Remembering Ray D. Owen (1915–2014)

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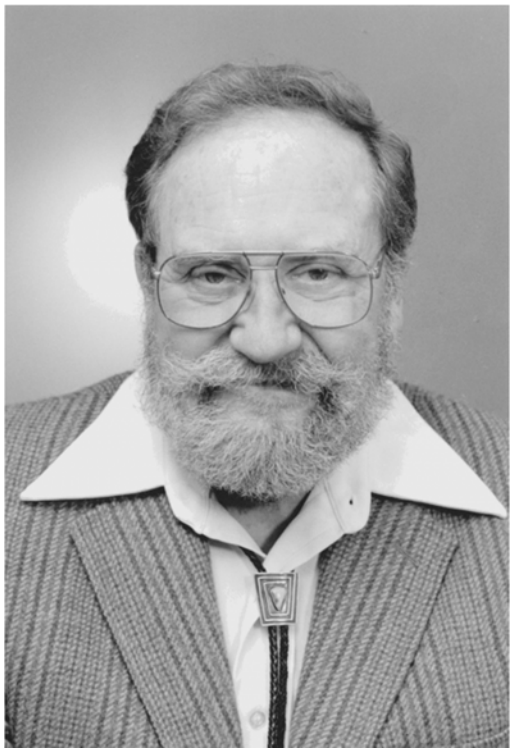

Immunology pioneer Ray D. Owen, professor of biology, emeritus, at Caltech, passed away on Sunday, September 21 at the Californian-Pasadena Convalescent Hospital in Pasadena, California. He was 98.

Owen's major scientific contribution was his discovery, in 1945, of immunological tolerance in twin cattle. Using blood typing, he recognized that one of a set of fraternal twin cattle had no immune response to the foreign antigens (substances that provoke an immune response) introduced from their twins. The finding paved the way for the experimental induction of tolerance through immune suppression and for early tissue grafting—which initiated the era of organ transplantation—by Frank Macfarlane Burnet and Peter Brian Medawar, who received the Nobel Prize for the work in 1960. "In fact, Owen was the first to postulate that immunosuppressive treatments such as x-irradiation might allow incompatible transplants, and participated in the experiments in which bone-marrow transplants to irradiated recipients were first successfully demonstrated," says Elliot Meyerowitz, Caltech's George W. Beadle Professor of Biology.

Owen's later work included studies on human antibodies, blood-group antigens, the evolution of immune systems, and the genetic analysis of the major histocompatibility complex—a large family of genes that plays an important role in the immune system and autoimmunity—of the mouse. "He was, perhaps, the most outstanding immunologist of his generation," wrote Leroy Hood (BS '60, PhD '68), cofounder of the Institute for Systems Biology in Seattle, inventor of the automated DNA sequencer, and a former student—and later colleague—of Owen's at Caltech.

"Ray promoted and loved genetics, as much or even more so than immunology," says Mitch Kronenberg (PhD '83), president and chief scientific officer at the La Jolla Institute for Allergy and Immunology, Hood's former grad student and postdoc and a self-described "trainee" of Owen's. "In a sense, he was a pioneer in perceiving the importance of genetic variability as a determinant of biologic complexity, long before the advent of next-generation DNA sequencing and the concept of personalized medicine.

"He was amazing in that he never lost his interest in the progress of research," Kronenberg adds. "On occasion he would drop me a congratulatory note after reading a paper from my lab—what a thrill for me—even when he was well into his eighties. In an interview at age 95, he disputed the

notion that everything important would soon be known, but instead strongly expressed his excitement about the frontiers of science."

Owen was born October 30, 1915, on a dairy farm in Genesee, Wisconsin. In 1937, he received a BS from Carroll College in Waukesha, Wisconsin—where he met June, his wife of 74 years, from whom he was inseparable; in 1941, he received a PhD in genetics from the University of Wisconsin. After working for two years as a postdoctoral researcher at the University of Wisconsin and as an assistant professor at the same institution, Owen took a position as an associate professor at Caltech in 1947; he was promoted to full professor in 1953 and became professor emeritus in 1983.

At Caltech, Owen also was noted for his dedicated teaching—he received an award for teaching excellence from the Associated Students of the California Institute of Technology (ASCIT); for his extraordinary commitment to mentoring young scientists; and for his administrative roles. He served as chairman of the Division of Biology from 1961 to 1968 and as vice president for student affairs and dean of students from 1975 to 1980.

He chaired the ad hoc "Committee on the Freshman Year" that recommended the pass/fail grading system for freshmen (designed to make the transition to Caltech less "traumatic," Owen once noted), adopted in 1964, and the introduction of electives into the previously rigid freshman curriculum. Under Owen's leadership, the committee also spearheaded the effort to admit female undergraduate students to Caltech; in 1970, the first female undergraduates enrolled at the Institute.

Many of his former students and colleagues recall that Owen did not just help open the doors to female students, he actively assisted and nurtured them, both professionally and personally. As one of those first undergrads later described it, "However well women were mainstreamed into the biological sciences, women undergrads were definitely minorities at Caltech. We were beset by a constant stream of fellow undergrads, grad students, TAs, postdocs and professors who appeared, called, wrote, popped into our dorm rooms, sent notes, flowers and gifts, solicited dates, proposed marriage, pledged undying love and devotion and everything in between! Then, we were trotted out to render the female perspective to faculty, alumni, parents' groups, news media, potential students or donors, trustees, and other luminaries. We often suffered from too much attention. Ray's calming presence was an antidote for those stresses. His maturity and his giving, caring attitude, gave all of his students a restful haven in which to develop their science craft."

Over more than six decades at Caltech, Owen was a beloved mentor not just to those first female students and subsequent generations of male and female undergrads, but also to graduate students, postdocs, and young faculty.

"I believe that much of the wonderful scientific atmosphere I have the privilege of enjoying at Caltech is due, in large part, to the efforts of Ray Owen," says Pamela Bjorkman, Caltech's Max Delbrück Professor of Biology.

"Dr. Owen's belief in the genderlessness and color-blindness of intelligence and creativity has encouraged men and women to excel in their chosen fields," wrote Leonore Herzenberg, professor

of genetics at the Stanford School of Medicine, in a letter recommending Owen for a lifetime mentoring award. "The success of this mentoring can be measured in terms of the contributions made by his students and many others who came in contact with him. In addition, it can be measured by the way in which those people for whom Dr. Owen served as a mentor have tended, like him, to tithe a portion of their time to help others achieve academic excellence."

Noted Roger Perlmutter, executive vice president and president of Merck Research Laboratories and a senior research fellow at Caltech in the early 1980s: "Ray was then, and had been for many years, the very heart and soul of the Caltech biology division. His office in the basement of Kerckhoff, decorated with trophies courageously secured and lovingly forwarded by admiring former trainees, and masses of postcards from students and friends, served as an informal counseling suite. Ray's door was always open, tea and coffee were always available, and there was a steady stream of students who stopped by to discuss results, to seek advice, or simply to chat . . . Ray had time for everyone."

"Ray was a true gentleman," says Kronenberg. "Although he could be critical about a scientific approach or finding, his comments would be tinged with gentle humor or light sarcasm. He did not gossip, it was never a personal matter for him, and he never expressed disdain or a lack of respect for anyone. He seemed untouched by envy or enmity; these were emotions he just did not express."

Owen, who coauthored *General Genetics*—the most widely used genetics textbook of its time—received the Thomas Hunt Morgan Medal from the Genetics Society of America, given for lifetime achievement in the field of genetics, in 1993. He was awarded the Mendel Medal of the Czechoslovak Academy of Sciences in 1966, earned honorary degrees from Carroll College and the University of the Pacific, and was a member of the National Academy of Sciences (NAS), the American Academy of Arts and Sciences, and the American Philosophical Society, among others.

In addition, Owen was president of the Genetics Society of America in 1962, a member of the Genetics Study Section of the National Institutes of Health (NIH) from 1958 to 1961 and its chairman from 1961 to 1963, a member of the Immunobiology Study Section of the NIH from 1966 to 1967 and its chairman from 1967 to 1970, chairman of the Genetics Section of the NAS from 1969 to 1972, and a scientist-member of the three-person President's Cancer Panel from 1972 to 1975, where he served as an advisor to Presidents Nixon and Ford.

In his personal life, Owen professed of a love of his family; his home, located a short walk from the Caltech campus, where he often conducted evening classes for students with his wife June serving cookies; his garden (camellias and chrysanthemums were his specialty); his travels and his friends in the international community of scientists; his research; his teaching; and his students.

"I think, as I look back at it," said Owen, in a 1983 interview for the Caltech Oral History Project, "I've had a very fortunate and satisfying life. But when you get a letter from a student or get some word back about somebody who's gone out into the world, and it appears that you have done something to influence a young person's life or made a difference in his life for the good—I think that's the most ego-rewarding aspect of one's life. And I've had a good many opportunities along those lines."

Owen was predeceased by his wife, June, in 2013, who also passed away at the Californian-Pasadena Convalescent Hospital, and by a son, Griffith Hugh, who died in a car accident in 1970. He is survived by his son David.

A memorial service honoring both Ray and June is being planned by the Division of Biology and Biological Engineering. The details will be announced.

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