IN MEMORIAM

RAYMOND F. DAWSON

Raymond Dawson joined The University of Texas on October 15, 1928, as a staff member in the Bureau of Engineering Research. The University was designated by the Texas Legislature as available for the testing of materials for the Texas Highway Department. The laboratory was at Little Campus, and Dawson supervised twelve to fifteen THD employees. He saw a need for the testing of soils, and a laboratory was established in The Bureau in January, 1930, and was one of the first five in the United States.

He received the degree of Bachelor of Science in Civil Engineering from Purdue University in 1923 and after graduation worked for the Illinois Division of Highways and the United States Bureau of Public Roads. He was invited to join the University by the late Professor Stanley P. Finch. He continued his studies in Civil Engineering at the University and received the degree of Master of Science in 1936. He advanced steadily in rank and became Professor of Civil Engineering and Associate Director of the Bureau of Engineering Research in 1949. He retired in 1969. He died in Austin on July 5, 1991.

Raymond Dawson was born on September 20, 1900, in Pennville, Indiana. He and his wife, Wilda, who preceded him in death, had no children; they were inseparable companions. They both were avid gardeners and hobbyists, liked to travel, and spent many a summer touring Europe, Mexico, and North America. Raymond was a staunch member of the Men’s Garden Club, and frequently their home on Park Avenue was ablaze with flowers. He carried many of his plants to Westminster Manor when he and Wilda moved there in their later years.

Dawson’s sense of humor and warm personality made him a favorite professor with many of the students. One of his assistants in the Bureau of Engineering Research was a cartoonist. Two posters in Dawson’s office were memorable. An early engineer was standing near a perfectly vertical Tower of Pisa and said to a companion, “I
skimped a little on the foundation, but no one will ever know!" Then there was a disheveled fellow with tie askew and eyes a little crossed: "I'm pretty smart myself, but I have some doubt about my help!" Dawson was an occasional golfer who sometimes told his students that they would have to learn to beat him in golf before getting their degrees.

Raymond Dawson continued to add equipment to the laboratory in soil mechanics and gradually introduced courses in the Civil Engineering curriculum. He became an outstanding teacher and researcher in the engineering discipline of Soil Mechanics and Foundation Engineering, but it is necessary to mention the late Karl Terzaghi to clarify Dawson's role as an engineer.

Terzaghi was educated at Graz, Austria, in engineering, mathematics, and geology, and worked on construction projects in Europe and Asia. He became interested in the behavior of soil, but his career was interrupted by World War I. After World War I, he became a member of the faculty of American Robert College. His 1925 book, *Erdbaumechanik*, and articles in technical journals were eagerly received by civil engineers. The work of Terzaghi and his proteges led to the convening of the First Conference of the International Society on Soil Mechanics and Foundation Engineering at Cambridge, Massachusetts, in 1936. Terzaghi was elected President of the Society and continued in that capacity as the active or honorary president until his death in 1963. Dawson attended the first conference, made the acquaintance of Terzaghi, recognized his capability, and continued a close association until Terzaghi's death.

In order to acquaint engineers in Texas and the Southwest with an emerging discipline, Dawson organized the first of eight conferences. The First Texas Conference on Soil Mechanics and Foundation Engineering was held at the University in January, 1938. Over 130 engineers attended and heard lectures and saw demonstrations of testing equipment. The success of the first conference and requests of those in attendance led Dawson to plan and organize the subsequent ones.

The Second through the Eighth Texas Conferences on Soil Mechanics and Foundation Engineering were held in the years from 1939 until 1956. Terzaghi gave papers at all of them except one. The last conference was on
the topic of offshore structures, and several notable papers were presented. The Proceedings of that conference are still being requested from the Bureau of Engineering Research. Terzaghi gave an outstanding paper on submarine slope failures and visited the research site where full-scale tests were underway on piles under lateral loading.

Dawson's friendship led to Terzaghi's participation in the Texas Conferences and also led to Terzaghi's appointment as Distinguished Professor of Civil Engineering for the Spring Semester, 1941. Terzaghi's reputation grew enormously through research, consulting, technical articles, books, lectures, and personal dedication. His close association with Dawson gave the University an exceptional degree of prestige. Under Dawson's leadership, soil mechanics and foundation engineering (now geotechnical engineering) enjoyed rapid growth and increased stature. Graduate students came in significant numbers from Texas, the Southwest, and abroad. Dawson's teaching, research, supervision of graduate students, and service to technical societies led to the deserved commendation: "the father of Geotechnical Engineering in Texas."

Much of the research of Raymond Dawson was related to the development of laboratory equipment and methods of testing. His long-time employee in the Bureau of Engineering Research, master machinist Raymond Stewart, made much of this new equipment in the shops at Taylor Hall. Stewart was a special friend of graduate students, and his advice was instrumental in much of their success in their experimental work. Dawson and Stewart were an excellent team that played no small role in the advancement of geotechnical engineering at the University.

Terzaghi proposed a method for the consolidation of soils that was based on the solution of the heat-flow equation. Dawson constructed laboratory equipment for running consolidation tests and used the results in predicting the settlement of buildings and other structures. He arranged for the instrumentation of the San Jacinto Monument and high-rise buildings in Houston and periodically organized a group of graduate students for the performance of precise levelling so that the settlement of those structures could be computed as a function of time. His paper on the settlement of the San Jacinto Monument was a significant contribution to technology and served to guide many others in similar studies.
The subsidence of the ground on which the City of Houston is built amounted to several feet when Dawson became interested in the phenomenon. He correctly observed that the subsidence was due to the increase in the intergranular pressure in the soil due to the lowering of the water table by pumping. His paper was an early one of many that have addressed the problem of subsidence of the natural ground.

The City of Austin, many other areas in Texas, and many places around the globe are situated over expansive clays. Dawson gave lectures on this topic and correctly analyzed the problem when it was not well understood. He supervised graduate studies on expansive clay and participated in research studies of the foundations of specially-built houses. Many a heartache would have been eliminated had it been possible for his knowledge of this problem to be communicated to builders and homeowners. Unfortunately, the communication of technology to lay persons remains an unsolved problem.

Dawson was asked to participate in a number of practical designs by engineers in Texas and elsewhere. Bramlette McClelland, in a major lecture to the Offshore Technology Research Center, recently reported that Dawson had given guidance in the design of piles for some of the first structures that were built offshore. Dr. Leonardo Zeevaert of the National University of Mexico, and one of Dawson's long-time friends and associates, worked with Dawson on the design of the foundations for the American Embassy in Mexico City. Dawson was consultant on foundations for over 75 industrial and commercial structures and was a ready resource to Texans and others on questions related to the design of dams, foundations for buildings and bridges, and matters related to the use of soils in construction.

Dawson was a Registered Professional Engineer in Texas and held memberships in the American Society of Civil Engineers, American Society of Engineering Education, American Concrete Institute, American Society for Testing and Materials, and Highway Research Board. He was elected to membership in the honor societies of Chi Epsilon and Sigma Xi. His work in support of ASCE spanned many years. He was President of the Texas Section, Member of the Executive Committee of the Soil Mechanics and Foundations Division, and National Director,
representing District 15 which included Texas, Louisiana, New Mexico, and Mexico. He attended his last meeting of the Texas Section in San Antonio only a few months before his death.

The stature of the Civil Engineering Department was enhanced in the years of Dawson's tenure and afterward. He was one of a group of senior faculty, that included Phil Ferguson, Stanley Finch, John Focht, and Neils Thompson, who worked unselfishly to further the careers of the junior faculty in the Department. Resources were meager in most of the years of the tenure of these men, but encouragement was plentiful. The unfailing good will, pleasant demeanor, gentle encouragement, and excellent example of Dawson and others like him set a tone in the Department and developed an esprit de corps that was of enormous benefit in developing a faculty of considerable prestige.

Perhaps the best way to conclude this tribute is to quote from a letter written to Dawson by Ms. Pat Ruser, his secretary, on the occasion of his retirement.

I guess the highest compliment I can pay you (in my eyes) would be to say even with all of your formal education, "book learning," etc., you are one of the wisest, kindest, and most considerate men I have had the pleasure of knowing.--- One of the things I will miss most is how important you always made me feel. Never once did I hesitate in asking a "stupid question" or try to hide my ignorance on any subject. This was because you were so patient in explaining things, and even with your vast knowledge of everyday matters and all your technical knowledge, I never felt inferior. I know this trait of yours is one of the reasons you were such a top-notch professor and graduate advisor.

The University was wealthier with Dawson in the ranks. We, his colleagues, the engineers in the area, the people of Texas, owe Raymond Dawson much for his pioneering work in his discipline and in his personal contributions of great significance.
This Memorial Resolution was prepared by a special committee consisting of Professors Lymon C. Reese (Chair), J. Neils Thompson, and Ned H. Burns.