



*Herion W. Atwood*

## HUDSON MATLOCK

1919–2015

Elected in 1982

*“Outstanding leadership in research and design related to offshore engineering.”*

BY DAVID K. MATLOCK AND RICHARD L. TUCKER

LEE HUDSON MATLOCK JR. (known by all as Hudson Matlock)—husband, father, grandfather, great-grandfather, educator, engineer, pilot, US Army Air Corps veteran, and friend and mentor to many—passed away October 8, 2015, at the age of 95.

Hudson was born December 9, 1919, to Lee and Charlie Matlock in Floresville, Texas, a small farming community southeast of San Antonio. He was the oldest of five children. After high school in Floresville, he attended Texas A&I College in Kingsville (1936–1939); during summers he worked for the Texas Highway Department (1936 and 1938) and as a member of a survey crew at the Sacramento Air Depot (1937).

He launched his career in civil engineering in 1939 as a soils laboratory assistant in the materials and test division of the Texas Highway Department. In 1941 he became an inspector of construction in the San Antonio office of the US Engineering Department.

During World War II he joined the US Army Air Corps (1942–1945), learned to fly (which became a passion later in his life), and served as a 1st lieutenant unit flight instructor at Goodfellow Field in San Angelo, Texas. His primary instruction plane was the BT13A. Toward the end of his Army career he was transferred to Hobbs, New Mexico, where he became

a B-17 pilot and was preparing to head to the Pacific when the war ended.

It was during his flight training that he began to hone his teaching skills. He liked to tell the story that when cocky new “hotshot” pilots were assigned to his class, he enjoyed taking them up for some “aerobatic” flying to get their attention (along with their stomachs) as a way to put them in the “right frame of mind” for learning.

After the war he moved to Austin to complete his BS (1947) and MS (1950) degrees in civil engineering at the University of Texas (UT). He joined the College of Engineering as an instructor in 1948 and progressed through the ranks to become a professor in 1965. From 1972 to 1976 he chaired the Department of Civil Engineering. In 1986 he was named a Distinguished College of Engineering Graduate, and in 2002, in recognition of his accomplishments, his grateful students gave generously to establish the Hudson Matlock Professorial Endowed Excellence Fund in Civil Engineering at UT Austin.

In 1977 he became vice president of research and development at Fugro, which later became the Earth Technology Corporation, in Long Beach, California, where he stayed until he retired in 1985.

At UT he was a pioneer in developing analysis techniques for advanced structural systems and complex structure-soil interaction systems. He designed one of the first flexible configuration civil engineering structure laboratories based on servohydraulic systems, initially configured with analog controls and eventually with digital control systems adaptable to new computer technologies that were evolving at the time. His interest in soil mechanics, foundation engineering, and structures with applications to offshore engineering evolved early in his career. For example, as described in 1985 by UT professor Lymon C. Reese,

Matlock and his associates instrumented one of the piles supporting a platform in deep water in Block 42 in the Gulf of Mexico in 1954, and since that time faculty at UT have done scores of research studies for the offshore industry. Matlock

and Dr. Eugene A. Ripperger, professor of engineering mechanics, in the late 1950s carried out a landmark test program on piles under lateral loading. The testing resulted in recommendations for the design of piles in soft clay under lateral loading; the recommendations were adopted by the American Petroleum Institute and have served as the basis for the design of piles for offshore structures at worldwide locations.

The latter stages of Hudson's UT career occurred during the expansion of the digital computer era. He was an early leader in development of finite element analysis techniques, particularly for beam columns, grid beams, slabs, and other structure-soil applications.

His lasting contributions to offshore engineering were acknowledged by the American Society of Civil Engineers (ASCE) with the J. James R. Croes Medal in 1968 (shared with William R. Hudson), and many years later two of his important papers critical to analyses of soil-piling interactions in offshore structures were cited for inclusion in the ASCE Offshore Technology Conference (OTC) Hall of Fame Awards: "Correlation for Design of Laterally Loaded Piles in Soft Clay" (OTC paper 1204, May 1970) and "Application of Model Pile Tests to Axial Pile Design" (coauthored with J. Dewaine Bogard; OTC paper 6376, 1990).

Hudson was an ASCE fellow, a member of Tau Beta Pi, a Professional Engineer, and an active member of the Texas Society of Professional Engineers, Society for Experimental Stress Analysis, and International Society for Soil Mechanics and Foundation Engineering. He also served on several committees, including the National Research Council Marine Board Committee on Offshore Energy Technology and Panel on Certification of Offshore Structures.

While in the Army Air Corps, on November 25, 1942, he married Harriett Nadine Kidder (1919–1996) of Mercedes, Texas. They enjoyed 53 years together and had two sons, John Hudson Matlock and David Kidder Matlock. Hudson was very proud of the fact that both pursued very successful careers in engineering after having completed advanced

degrees, John a PhD in materials science at UT Austin and David a PhD in materials science and engineering at Stanford University. He was also proud of the fact that he was one of the few NAE members who had a son elected to the Academy (David in 2003).

In 1965 he decided to take up flying again (something he had missed since leaving the Army Air Corps) and joined the UT Flying Club. His participation in the club lasted only about a year until his desire to fly more led him to purchase his first airplane—and to convince Harriett to learn to fly. Together they flew all over the United States; to Uruapan, Mexico, where he took a sabbatical semester; and eventually on a trip through Central America, Venezuela, and back to Florida by island hopping through the Caribbean.

In 1985 Hudson and Harriett moved back to the Texas Hill Country they loved. They retired in Kerrville in a home on the airstrip at Tierra Linda Ranch (TLR), a former 2,900-acre ranch about 70 miles west of San Antonio that had been subdivided into a multihome community.

In retirement Hudson had the opportunity to apply his civil engineering knowledge to help improve the TLR infrastructure. His analysis of the earthen dams on the two main ranch lakes led to important modifications and increased dam safety, both of which led to changes in the state of Texas hazard level classifications of the dams and corresponding reductions in operating and insurance costs to TLR. He was also instrumental in helping design a systematic maintenance program for TLR's asphalt road surfaces to ensure maintenance of a quality internal road system.

Hudson had to quit flying at the age of 90 and sold his airplane (now his third) in the spring of 2011. He lived on the ranch until December 2014, when he relocated to Colorado to be near family.

Harriett passed away in 1996. Hudson is survived by sons John (Kathe) and David (Diane); grandchildren Deb, Dan, Michelle, and Joey; and five great-grandchildren.

His greatest legacy lives in those who were influenced by him, some of whom offered their own observations: “My

engineering career was enhanced by my study and work under Hudson"; "Everyone who knew him has nothing but sunshine in their eyes when they speak of him"; "He was truly the most honorable, kind, and honest gentleman that I have ever met"; and "the end of an era, they don't make them like that any more."