

RICHARD D. MCKELVEY
1944 – 2002


Richard D. McKelvey, the Edie and Lew Wasserman Professor of Political Science, died April 22 of cancer. He was 57.

McKelvey was best known for his leading role in the development of mathematical theories of voting but also made fundamental contributions to game theory, social-choice theory, experimental political science, and computational economics. Director of the William D. Hacker Social Science Experimental Laboratory, he was also a pioneer in the use of laboratory experiments to test theories of voting and other group behavior and in the application of computational techniques to understanding strategic behavior. Some of his experimental work investigated the effects of different voting rules on the accuracy of jury verdicts, the effect of polls on election outcomes, and impasses in negotiations and bargaining. In one celebrated paper, McKelvey showed that decisions made under one-person/one-vote, majority-rule democratic systems do not necessarily cluster around “middle-ground” policy outcomes, but are sensitive to details of the process, such as who controls the agenda.

After graduating from

Oberlin College in 1966 with a bachelor’s degree in mathematics, McKelvey earned a master’s in mathematics from Washington University in St. Louis (1967), and a master’s (1970) and doctorate (1972) in political science from the University of Rochester. He joined the faculty at Rochester and then at Carnegie Mellon before visiting Caltech as a Sherman Fairchild Distinguished Scholar in 1978. He stayed on as full professor starting the following year and was named the Wasserman professor in 1998.

McKelvey was elected to the National Academy of Sciences in 1993 and to the American Academy of Arts and Sciences in 1992; he was also a fellow of the Economic Society.

On June 8, his colleagues and former students gathered in Dabney Lounge for a memorial service to celebrate McKelvey’s life. “He was an unselfish coauthor and totally unselfish with his students,” said John Ledyard, professor of economics and social sciences and outgoing chair of the Division of the Humanities and Social Sciences. “A lot of Richard was poured into his students,” he said. So it was appropriate that the opening speakers were McKelvey’s first student,

John Aldrich, and his last, Elizabeth (Maggie) Penn.

Aldrich, now the Pfizer-Pratt Professor of Political Science at Duke University, met McKelvey at Rochester, where they were both graduate students. “He was a co-grad student with me as well as my dissertation adviser,” he explained. “While he was the most important political scientist that I’ve had the good fortune to know, it’s also the case that in many ways he was the best teacher. I don’t think he actually knew that he was teaching all the time; it’s just that he was inherently the finest teacher. I’m pleased and honored to have been his first graduate student.”

“Working with Richard was the best part of graduate school for me,” said Penn, currently a student at Caltech. “Even in his last few days he was still incredibly giving of his time and his ideas. The week before he died, he was at school almost every day, and three days before he died, he came to a seminar that I gave for the department. I think it just shows how dedicated he was to all of his students. I don’t think there’s a person in the world that I respect and admire more than I respect him,” she said.

Another former student from Rochester was Keith Poole, now the Kenneth L. Lay Professor of Political Science at the University of Houston. “Dick was my teacher, my supervisor, and my friend,” said Poole. “More than any other person, he shaped my intellectual life as an academic.” But Poole added that when he thought of him, he would not think of the “McKelvey, Richard D.” of the citations in the scientific papers. “*That* McKelvey’s work will last for generations. I think of the *person* I knew—a great guy, modest, unpretentious, and generous, whose company I so enjoyed.”

“I wasn’t officially a student of his,” said Tom Palfrey, professor of economics and political science at Caltech, “but he taught me a great deal about how to think, about being cautious and skeptical about my own thinking, even in the exciting moments of discovery. And he tried to teach me, and to teach us all by his own example, to be modest in our claims and generous with our ideas. He’s someone I admired for his scholarship, his integrity, his humility, and his general decency.”

Palfrey spoke of McKelvey’s scholarship and things that fascinated him, such as the Nash Equilibrium (“he believed deeply that this was a

fundamental principle underlying human interactive behavior”), which underlay their work together over the past 15 years, particularly on a general statistical theory of games called quantal response equilibrium. He noted that McKelvey’s celebrated computer program, Gambit, which finds numerical approximations of solutions to games, also followed from that fascination.

“He really wanted to figure out how something worked in a very detailed, algorithmic, almost mechanical way,” said Palfrey. “He had to have a deep, almost physical sense of the model. This may seem odd to someone who saw Richard as esoteric and theoretical—a guy who wrote papers that were mired in notation, in complex mathematical argument, and who lectured to the board as he wrote down all this notation. But even in complicated proofs he was building things.”

Norman Schofield, the William Taussig Professor of Political Economy at Washington University in St. Louis, worked with McKelvey on cooperative game theory. He described his impression, as a visitor from England, of this field of mathematical political science in America as being “like a great family,” with various branches in

Rochester, St. Louis, and Caltech. “I met most of the branches of this family, and I was surprised how generous and interested in this snotty little Brit the members of this family were. Dick in particular was really interesting and helpful.” They collaborated for several years “and then Dick very generously arranged for me to come to Caltech in 1983. For me, this was probably the best two years of my life.” Schofield felt that he had been “sort of adopted into the family, as a brother in a sense.”

Another Caltech colleague, Peter Ordeshook, professor of political science, declined to detail McKelvey’s contribution to his career. “Dick *was* my career. Up until 1991 a third of my *vita* was Dick McKelvey,” he said. “Working with Dick was challenging, humbling, exhausting, stimulating, etc., but it was also fun—an enormous amount of fun.”

Ordeshook also described some of McKelvey’s less academic pursuits, such as “one of the world’s largest collections of credit cards.” “You all thought he went to those conventions for intellectual reasons,” he said, but actually McKelvey was using every new venue as an excuse to apply for credit cards at every department store in town. And he was also the inventor of a little device “that would count the number of people who came into the room and the number of people who went out, so that the light was always on when there was somebody in the room.”

Ledyard added that “to me Richard was the epitome of what a Caltech professor really ought to be. He was committed to discovery. He never did anything because he thought it would make him famous; he did it because he was trying to find something

McKelvey and daughter, Holly, at Green Creek campground in the eastern Sierra Nevada two years ago.



out. And he found out a lot of really neat stuff. He didn't believe he could change the way things were; it was his job to figure out *how* things were—the true scientist, in a sense.” McKelvey was responsible, Ledyard said, for convincing him to change his mind and come to Caltech after he had already turned down the job.

McKelvey's most recent work will play out posthumously. He initiated a contest called a Turing Tournament, designed to improve the ability to predict how people will behave in strategic situations, and this summer, leading scholars in the fields of economics and game theory will compete in the tournament for a cash prize, to be awarded to the theory that best matches actual human behavior in experimental situations.

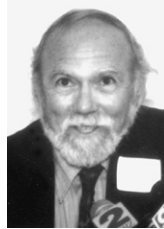
McKelvey is survived by his wife, Stephenie Frederick, and three children, Kirk, Christopher, and Holly. At the end of the memorial service, Frederick thanked every-

one for coming and invited all back to their house, where the credit card collection and the light switch system would be on display (“he didn't want to take the time to look for the light switch and switch it on and off, and so he spent hours, *years*, working on this system”). She also thanked “all of you in academia for creating a world that Richard could love so much.” And after reciting, with mock resentment, a litany of household disasters over the years that McKelvey had managed to evade because “he was with a graduate student—maybe one of you,” Frederick said that she wanted to do something “to honor Richard's dedication to his students.” So the Richard D. McKelvey Prize Fellowship has been established, to be awarded annually to a student doing superior work in social sciences. She gave Ledyard a check for \$5,000 toward the fellowship. “This is from Richard and me,” she said. □



McKelvey signs the book of members of the National Academy of Sciences in 1993.

Faculty File



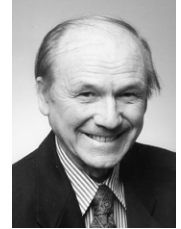
Barish



Barton



Kimble



Roshko

FOUR ELECTED TO NAS

Four Caltech professors were elected to the prestigious National Academy of Sciences in April: Barry Barish, the Linde Professor of Physics and director of the Laser Interferometer Gravitational-Wave Observatory (LIGO), an experimental high-energy physicist; Jacqueline Barton, the Hanisch Memorial Professor and professor of chemistry, who has pioneered the application of transition metal complexes as tools to probe recognition and reactions of double-helical DNA;

H. Jeff Kimble, the Valentine Professor and professor of physics, an expert in quantum optics, who has made groundbreaking discoveries relating to quantum measurement and to the new science of quantum information; and Anatol Roshko, the Von Kármán Professor of Aeronautics, Emeritus, known for his research in several areas of gas dynamics and fluid mechanics.

This brings to 67 the number of living Caltech professors and emeritus professors who have earned this honor. □

AND FIVE ELECTED TO AAAS

Five members of the Caltech faculty have been elected to the American Academy of Arts and Sciences, joining the 177 Fellows and 30 Foreign Honorary Members in the academy's “class of 2002.” They are: Richard Andersen, the Boswell Professor of Neuroscience, whose work focuses on neural mechanisms for visual-motor integration, spatial perception, and visual-motion analysis; David Anderson, professor of biology, as well as an investi-

gator with the Howard Hughes Medical Institute (HHMI), whose main areas of investigation include the development of the nervous system, the development of the circulatory system, and the functional neuroanatomy of fear; Ronald Drever, professor of physics, whose research interests include experimental gravitation and the detection of gravitational waves; Mary Kennedy, the Davis Professor of Biology, who studies how brains store new information; and Mark