



A. S. Davis

CHESTER P. SIESS

1916–2004

Elected in 1967

“For reinforced concrete construction.”

BY METE A. SOZEN

CHESTER PAUL SIESS was born in Alexandria, Louisiana, in 1916, to Leo Chester Siess and Adele Liebreich Siess. In time, he attended Rosenthal Grammar School and Bolton High School, both in Alexandria. He continued his education at the Baton Rouge campus of Louisiana State University where he was a member of the Reserve Officers’ Training Corps. In those years, when Huey Long rarely missed a football weekend in Baton Rouge, the young Siess was within earshot of Long almost every week during the football season.

When Siess graduated in 1936 with a B.S. in civil engineering, he had the highest scholastic record in the engineering school and was named the Outstanding Civil Engineering Graduate by the Louisiana Section of the American Society of Civil Engineers. Besides being gifted in mathematics, he developed a keen sensitivity to writing and grammar, evidenced by his only teenage rebellion against his father, who had a sign identifying his drug store as “Siess’ Pharmacy.” His son would have none of it! He insisted on “Siess’s Pharmacy.” That was one argument he did not win.

Chester entered the profession during the Depression, and his first job was survey party chief in the Rural Road Inventory Program of the Louisiana Highway Commission, where he spent his time documenting the layout and condition of the road sys-

tem in several Louisiana parishes. After six months, when a soil-testing laboratory was established in the Highway Commission, he became a soils engineer.

In September 1937, he began graduate studies at the University of Illinois, Urbana, with a half-time appointment as a special research graduate assistant in the Department of Theoretical and Applied Mechanics (T&AM). There he had the opportunity to work on a research project with Dr. N.M. Newmark, then an assistant professor, Dr. V.P. Jensen, and Professor Frank E. Richart. Chester's M.Sc. thesis, "Moments in I-Beam Bridges," which he completed in 1939, was the centerpiece of *Illinois Engineering Experiment Station Bulletin* No. 336, produced by him and N.M. Newmark.

In June 1939, he joined Dr. Ralph B. Peck in the Chicago Subway Soils Laboratory. When construction of the subway was completed in April 1941, he started working as an engineer-draftsman in the Bridge Office of the New York Central Railroad in Chicago. While in Chicago, he met Helen Kranson from Marshall, Texas, who had come to Chicago to work after her freshman year in Urbana.

In September 1941, Chester returned to Urbana as a special research associate in T&AM and was put in charge of experimental research, replacing Professor Ralph Kluge, who had taken a position at the University of Florida. While working full time running the laboratory, he began work on his doctorate. He married Helen soon thereafter, in October 1941; their daughter, Judith, was born in 1947.

By 1948, Dr. Siess had not only extended the moment-distribution method, developed by Hardy Cross, to apply to two-way slabs, but had also completed his Ph.D. dissertation. In 1949, he transferred to the Department of Civil Engineering as a special research assistant professor. He became a full professor in 1955 and served as head of the department from 1973 to 1978, when he retired. Upon his retirement, some of his former students established the Chester P. Siess Graduate Award.

In the late 1950s, the Structural Engineering Laboratory of the Department of Civil Engineering was the scene of a number of exciting developments in reinforced concrete. At that time,

several experienced, creative researchers, such as Eivind Hognestad and Ivan Viest, were members of the Department of T&AM. A friendly, but intense, competition between the staffs of the Departments of Civil Engineering and T&AM led to many advances in structural analysis and the design of reinforced and pre-stressed concrete that ultimately transformed the structural design in that medium, not only in the United States but throughout the world.

Dr. Siess's stewardship of much of this research was recognized in his many awards. The Ernest E. Howard citation from the American Society of Civil Engineers reads, "Through his extensive research in reinforced concrete and pre-stressed concrete, the translation of his research results to practice, his informative writings, his effective teaching and stimulation of his students and co-workers, Chester P. Siess has made significant contributions to structural engineering with worldwide influence."

Chester joined both the American Society of Civil Engineers (ASCE) and the American Concrete Institute (ACI) in 1936 and served on nine ACI committees over the years. From 1980 to 1983, he was chairman of the Standard Building Code Committee, of which he was a member from 1953 to 1995. He served on the board of ACI from 1961–63 and 1972–1977 and was president in 1974–1975. From 1968 to 1980, he was chair of the Reinforced Concrete Research Council of ASCE and was secretary of the organization from 1961 to 1968. He was appointed to the Advisory Committee on Reactor Safeguards of the U.S. Nuclear Regulatory Commission in 1968, served as committee chair in 1972, and retired from the committee in 1992. Dr. Siess was also a consultant to the Army, Navy, and Atomic Energy Commission.

In 1949, he and N.M. Newmark were awarded the ACI Wason Medal for a paper based on Chester's doctoral dissertation on reinforced concrete slabs. For contributions in the same field, he received the Concrete Reinforcing Steel Institute Award in 1956. He received the Boase Award from the Reinforced Concrete Research Committee in 1975 for research related to behavior and design, the Turner Medal (1964), the Howard Award

(1968), and the Reese Award (1970), the latter with M.A. Sozen and J.O. Jirsa. He was made an honorary member of the American Concrete Institute in 1969 and of ASCE in 1978.

Dr. Siess was elected a member of the National Academy of Engineering in 1967, its third year, and was made a charter member of the Louisiana State University Engineering Hall of Distinction and the Civil Engineering Hall of Distinction. In 1985, the University of Illinois College of Engineering presented him with the Alumni Honor Award for Distinguished Service. In 2001, the Structural Engineers Association of Illinois honored him with the Parmer Award. In 2006, the American Concrete Institute Board of Direction established in his memory the Chester P. Siess Award for excellence in structural engineering research.

Dr. Siess was a member of Tau Beta Pi, Sigma Xi, Phi Kappa Phi, and Omicron Delta Kappa. He was also a member Chi Epsilon, the civil engineering honorary society. He was made a Chapter Honor Member of the University of Illinois Alpha Chapter in 1987 and the 51st National Honor Member in 1994, the sixth from the University of Illinois, which has more National Honor Members than any other institution.

In an interview in *Concrete International* in 1998, Dr. Siess was asked about safety in the building code. He responded that, "Theory says that 1.2 is plenty [for dead load]. But the engineer is not thinking entirely in terms of low probability of overload [versus] a low probability of understrength. The engineer is thinking about mistakes and a safety factor of 1.2 will not do to cover mistakes if it is all dead load." Perhaps this statement provides a glimpse of his rare ability to bridge theory and practice. It is generally agreed that the ACI Building Code of 1982, which he directed, is the last one that was written with a concern for the practitioner.

Dr. Siess demanded the highest standards of economy, correctness, and expression from his students. The University of Illinois has been blessed with a number of great teacher-researchers in structural engineering over the years, including Newmark, Richart, Wilson, Westergaard, and Talbot. The most important recognition that Dr. Siess received is the firm belief of students who knew him in the classroom and in endless discussions in his

office (where, as in the old saying, if the pistol of his argument misfired, he beat you down with its butt end) that he belonged in that select class. On the occasion of the establishment of the Chester and Helen Siess Professorship in Civil Engineering at the University of Illinois, he said, “If someone asks me what I think was my most important contribution to the profession, I will cite the engineers I have taught.”

Dr. Siess passed away in Savoy, Illinois, a suburb of Urbana-Champaign, on January 14, 2004. He is survived by his daughter and son-in-law, Judith Ann and Stephen Bremseth of Cleveland, Ohio, and an “adopted” son, Larry Jackson. Larry, the grandson of a long-time cleaning lady, attended the University of Illinois through the generosity of Chester and Helen Siess. The Siesses considered Larry the son they never had, and Larry regarded them as his own parents.