



*Richard C. Jordan*

# RICHARD C. JORDAN

1909–2002

Elected in 1975

*“For pioneering in research on energy conservation through climate control, on solar energy, and national and international leadership in engineering education.”*

BY RICHARD J. GOLDSTEIN, BENJAMIN Y.H. LIU,  
AND DEANE MORRISON

**R**ICHARD C. JORDAN, former head of the University of Minnesota Department of Mechanical Engineering, died of natural causes in Rio Verde, Arizona, on June 14, 2002, at the age of 93.

Jordan was born in Minneapolis on April 16, 1909. As a youngster interested in mechanics and electricity, he was the first in his Minneapolis neighborhood to build a radio and receive transmissions from across the country. Fascinated by advances in the mechanical sciences at the beginning of the century, he decided at an early age to become an engineer. He attended West High School in Minneapolis and continued his education at the University of Minnesota, where he received a bachelor's degree in aeronautical engineering in 1931 and a master's degree in mechanical engineering in 1933. In 1940, as a specialist in the science of heating and refrigeration, with minors in mathematics and physical metallurgy, he earned the first doctorate in mechanical engineering at the University of Minnesota.

The university was also the beneficiary of Jordan's teaching talents. He began his career at the university Engineering Experiment Station and rose to become a full professor and, in 1949, head of the Mechanical Engineering Department. He continued to hold that post until his retirement in 1977.

In his capacity as professor and department head, Jordan modernized the experimental laboratories and broadened the curriculum to include studies focused on new technologies. He encouraged engineering innovation and recruited faculty members with worldwide reputations in engineering science. Under his leadership, the department became a center of excellence in a number of areas, including heat-transfer studies, particularly the generation of solar power through the use of solar collectors, and rose in the rankings to fourth in the country. He also oversaw the creation of a particle-transfer laboratory and took part in its research projects.

Jordan, whose work in heating and refrigeration was internationally recognized, wrote more than 200 technical publications, including *Refrigeration and Air-Conditioning*, with G.B. Priester, (Prentice-Hall, 1949, revised 1956), a key textbook in the field for many years.

Aware of diminishing world-energy resources, Jordan advocated solar energy as an alternative to fossil fuels. "Any home in the United States may be heated entirely by a solar energy heat pump system," he wrote, "if a sufficiently large collector, heat pump, and heat storage facilities are provided." He established a solar-energy research program at the University of Minnesota in the mid-1950s; it focused on solar energy as a way to control energy consumption in buildings. He and his students made pioneering contributions to fundamental research on solar radiation that are still widely regarded.

Jordan began studying sustainable, cost-effective ways of collecting solar energy early in his career. His papers "Solar-Energy Heating" (1954), "Heat Pumps and Solar Energy" (1955), and "Solar Energy Utilization" (1956) are as relevant today as they were when they were published. "Direct Solar Radiation Available on Clear Days" (1958) and "The Interrelationship and Characteristic Distribution of Direct, Diffuse and Total Solar Radiation" (1960) provided fundamental data on solar radiation that have remained substantially unchanged over the years.

Recognizing the importance of air quality in the building sciences and the need for energy conservation, Jordan began a program of study on air filtration and building insulation.

Through a series of publications, which included Air Filtration Studies (University of Minnesota Department of Mechanical Engineering, ASHRAE, and U.S. Public Health Service Cooperative Research Project Progress Reports 2, 3, 5, 6, and 7), Size Distribution and Concentration of Air Borne Dust (American Society of Heating and Air-Conditioning Engineers, 1956), and Photometer for Dust Measurement (University of Minnesota Department of Mechanical Engineering, ASHRAE, and U.S. Public Health Service Cooperative Research Project, 1955), he laid the groundwork for the study of air quality in buildings and for using filtration to reduce airborne dust.

In the 1950s, long before the global exchange of scientific research results was common, Jordan was vice president of the Technical Board of the International Institute of Refrigeration, headquartered in Paris; he later served on the institute's Scientific Council. In the 1960s, he participated in four U.S. State Department missions to promote engineering education in developing countries in the Middle East, South America, and the Far East.

Jordan was much in demand as a consultant, and the U.S. State Department, World Bank, U.S. Agency for International Development, U.S. Army Corps of Engineers, U.S. Department of Education, and California and Florida were among his clients. His industrial clients included Control Data, Reynolds Metals, DuPont, Goodyear Aircraft Corporation, Owens Corning Corporation, and Emerson Electric Company. He served on the boards of directors of several companies, including 10 years on the board of Onan Corporation, a division of Studebaker Worthington.

Jordan's numerous awards include the Outstanding Achievement Award of the University of Minnesota (the highest honor for an alumnus) in 1979 and the Wolverine Award for outstanding publication and research from the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) in 1949. In 1966, he won two ASHRAE awards: the E.K. Campbell Award for outstanding contributions to education and the F. Paul Anderson Medal for "outstanding contributions in all phases of heating, refrigerating and air-conditioning."

In 1972, Jordan was named Engineer of the Year by the Minnesota Society of Professional Engineers, and in 1980, he was named to the Solar Hall of Fame. He was a fellow of the American Society of Mechanical Engineers, a fellow and president of ASHRAE, and a fellow of the American Association for the Advancement of Science. Jordan was elected to the National Academy of Engineering in 1975. After his retirement, he became an associate dean of the University of Minnesota Institute of Technology, a post he held until 1985.

Jordan enjoyed vacationing with his family at an island cabin on Lake Kabetogama in northern Minnesota. While on the island, informally known as Retreat from Reason, he fished and went boating and put his talents to use installing water and electrical systems. His love of travel began with trips to Montana in his childhood and to Mexico in the 1930s, and he and his wife, Freda, visited more than 67 countries. Jordan led an active social life with colleagues and friends at the University of Minnesota. He also took a keen interest in his daughters' and grandchildren's educations.

Benjamin Liu, a retired Regents Professor of Mechanical Engineering, called Jordan a visionary and pioneer who had the ability to recognize talent. Liu said that, at a time when science and engineering were considered separate disciplines—with science focusing on nature and engineering on mechanics—Jordan worked to combine the two fields. He was also a terrific fundraiser.

Jordan's wife of 66 years, Freda Laudon Jordan died in January 2006. He is survived by his daughters Mary Ann Jordan and her husband David Johnson, Carol (Wolfgang) Wawersik, and Linda (John) Cogdill; four grandchildren Andrea Lommen, Kate Lommen, Matthew Wawersik, and Stefan Wawersik; and five great grandchildren.

Jordan was a legend in the field of mechanical engineering whose legacy will last for a very long time.

