

At a meeting of the FACULTY OF ARTS AND SCIENCES on May 1, 2018, the following tribute to the life and service of the late Eugene George Rochow was spread upon the permanent records of the Faculty.

EUGENE GEORGE ROCHOW

BORN: October 4, 1909

DIED: March 21, 2002

Eugene George Rochow was an inorganic chemist with wide, compelling curiosity. He took on challenging realms of organometallic chemistry and ceramics, nuclear chemistry, and education. Beyond the classroom and lab, he predicted our agricultural future, personified peaceful Quaker principles, and wrote a romantic historical novel. Each pursuit—whether academic or not—Eugene pursued with a measured determination. Though driven and dogged, he balanced ambition with a patient modesty that brought him not just success but satisfaction.

Growing up, Eugene's first radio set sparked his initial and enduring interest in electricity and silicon. And yet it was not truly the radio but its parts that attracted him. With homemade battery chargers, he constructed the device using silicon crystals in a makeshift attic laboratory and then listened to opera, music, and news in bed at night.

Eugene aspired to study electricity and radios at MIT. But his father was, as he called it, a "manufacturing chemist," coloring leather in a tannery, and his brother studied chemistry at Cornell. In the end, his brother and father won—Eugene earned both undergraduate and graduate degrees from Cornell's chemistry department. In the Baker Lab, under Louis Monroe Dennis, Eugene prepared new compounds of germanium, and the volatile, distillable element stimulated a newfound curiosity for organometallics. When Alfred Stock, now famous for his George Fisher Baker Non-resident Lectures and a "very hardheaded, stubborn, determined German," visited Cornell for a semester, the professor solidified Eugene's curiosity into dedication.

In 1935, Eugene graduated with his Ph.D. into Great Depression instability. Fortunately, a connection at the General Electric subsidiary Hotpoint offered him a job working on periclase. Eugene "didn't know beans about periclase," but accepted anyway. Quickly, he discovered that politics and jealousy pervaded the company, but, stubborn and subtle, Eugene found his own way to pursue risky innovations.

He decided to make methyl silicone, an entirely new inorganic polymer. The organic chemists dismissed him; leadership wanted a toe-the-line “good company man.” Eugene did not argue, but he did not stop his work, either. To disguise his pursuit of methyl silicone, he submitted deceptive time sheets that reported his assigned work in ceramics, nothing more. And, in time, Eugene succeeded. The methyl silicone turned out to be “marvelous dielectric stuff,” a better insulator than anything else available at the time. Despite objections and hesitation from General Electric, Eugene pursued and, to oversimplify a contentious legal battle, acquired a patent. The battle, though tedious, never distracted Eugene from his work. He stomached the fight with stalwart patience, unwilling to surrender his creation or neglect his new pursuit: synthesizing a cost-effective methyl silicone without magnesium. Again, Eugene succeeded. His colleagues marveled at his inventive application of electrochemistry to organic synthesis, but he viewed the achievement with concise humility: “I just followed what Stock said, and then I worked at it till I got this.” “This” is now known as the Direct Process or Rochow Process, the most common way to produce organosilicon compounds on an industrial scale today. In fact, in 1962, the Society of Chemical Industry awarded Eugene their Perkin Medal in part for “his role in the industrial birth of a new family of polymers—the silicones.” The polymers he developed are still used for electrical insulation—Eugene never truly left his childhood passion for electricity behind. They also feature in sealants, adhesives, lubricants, medicine, cooking utensils, and more.

Despite patent disputes, petty roadblocks to publication, and hierarchical games, Eugene ignored the General Electric bureaucracy and chased new inventions. But, when the company asked Eugene to forgo organometallics and instead research nuclear fission for World War II naval vessels, he finally quit. As a Quaker and a longtime pacifist, Eugene wanted nothing to do with “destructive weapons of war.” With nothing to lose, Eugene chased an academic position and, in 1948, accepted an offer to join Harvard University’s Chemistry Department without expectation of tenure or promotion. Soon, however, he was given tenure when his broad ingenuity and aptitude for teaching became prominent. The *Crimson* described his Chemistry 1 as “Black Magic 1,” the “most engaging show since Merlin.”

The breadth and quality of Eugene’s scientific achievements are demonstrated in his 38 United States patents; his “great host” of foreign patents; and his over 160 publications and books, spanning education, inorganic chemistry, ceramics, nuclear chemistry, and, of course, organometallic chemistry. Among his many awards, invited talks, and other accolades, the most prestigious include a Frederic Stanley Kipping Award in Organosilicon Chemistry, an Alfred Stock Medal of the German Chemical Society, membership in the American Academy of Arts and Sciences, a Guggenheim Fellowship, and the Perkin Medal. Never one to limit his horizons, Eugene even applied his chemical knowledge to predict future food shortages and solutions. In a *New York Times* article, he envisaged a world of 15 billion vegetarians growing yeast proteins and converting cellulose into food. When a heated letter to the editor challenged his credentials, he did not waver. Instead, he wrote an eloquent response that, one sentence at a time, deconstructed his antagonist’s argument.

Eugene died on March 21, 2002. His wife of 51 years, Helen, followed in 2009. She helped him immensely, and he valued her role as linguist, typist, editor, and proofreader for most of his books. Helen's support may have stimulated one of Eugene's final books: *The Holland Sisters: Their Influence on the Success of Their Husbands Perkin, Kipping and Lapworth*. In the preface of this romantic, historical novel about the wives of three famous chemists, Eugene begrudges that the women "have not received their fair share of the credit for [their] triumphs." Eugene chose to dedicate his final years to unveil the achievements of others, rather than his own. The vast silicone industry; kindred organometallic materials; and our modern cars, airplanes, and kitchens emerged from his quiet, critical triumphs. He is missed as a scientist, a teacher, a husband, an idealist, a father, and a good man.

Respectfully submitted,

Daniel Nocera
Charles Lieber
Dudley Herschbach, Chair