



John R. Kiely

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1906–1996

BY STEPHEN D. BECHTEL, JR.

JOHN ROCHE KIELY, a preeminent engineer, business executive, and member of the National Academy of Engineering, passed away at his home in Woodside, California, on January 10, 1996, at the age of eighty-nine. He had retired from the board of directors of Bechtel Corporation, Bechtel Incorporated, and Bechtel Power Corporation in 1974 following a distinguished thirty-two year career, during which Bechtel grew from a major regional builder to one of the world's leading engineering and construction firms.

Over the course of more than four decades with Bechtel, Kiely proved to be a uniquely talented executive blessed with a rare blend of skills. Possessed of a first-rate intellect and highly developed technical expertise, he was gifted with uncommon common sense and practical ability. A manager of great scope and vision who oversaw vast technical enterprises, he understood and cared about individual human concerns. A methodical administrator and fierce financial manager, he was an entrepreneur who often took major risks based more on insight and instinct than on hard numbers.

“He was a real entrepreneur,” said one colleague. “He never lost his individuality, even in the great corporate structure. He was always imaginative and saw opportunities in areas where other people hesitated to take the plunge.” Kiely once won a job by offering to build a steam generating plant for 25,000 man-hours

less than a competitor, no matter what the competitor's final total was. Although he had studied the competitor's operation carefully, Kiely later admitted, "I had no detailed cost estimates. I was winging it. My neck was way out on that one."

Born in Berkeley in 1906, Kiely earned his civil engineering degree from the University of Washington in 1931. He had begun working for Rayonier, Incorporated, in high school, and after college Kiely joined the firm as an engineer, quickly rising to oversee construction of all the firm's pulp mills and steam power plants.

Continuing what would prove to be one of the most distinguished engineering careers of the century, Kiely joined Bechtel shortly after the outbreak of World War II as a department manager with California Shipbuilding Corporation in San Pedro, California. He was quickly put in charge of all outfitting, and his major contribution came in developing techniques to apply mass production assembly-line methods to the rapid shipboard fitting of mechanical and electrical installations. The methods he helped develop revolutionized shipbuilding. Calship's Victory Ship Program turned out 467 ships, reducing the electrical and piping man-hours required to build a ship by eighty percent in the course of the program.

After the war, Kiely chose the cream of the Calship workers to undertake a major frequency change for Southern California Edison, modifying the frequency of electric current from 50 to 60 Hertz, to match the rest of the country. The project was an important breakthrough for Bechtel, cementing a long-term relationship with Southern California Edison while establishing its reputation in the growing field of electrical power generation. With the successful conclusion of the frequency change, Kiely negotiated a contract with Southern California Edison that would last more than a decade and generate 3,054 separate projects, including some of Bechtel's first big hydroelectric projects.

Kiely went on to play a pioneering role in the development of nuclear power, heading Bechtel's nuclear energy group for two decades in the 1950s and 1960s. Kiely made a number of personal contributions to early nuclear designs and remained

intimately associated with subsequent developments in the field. He played a major role in most of the landmark early achievements in nuclear power, including the first privately financed nuclear power plant, the first all-nuclear power plant, and several of the world's largest power plants.

While he was working at the forefront of the new nuclear technology, Kiely personally oversaw the design and construction of Vermillion Dam for Southern California Edison. The dam was the forerunner of a series of more than four hundred hydroelectric and water supply projects executed under his direction, including the \$200 million American River Basin Development in California and the \$200 million Wells Hydroelectric Project on the Columbia River in Washington.

As a member of the office of the president of the Bechtel group of companies from 1967 to 1971, Kiely was the executive sponsor of a broad range of thermal and hydroelectric projects that catapulted Bechtel to the front rank of the power industry. Among the projects under Kiely's guidance during this period was the Churchill Falls Hydroelectric project in Labrador, one of the most immense civil engineering projects ever undertaken. Always eager to take on a new challenge, Kiely went on to oversee the James Bay project, which was even larger than Churchill Falls and had to be done entirely in French.

Along with his groundbreaking work in power generation, Kiely was active in the design and construction of facilities for the basic metals industries. Having studied new technologies for iron ore beneficiation and pelletization, Kiely concluded that plants incorporating the processes would be required to bring large deposits of low-grade iron ore into use. While pressing new research into other alternative technologies, he directed the construction of a number of major iron ore beneficiation and pelletization plants.

Throughout his career, indeed, throughout his life, John Kiely was constantly probing the frontiers of technology both through his own research and as a research manager. In 1960 when Bechtel decided to organize a Scientific Development Department within the company to speed the commercial application of new technology, Kiely was chosen to supervise its formation.

At his instigation and under his supervision, studies were conducted in sea water desalination, nuclear fuels processing, space simulation facilities, water and air pollution, and many other areas.

Kiely's research efforts nearly always produced results. Among the breakthroughs generated by research he sponsored were poststressed concrete containment vessels for nuclear power plants, a 300-million-gallon-per-day desalination plant for the Metropolitan Water District of Los Angeles, the space simulation chamber of the Manned Spacecraft Center, and the Lunar Propulsion Facility at the Lewis Research Center.

Kiely chaired the Board of Control of the joint venture that designed and built the San Francisco Bay Area Rapid Transit Project. He had a personal hand in the development of advanced engineering concepts for the new system and, at the request of the Transit District, served as their consultant on major engineering decisions.

One of Kiely's special joys was working with young engineers, many of whom he had brought into the company, and whose subsequent careers he followed with keen interest. He worked to develop training programs that would allow individual employees to enhance their skills and advance their careers. And he was a strong voice for openness and public disclosure.

Kiely was named manager of Bechtel's Power Division in 1948 and elected a vice-president in 1951, a director in 1954, and a senior vice-president in 1957. He became a member of Bechtel's Executive Committee in 1959, a member of the office of the president in 1967, and was also elected an executive vice-president in 1967. He retired from full-time management in 1971 but continued to be a valued consultant to the Bechtel organization for many years.

Active in many professional societies, Kiely was a member of the National Academy of Engineering, American Institute of Mining, and Metallurgical and Petroleum Engineers and was a fellow of the American Society of Civil Engineers and American Society of Mechanical Engineers. He served as president of The Beavers, a worldwide organization of builders of heavy construction projects, and president of the Engineers Joint Council. He

was active for many years in the leadership of the World Energy Conference and served as chairman of the U.S. National Committee. He was a Knight of Malta and a member of Phi Beta Kappa, Sigma Xi, and Tau Beta Phi.

Kiely served as a director of the Homestake Mining Company and the French Bank. He was a member of the Board of Governors of Thomas Aquinas College and a trustee of the Santa Catalina School Foundation.

He is survived by his wife, Margaret Lee Kiely; five children, John III of Dundee, Michigan; Peggy Harris of New York City; Michael of Spring Valley, New York; Kathy Felix of Woodside, and Mary (Sister Maria) of Westfield, Vermont; and thirteen grandchildren.