy, Kirkwood sat in on Caltech classes. He soon found himself discussing chemistry with Arthur Amos Noyes, one of the world's leading chemists. Noyes invited the teenager to leave high school and study chemistry at Caltech—a particular compliment since Noyes believed “research is a sensitive plant which will grow successfully only from carefully selected seeds—the best brains in the nation.”

The course of Kirkwood's life was forever altered. He entered Caltech as a freshman that fall. His strong-willed father, however, clung to the hope that his son would return to the Midwest and attend the University of Kansas. Instead, Kirkwood transferred after two years at Caltech to the University of Chicago, where he received his BS at age 19. He earned a PhD from MIT at 21, did post-doctoral research in Europe and at MIT, then joined the Cornell chemistry faculty in 1934.

In the late 1930s, his youngest sister **Margaret Philipsborn** (then Kirkwood) enrolled at Cornell. She looked up to her brother as a brilliant scientist and trusted confidant, the person she turned



Left: John Kirkwood. Right: Margaret Kirkwood Philipsborn.



to for advice. She followed in Kirkwood's footsteps, geographically speaking, studying acting and performing at the Pasadena Playhouse and then earning her MA at the University of Chicago. After the death of her husband, Martin Philipsborn, she moved to London and immersed herself in international policy.

and Caltech. Chemist Linus Pauling drew on that bond when he wooed Kirkwood back to Caltech in 1947 by creating the Arthur A. Noyes Professorship just for him. In his five years at Caltech, Kirkwood developed theories that revolutionized physical chemistry. The Kirkwood-Riseman the-

“She'd be absolutely delighted to know that the Caltech professorship would forever connect her brother Jack with Arthur Noyes. She understood how influential that early interaction between them was.”

“Aunt Margie was a larger than life figure,” recalls her nephew **Robert Bonner**. “She felt that whatever you do, it's of the utmost importance that you lead an *interesting* life. She certainly did.”

Kirkwood pursued *his* interesting life at Cornell, but he never forgot Noyes

ory shaped the study of polymers (a range of materials, from plastic to cellulose, distinguished by their molecular structures and the way they form). Kirkwood-Buff theories are still used to interpret experimental data. Kirkwood left Caltech to *Chemist's Legacy Grows, continued on page 2*

Caltech Legacies

Alumnus Helps Students Focus on Learning

Tom Movius (BS '54) has made it possible for students far into the future to experience what he appreciated most about Caltech—a deep immersion in learning. Before his death in 2009, Movius made a gift in his will to endow the Thomas F. Movius '54 Scholarship at Caltech. The financial assistance is now helping Movius Scholars focus on learning, freeing them from the taxing burden of working that he experienced. “He always worked—all the time—in order that he could go to Caltech,” says Movius's lifelong friend **Shirley Loven**. Movius' work paid off: his Caltech experience helped him discover a passion

for mechanical engineering and launched a distinguished career that included decades at Hughes Aircraft. “He lived and breathed being an engineer—he was engrossed in it,” Loven says. Even in his spare time, Movius would work in a makeshift lab at home, using whatever materials were needed to prove a theory, and then summarizing his findings before dismantling the project and moving onto the next challenge. After his retirement, he challenged himself to master skills such as fine woodworking and prize-winning metal artwork. “Anything he wanted to do, he did,



Tom Movius (BS '54) behind the wheel of the custom roadster he built.

beautifully,” says Loven. That includes creating a legacy at Caltech—through his bequest, he will help many of tomorrow's promising scholars develop their own passions.

Alumnus Gives Caltech a Wild Card

When **Richard Beatty (BS '77)** recently named Caltech in his will, he decided not to specify any purpose for the gift. He thinks that making a gift that Caltech can use in any way it wishes will maximize his gift's impact on research and education.

Beatty is quick to articulate the reasons for his confidence in Caltech. "We have all the horsepower of probably the best science and engineering faculty in the country," he says. "Divide that by the small number of students and you can come up with a figure of merit that says people have quick access to the very best." Beatty finds the faculty to be devoted to their disciplines and interested in their students. Across the board, professors involve students in active research programs. And he sees Caltech's interactivity and sense of community as essential preparation for leadership in technical fields. "Science and engineering are communal endeavors, whether in universities or industries or government laboratories," he says.

Beyond his objective reasons, Beatty has another motivation for giving: thankfulness. He has a long Caltech history—his mother and father, **Suzanne van Dyke** and **Charles Beatty (MS '46)**, met playing table tennis in the Athenaeum basement in 1945. She was doing postdoctoral research in astronomy and he was an electrical engineering graduate student. They both valued Caltech's academic and educational

resources; she volunteered for years, and he stayed close to Caltech too. He kept his Alumni Association card in his wallet long after he'd discarded everything else but a driver's license, one credit card, and some cash. Their children, Richard and his brother, **David (BS '75, MS '76)**, each chose to study engineering at Caltech.

Several years after he graduated from Caltech, Richard Beatty studied the history and philosophy of science at Gonzaga and Notre Dame: "I wanted to peel the onion a couple of layers deeper and see what's actually going on underneath the mechanism of science and engineering, and how we've arrived where we are." That education has given him insight into how science and engineering evolve, a process he's had a front-row seat for through his long, continuing career at the Jet Propulsion Laboratory.

Beatty has previously invested in

"I wanted to peel the onion a couple of layers deeper and see what's actually going on underneath the mechanism of science and engineering, and how we've arrived where we are."

Caltech, creating a matching gift challenge that helped Caltech renovate Ricketts House—his father's dorm—and build its Charles G. Beatty (MS '46) Computer Room, a resource he believes his father would have appreciated. Another matching gift amplified the class of 1977's 35th-reunion-year gift. Beatty is also a President's Circle



Richard Beatty (BS '77).

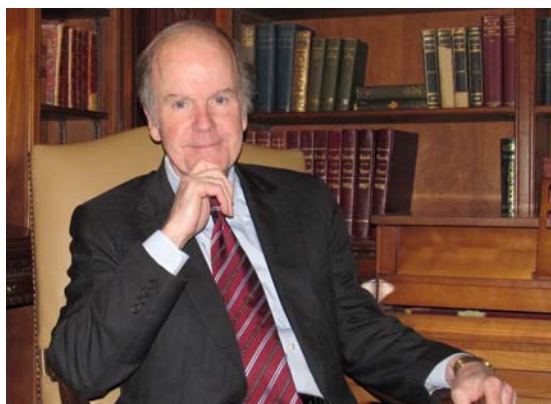
Associate and a lifetime Alumni Association member.

He's now a Torchbearer too, through his gift by will, which he expects to stimulate vital research and education. "Ultimately, it's up to the president, the

officers, and the trustees of the school to decide how funds are used. They've done a good job so far, so I'm perfectly willing to make a completely unrestricted bequest. These are the people who know best how to make the future happen," he says. "It just makes sense to keep Caltech going for the future. It has made a tremendous difference so far."

Chemist's Legacy Grows

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Robert Bonner.

chair Yale's chemistry department, where he remained until his death from cancer in 1959 at age 52.

Fifty years after Kirkwood's death, Bonner arranged for Philipsborn to meet with two Caltech chemists. Bonner, by then a Caltech trustee, had discussed Caltech's continuing leadership in chemistry with Philipsborn, and she wanted to use her will to endow graduate fellowships at Caltech and Yale in honor of her brother. **Jackie Barton,**

Caltech's Hanisch Memorial Professor and chair of the Division of Chemistry and Chemical Engineering, and her husband, Bren Professor of Chemistry, **Peter Dervan**, visited Philipsborn in London.

The conversation reinforced Philipsborn's desire to endow fellowships. Barton explained that graduate students are the lifeblood of the division and described the fellowship program she is building to support outstanding scholars.

"Our students are at the heart of our research," Barton says. "They are an indispensable part of everything we do, and our greatest challenge is to provide consistent support for them."

Philipsborn passed away in 2011, leaving a larger estate than expected. Her bequest endowed two graduate fellowships and a professorship at both Caltech and Yale. The John G. Kirkwood and the Margaret Kirkwood Philipsborn graduate fellowships will help Caltech support

generations of "carefully selected seeds"—some of the best graduate students in the world—as they conduct innovative research and become leaders in chemistry. Likewise, the professorship will recognize and support extraordinary achievement. Philipsborn's bequest established a permanent endowment for the Noyes Professorship held by Kirkwood decades ago; it has been renamed the John G. Kirkwood and Arthur A. Noyes Professorship. Nobel Laureate **Rudy Marcus** holds the chair.

"Aunt Margie would be enormously pleased that her brother will be recognized in perpetuity at an institution he was so very fond of and that was the catalyst for his life's work" says Bonner. "And she'd be absolutely delighted to know that the Caltech professorship will forever connect her brother Jack with Arthur Noyes. She understood how influential that early interaction between them was."

Recognize This Alumnus?

After receiving his BS from Caltech in 1957, this alumnus returned for graduate studies, but a summer job at Boeing the next year turned into a 37-year diversion. For the first 14 of those years, he focused on space projects and particle radiation effects—what happens when protons and electrons collide with spacecraft and astronauts. Then he switched to studying ways to make airplanes and military systems resistant to electromagnetic threats. He feels that his Caltech education was critical to his happiness and success at Boeing.

“Caltech did an excellent job of preparing me,” he says, particularly noting his exceptional physics professors. Another strong influence was coach Warren “Web” Emery, who inspired in him such a love of swimming that he still swims on a masters team.

Today, this alumnus is helping Caltech continue to provide outstanding educational experiences. He joined the Caltech Associates, the Institute’s vibrant philanthropic community. When his 50-year reunion came around, he chaired the class gift effort, which raised enough funds to establish a Summer Undergraduate Research Fellowship (SURF). He has named Caltech in his will and made a life-income gift to Caltech.

The life-income gift helped this alumnus solve a surprisingly common problem. While he was studying at Caltech, a relative gave him some Safeco stock—a gift he didn’t touch for more than 50 years. Then, in 2008, Liberty Mutual bought Safeco. “Stockholders had no choice—we were just going to get cash for our shares,” he says. It was a good problem to have, but he needed to

address the sudden infusion of cash or face paying capital gains taxes. “I figured out that if I gave away about half of it, that would eliminate my tax burden and I would also be able to get a nice annual income.” He called Caltech’s Office of Gift Planning and the staff helped him create a charitable remainder unitrust that will ultimately benefit the Division of Physics, Mathematics and Astronomy (PMA). “PMA is an excellent group and Caltech provides a very special type of education,” he says. “I wanted to see that continue.”

This alumnus’ love of education and learning extends beyond philanthropy and into his own life. He’s taking Spanish classes for when he visits his daughter, Joanna, and her husband, astronomers who are working and raising his grandson in Chile. And just a few years ago—49 years after his Caltech graduation—he completed a PhD thesis on negative index metamaterials at the University of Washington. Today, you can call him **Dr. John Thomas**.

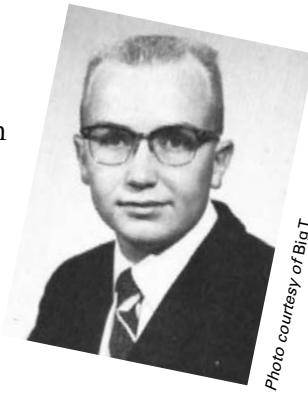


Photo courtesy of Big T



Estate Gifts

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

Katherine Crater named Caltech as a beneficiary of her revocable trust, gifting \$11,000 for scholarship support.

From the estate of **Edward Price Jr. (BS '37)** the Institute received \$5,000, which will provide support for the Caltech Alumni Fund.

Charles Scully (BS '38, MS '47) provided for the Institute through an unrestricted bequest of \$25,000.

From the estate of **William Snyder (BS '43, MS '46)** Caltech received an unrestricted bequest totaling \$1,242,500.

Keith Stiles named the Institute as a beneficiary of his will, which distributed a gift of \$7,300 to the Friends of the Caltech Libraries.



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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 questions about deferred gifts, please contact the Office of Gift Planning:

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A Favorite Gift Option Returns

Have you ever thought of using your IRA to make a charitable gift? The charitable IRA rollover, a popular option with Caltech donors, is once again available. The American Taxpayer Relief Act of 2012, effective this January, reinstated the rollover.

- If you’re 70½ or older, you can make tax-free gifts to Caltech from your IRA accounts until December 31, 2013.
- If you and your spouse have separate IRA accounts, you may each make a gift of up to \$100,000 this tax year.
- The gifts count toward the

required minimum distribution from your retirement accounts.

- Your charitable IRA rollover gift is not tax-deductible, but it is excluded from your gross income and thus exempt from federal income taxes.

A charitable IRA rollover might give you the ability to significantly benefit education and research at Caltech—without writing a check.

If you or your professional advisor would like more information on the Charitable IRA Rollover, please contact **Oliver Mueller** at **(626) 395-1758**.

Torchbearers of Caltech: Inaugural Spring Events

Through the years, Caltech has benefited greatly from the generosity of the Torchbearers of Caltech. Membership is extended to alumni and friends who have included the Institute in their estate plans, designated Caltech as a beneficiary of a life-insurance policy or retirement account, or established deferred gifts for the benefit of the Institute. In recognition of the Torchbearers' support, two inaugural events will take place this spring.

Torchbearer Appreciation Luncheon

Caltech president **Jean-Lou Chameau** and his wife, **Carol Carmichael**, will host a luncheon on April 27 in honor of the Torchbearers. If you are a member and would like to attend this event, please contact **Jim Ehlers** at **(626) 395-6810** for details.



Carol Carmichael and Jean-Lou Chameau.

Torchbearer Social

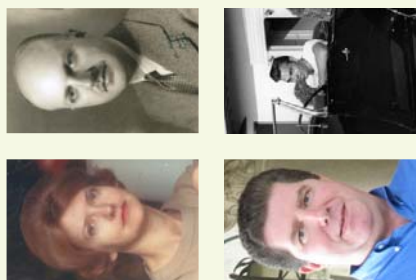
Torchbearers and guests are invited to the Torchbearer Social, which will be held Reunion Weekend on the afternoon of May 17. Join fellow members for an afternoon of conversation and camaraderie while enjoying complimentary refreshments. Contact **Oliver Mueller** at **(626) 395-1758** for more information.

In recent months, Caltech has added 29 new members to the Torchbearers Honor Roll:

- John P. Andelin Jr. (BS '55, PhD '67) and Virginia C. Geoffrey
 - Frank J. Berto (MS '58)
 - Robert R. (BS '41, MS '42) and Elizabeth S. Bowles
 - Arturo O. Cifuentes (MS '81, PhD '85) and Ventura L. Charlin
 - William H. (MS '98) and Sonja A. Davidow
 - Martin B. (BS '65) and Vibeke G. Einhorn
 - Robert I. Gardner Jr. and Mary Martha Gardner Sossaman, in memory of Robert I. Gardner (BS '36)
 - Mary A. Kelly, in memory of Thomas W. Kelly (BS '46)
 - Michael M. (BS '60, MS '61) and Mariel Joy Mann
 - George and Norma Ruptier
 - Jack J. (MS '57, PhD '62) and Sally Stiffler
 - John R. Thomas (BS '57)
 - Gerald J. and Naomi Wasserburg
- Six Torchbearers wish to remain anonymous.*

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Recognize This Alumnus?

This alumnus came to Caltech from Seattle, Washington. A Dabney House upperclass counselor, he "perked up" the place with his jaunty shirt collection (mostly Ivy League) and cheery smile. His four years of honor standing were capped by his being a member of both Sigma Xi and Tau Beta Pi. Besides this, he was active in the Caltech Glee Club and in swimming and water polo, earning two varsity letters in swimming. His outside interests are eating (he is a gourmet) and boats. This alumnus planned to return to Caltech to continue his physics studies.



Photo courtesy of Big T

(Courtesy of Big T)

See inside for more.

'57

Class of