



JOHN J. WISE

1932–2021

Elected in 1986

“For inspiring technical contributions and leadership in the development and commercialization of important petroleum, petrochemical, and synthetic fuels processes.”

BY MICHAEL P. RAMAGE AND THOMAS F. DEGNAN JR.

JOHAN J. WISE, a former vice president of research at Mobil Research and Development Corporation, died June 13, 2021, in Princeton, New Jersey, at the age of 89.

Jack was born in Cambridge, Massachusetts, on February 28, 1932, to Alice (née Donlon) and Daniel Wise. His father was prominent in the university textbook publishing business in Boston. While in his early teens, Jack read many of the textbooks that his father brought home, including those used in classes for Harvard Law School and MIT. His “textual” sampling of a broad number of university disciplines led him to decide at the ripe age of 14 to become a chemical engineer. He would later say that his decision was “based on no rational reason, except that chemical engineering sounded interesting and was a fashionable career choice at the time.” In September 1949 he entered Tufts University, from which he graduated in 1953 with a BS in chemical engineering.

Upon graduating Jack joined Mobil Research and Engineering in Paulsboro, NJ, as a senior research engineer. His timing was fortuitous as Mobil had very recently begun to research a class of catalysts known as zeolites. Zeolite catalysts would eventually revolutionize refining and petrochemical manufacture by increasing the amounts of gasoline and high-value petrochemicals to be produced from each barrel of

petroleum. Jack's research focused on identifying and improving zeolite catalysts for producing aromatics, hydrocarbons that formed the building blocks for polymers, including polyester and polycarbonate.

One of Jack's patents (US 4,101,596, Low-Pressure Xylene Isomerization) was the basis for a new Mobil process for producing p-xylene, a key intermediate for producing polyethylene terephthalate (PET). PET is a large-volume (56 M tonnes/year) precursor in the manufacture of plastic bottles and tires. He went on to be the named inventor or coinventor on 15 US patents.

Jack's other research led to new catalysts and catalytic processes that increased gasoline octane and improved the quality of Mobil's lubricants. In the late 1950s Jack led a large joint chemical-refining project that was successful in commercializing several new aromatics technologies.

Excited by the advances in mainframe computing, in the early 1960s Jack developed an interest in computer-based optimization of refineries. As a result, he was offered a position in Mobil's Engineering Department, which was headquartered in New York City. He turned down this offer and began to consider opportunities in the business side of the petroleum industry.

Jack applied to Harvard Business School, was accepted, and decided to sit in on a few classes before making his decision to pursue a full-time MBA. The classes did not excite him, but the prospect of returning to school did. Instead of business school, he set his sights on obtaining his PhD. At the time, Mobil had an Incentive Fellow Program that selected very promising early-career BS degree scientists and engineers to take time to pursue a PhD at company expense. Jack applied for and was chosen as a Mobil Incentive Fellow.

With the fellowship in hand he applied to MIT and was accepted into its PhD chemistry program. He had developed an interest in inorganic chemistry and selected as his thesis advisor a young, ambitious chemistry professor by the name of F. Albert Cotton (NAS 1967). Cotton would go on to be one of the most prominent inorganic chemists of the 20th century and, at the age of 31, was the youngest professor ever offered

full tenure at MIT. Jack completed his PhD in three years, graduating in 1965.

That same year he returned to Mobil Research and Development as a senior engineer and group leader in the Applied Research and Development Division. Over the next 25 years he progressed steadily up the Mobil research managerial ladder. In 1968 he was appointed assistant manager of the Process Research Section; in 1972, manager of the Reforming, and Special Processes Development Section; in 1976, manager of the Process Research and Development Division; the next year, vice president of planning for Mobil Research and Development Corporation; in 1981, manager of Mobil's 500-person Field Research Laboratory in Dallas, Texas, responsible for developing and implementing new technology for Mobil's Exploration and Producing Division; in 1984, manager of Mobil's 800-person Paulsboro Laboratory; and in 1987 he was promoted to vice president of research, responsible for Mobil's worldwide research and development—a position he held until his retirement in 1997.

Under Jack's leadership, Mobil Research grew into one of the most highly regarded and impactful research organizations in any industry, creating billions of dollars in value for Mobil and ExxonMobil. Jack led by walking around and by setting examples. He was a motivator, exciting to work for and highly respected not only by those who worked for him but throughout the company. The philosophy in Mobil Research, set by Jack, was that research managers were required to have both strong leadership and technical skills. This led to a challenging, exciting culture, enabling Mobil to hire the very best. Eleven members of the NAE were mentored by Jack!

Technologies developed under Jack's leadership impacted every aspect of Mobil's businesses. Examples include catalysts and new processes for refining and chemicals, new lubricant products, advanced modeling tools for refining and oil production, new seismic technology for subsalt imaging, new aromatics technologies to produce polymers such as polyester, and technology for synthetic gasoline production. Jack led the successful commercialization of Mobil's methanol-to-gasoline

(MTG) process in New Zealand in 1986. He was personally involved in negotiations to construct the first MTG plant (14,000 BBL/day of gasoline) in Motunui Taranaki, New Zealand.

As vice president of research, he cochaired the interindustry Auto/Oil Air Quality Improvement Research Program. He was a joint director of the Mobil Solar Energy Corporation and director of the Mobil Foundation. He also served on the board of directors of the Industrial Research Institute and in 1995, in recognition of his excellence in research management, was awarded its Gold Medal. He was also recognized for his work as a member of the Intergovernmental Panel on Climate Change (IPCC).

Jack was very active in the National Research Council, including service on the Board on Energy and Environmental Systems (1998–2004), Committee on Impact and Effectiveness of Corporate Average Fuel Economy Standards (CAFE) (2001–02), Committee on Review of DOE's Office of Heavy Vehicle Technologies (1999–2002), Committee on Developing a Federal Materials Facilities Strategy (chair, 1998–2000), Committee on Aviation Fuels with Improved Fire Safety (chair, 1996–97), Board on Chemical Sciences and Technology (1994–95; cochair, 1995–98), and Study on Transportation and a Sustainable Environment (1995–97). He was also an ex officio member of the US National Committees for Crystallography (1995–98), the International Union of Biochemistry and Molecular Biology (1995–98), and International Union of Pure and Applied Chemistry (1995–98). For the NAE he served on the Chemical Engineering Peer Committee (1991–93; chair, 1993–94) and Committee on Membership (1993–94).

He married Rosemary Seary Bishop in 1967. They met in Philadelphia, where, as a pioneer in early childhood education, Rosemary supervised a teacher training program for Head Start. The couple lived in Pennsylvania, Connecticut, and Texas before retiring in Princeton. Rosemary predeceased Jack in 2013. He renewed an old friendship with Mary Masland Adams, who became a loving companion in his last eight years.

Jack had a passion for fishing and especially loved to fish on Cape Cod, a favorite summertime location for many years. He frequently fished off Nauset Beach in Orleans or from a chartered boat out of Rock Harbor. His ashes are laid to rest along the bluffs overlooking Priscilla Bay in East Orleans.

Jack is survived by daughters Susannah Scovil Wise and Jean Porter Wise, and grandson Alexander Wise Philbrick, for whom he wrote a book, *A Letter to Alexander*, about his lessons learned in the petroleum industry. He considered it his memoir and published it as a remembrance for his grandson and others who might be interested in his life and career.

