



Phil M. Ferguson

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1899–1986

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Phil Moss Ferguson, a leading pioneer in developing the basic theory of design procedures for reinforced concrete structures, died at the age of eighty-six on August 28, 1986. An outstanding civil engineering educator, Professor Ferguson was the Dean T. U. Taylor Professor Emeritus in Engineering at the University of Texas at Austin, where he taught until his retirement in 1976.

His distinguished scholarship and his leadership in developing an internationally recognized structural engineering program at the University of Texas at Austin were fittingly recognized in 1979 when the University of Texas System Board of Regents named the large structural engineering research facility at the university's Balcones Research Center the Phil Moss Ferguson Structural Engineering Laboratory. In the hundred-year history of the university, only two other buildings had ever been named for living faculty.

Phil Moss Ferguson was born on November 10, 1899, in Bartlett, Texas, a small mid-Texas town. After his high school education in Waco, he entered the Civil Engineering Department of the University of Texas at Austin, where he received his B.S. in civil engineering in 1922 and a C.E. in 1923.

His interest in structural engineering and especially in reinforced concrete resulted in his enrolling for graduate studies at the University of Wisconsin, which was then one of the

best-known American centers of plain and reinforced concrete higher studies. He received an M.S. from Wisconsin in 1924 and subsequently joined Dwight P. Robinson & Company of New York as a structural engineer. His experience in the design of power plants and industrial buildings and in the construction of high-rise buildings was an important influence on his teaching and research at the University of Texas. Professor Ferguson always approached the most theoretical problems within the general framework of practicality that was established during this design phase of his career.

For more than two decades after he joined the University of Texas faculty in 1928, Professor Ferguson devoted his energies principally to the teaching programs at the then predominantly undergraduate institution. He served as chairman of the Civil Engineering Department from 1943 to 1957 and played a leading role in establishing the department's graduate engineering programs. He supervised the first doctoral student in civil engineering at Texas.

In contrast to many academic researchers, Phil Ferguson's personal research and writing career did not bloom until he had passed his fiftieth birthday. His first serious, original paper at the national level was published on three-dimensional structural analysis in 1950. This was followed by a number of papers exploring shear and diagonal tension in reinforced concrete, which were recognized by the American Concrete Institute's prestigious Wason Medals in 1954 and 1958.

Once unfettered, his research career rapidly developed, and his writings became internationally acclaimed. Throughout this period, he attracted a number of fine students to Austin and encouraged many of the junior faculty to seek doctoral degrees. His international stature as a leader in structural engineering research and his development of design procedures led to his election to the National Academy of Engineering in 1973.

Phil Moss Ferguson was the driving force in the development of the internationally recognized structural engineering program at the University of Texas and, as a senior faculty

contributor, provided leadership and stimulus for the development of the highest ranked graduate program in civil engineering in the South and Southwest. He developed a reputation as a splendid engineering teacher, and his teaching ability was recognized by a General Dynamics Award for Teaching Excellence in 1962.

Students from all over the United States and many foreign countries attended his advanced courses on the behavior and design of reinforced concrete structures and conducted research under his supervision. Many of these students have assumed leadership roles in structural engineering.

In developing the structural engineering research program, which won wide acceptance and backing from government, industry, foundations, and trade associations, Phil Ferguson provided leadership in promptly translating research data into design practice. His research accomplishments involved many fields, but most noteworthy were the series of original contributions that advanced comprehensive design recommendations for reinforced concrete structures.

Each of his research programs reflected extensive knowledge of the specific problem as well as the impact of the problem on the total design and behavioral considerations of the member in question. His keen sense of engineering design construction practice and structural behavior, which he developed as a practicing designer and nurtured with years of consulting and technical committee work, provided a breadth of view that led to many of the significant breakthroughs in modern concrete research, especially in such areas as diagonal tension, torsion, slender columns, and reinforcement development.

Professor Ferguson's famous text, *Reinforced Concrete Fundamentals*, was initially published soon after the American Concrete Institute took the first step toward allowing ultimate strength design. It has been revised three times; the fourth edition was published in 1979. The Ferguson text is a digest of available research, design aids, and philosophy. Careful inclusion of a balanced and unbiased evaluation of

current design procedures, comprehensive and forceful emphasis on fundamentals, and incessant urging that tradition give way to truth and logic justified his emphasis on ultimate strength procedures.

The unusually wide acceptance of his work by the designer as well as the teacher stands as a lasting measure of his work. His texts were influential in bringing about the acceptance of the new procedures that have led to far-reaching economies. His books and papers demonstrated his creative farsightedness and deep understanding of structural engineering and technology. His research writings were recognized three times by the American Concrete Institute's Wason Medal, a distinction accorded only one other author in the institute's history, and by the Raymond C. Reese Structural Award.

No professional service gave Professor Ferguson more satisfaction than his more than forty years as a member of the American Concrete Institute Building Code Committee. He was an extremely influential member of that committee, which formulates the basic standards for design and construction of reinforced concrete structures in the United States as well as in many foreign countries.

The energies he devoted to professional and technical organizations culminated in his serving as president at the national or state level in several important societies (e.g., the American Concrete Institute, the American Society of Civil Engineers, and the Texas Society of Professional Engineers); he was also a U.S. representative to several active Comité Européen du Béton commissions and headed the U.S. liaison delegation to international meetings. He was named an honorary member of both the American Concrete Institute and the American Society of Civil Engineers in recognition of his long and distinguished service to those societies. Both the University of Texas and the University of Wisconsin recognized him as a distinguished graduate.

In 1976 Phil Moss Ferguson was appointed professor emeritus at the University of Texas, signaling the end of forty-eight years on the active faculty. Although no longer

involved in the active teaching and research program, his involvement and service to the university continued through his counsel to the faculty and students and his involvement in professional and technical affairs.

Declining health finally forced him to move from Austin to be closer to his son, Yale H. Ferguson, a Rutgers faculty member. These last years immediately before his death were spent in close contact with his son, his daughter-in-law Kitty, and his three grandchildren. Their loving support brought much comfort in his declining years.

Far beyond his many technical contributions, Phil Ferguson will be remembered for his spirit of uncompromising integrity, his dedication to the application of fundamental engineering principles, and his stimulation of young minds. A dedicated church member and a highly respected political conservative, Professor Ferguson was also a faculty leader in questioning the right of the state of Texas to require affirmation of belief in a Supreme Being as a condition for university employment in the 1950s. He championed the right of individuals to differ in a pluralistic, constitutional society.

A seemingly stern and demanding teacher, he inspired his students to strive for excellence but never to compromise their personal integrity or neglect their family and civic responsibilities. His passing brought forth countless students and associates, each with a story of a special encouragement or some special assistance, often financial, offered by Professor Ferguson at trying times in their careers.

He was a small, quiet, and gentle giant, who left behind him a totally changed approach to teaching, research, and graduate education in the two corners of his world that were dearest to him—his native Texas and the special world of reinforced concrete.