Evans D. Kane

ENEAS D. KANE

1917–2013

Elected in 1977

"Contributions in the development of rarefied gas dynamics research, in low-pressure wind tunnel design, and in the fixed-bed phosphoric acid polymerization process."

BY JAROLD MEYER

ENEAS DILLON KANE walked into my office, introduced himself, sat down and asked about my work. I was a young engineer at Chevron, and that is how I met the new president of Chevron Research Company. Eneas visited as many people as possible in his early days as president, a personal touch that was evident throughout his career. He died July 14, 2013, at the age of 96.

The only son of Irish immigrants, Eneas was born January 8, 1917, in San Francisco. He was valedictorian of St. Ignatius High School and went on to study mechanical engineering at the University of California, Berkeley, graduating with honors in 1938. He then earned a master's in ME from Kansas State University.

He returned to UC Berkeley as an assistant professor in 1940 and worked with Ernest Lawrence in the university's radiation laboratory on the design of Lawrence's electromagnetic separation process. Eneas was chief engineer of a key part of the Manhattan Project, using the electromagnetic process as one of two approaches to enrich uranium (the other was only partially successful). Lawrence brought Eneas to Oak Ridge, Tennessee, for the project, and that's where Eneas met and married Mary Wainright.

The scale of the project was very large, with dozens of magnets housed in three buildings 450 feet long. A second magnetic separation facility was designed and built to further enrich uranium produced by the other plants. Eneas was chief engineer of this, the Beta Project.

After the war Eneas returned to Berkeley as an associate professor and then assistant professor of mechanical engineering. He was a founder of the low-pressure project, funded by the Office of Naval Research, to explore flight in the upper atmosphere by developing laboratory equipment to simulate this environment. A key result was development of a low-pressure wind tunnel to explore supersonic flight in the upper atmosphere. The Berkeley radiation laboratory expanded to Livermore for large-scale projects.

When Eneas received his doctorate degree he left UC Berkeley to join the California Research Company Livermore, where Standard Oil of California (now Chevron) conducted R&D for UC Berkeley. He held a number of positions at Chevron, becoming vice president of Chevron Research in 1964 and president in 1967. His appointment to president was part of a reorganization to improve financial return from expenditures on R&D.

Eneas is remembered as a champion of new technologies, such as gasoline deposit control additives. Detergents had been added to gasoline to keep the fuel system clean, but deposits still built up in the engine's intake manifold, intake valves, and combustion chamber. These deposits caused a number of performance problems, including lost power, poor fuel economy, and increased emissions. Eneas was the mentor and champion of deposit control R&D that addressed these problems. When Chevron introduced these new additives they not only maintained the cleanliness of new engines but also cleaned deposits from older engines.

The immediate impact of the new additives was improved fuel economy, reduced emissions, and smoother-running engines. The Clean Air Act Amendment of 1990 recognized the

impact of these additives by requiring that they be included in all gasoline sold in the United States.

The deposit control additives enabled further improvements. The press for ever better fuel economy and lower emissions led to new engine designs that have greatly improved performance compared to those of the 1990s. Fuel efficiency increased over 30 percent with a corresponding drop in carbon emissions. Deposit control is crucial for sustained performance of these advanced engines.

As Chevron's vice president of Technology and Environmental Affairs Eneas continued as a champion of new technologies, especially groundbreaking approaches that could have major impact. Kenn Derr, past chair of Chevron, remembers Eneas as a highly respected member of the company's management team, frequently sought out for his business views as well as his views on technology.

Eneas was a lifelong supporter of universities, and of UC Berkeley in particular. Engineering was growing at Berkeley in the 1970s. State and federal funding couldn't keep up. Ernest Kuh, dean of engineering, pursued corporate funding for additional support, but there was little corporate funding of public universities at the time. Dr. Kuh turned to alumni at major corporations and arranged a meeting to discuss the idea; he asked Eneas to be keynote speaker. The response led to the formation of an Engineering Advisory Council, chaired by Eneas. Berkeley received major new funding from this effort, and the council became a model for similar groups at most major public universities, providing both funding and input from industry on areas where research could make a critical difference.

Family was very important to Eneas. A Chevron friend tells of being invited to his home for a birthday party. He was touched when, during the festivities, each grandchild stood and told the group what their grandfather meant to them.

Eneas and Mary enjoyed 58 years together; she predeceased him in 2002. They are survived by their children and

spouses—Mary and Joseph Nappi, Therese and James Haden, Judith and Richard Prince, Barbara and Donald Scott, Eneas and Jennifer Kane, Timothy and Leslie Fisher-Kane, Nancy and Michael Boese, and Christopher and Nancy Kane—plus 23 grandchildren and 15 great-grandchildren.

Eneas's accomplishments and contributions go beyond those in science, engineering, education, management, and leadership. He will always be remembered by those he touched as a teacher, mentor, supporter, and friend. He is missed.