

Ernest W. Schoder

August 17, 1879 — May 16, 1968

Ernest Schoder was born in the state of Washington and attended primary and secondary schools in Seattle. He received both the B.S. and the B.S. in Mining degrees from the University of Washington in 1900.

After two years with the United States Geological Survey in California, Schoder came to Cornell in 1902 as a graduate assistant in the recently built (1899) Hydraulics Laboratory; he immediately became active in the ongoing pipe flow studies to which he later devoted a major part of his energies during the next forty-five years. He received the Ph.D. from Cornell University in 1903; his published dissertation still stands as a landmark in hydraulic experimentation. The next year, at the age of twenty-five, Dr. Schoder was named engineer-in-charge of the Hydraulics Laboratory, succeeding Professor Gardner S. Williams, who had directed his doctoral study. Dr. Schoder became an Assistant Professor of Experimental Hydraulics in 1905, Professor of Experimental Hydraulics in 1919, and was named Professor Emeritus in July 1947.

Professor Schoder's total commitment to hydraulic research and consulting brought such renown to himself and to Cornell that it could be said that the majority of the leading American hydraulicians of the first quarter of this century either were educated, or participated in tests conducted, at Cornell."

Professor Schoder pioneered in recognizing the need for precise measurement and experimentation under conditions not to be expected in the field, long since a universally accepted premise of engineering research. Prior to Schoder's taking charge of the Cornell Hydraulics Laboratory, it, like other similar laboratories, had been devoted almost solely to commercial testing. Schoder immediately saw the need for distinguishing between commercial testing and experimental research and changed the laboratory function accordingly.

By the start of the twentieth century, leadership in hydraulics had largely passed to the German scientists and engineers. Ernest Schoder contributed significantly to bringing leadership in experimental hydraulics to the United States. In 1902-03, Schoder, working with another doctoral candidate, Saph, made the precise measurements on frictional resistance to the flow of water in pipes that served as experimental verification of the still-accepted exponential relationship between velocity and head loss. This study became a classic in hydraulic experimentation and was the first experimental recognition of the effect of velocity distribution in a closed conduit on apparent head loss. These measurements were used by Blasius to show that for turbulent flow with smooth boundaries, the friction coefficient 'f' varied inversely as the 0.25 power of the Reynolds number. This use of the Saph-Schoder

results was the first use of American experimental data in Europe, reversing the long-established direction of flow of this information.

Schoder, with a single-minded dedication to experimental hydraulics that brooked no competing personal interests, devoted himself to research, consulting, publishing, and teaching until his retirement. His painstaking measurements of friction losses over weirs, in curved pipes, and in pipe fittings were widely published and accepted. A textbook *Hydraulics* by Schoder & Dawson, published in 1927 and revised in 1934, was a widely used text that continues as a commonly quoted reference. Professor Schoder was the author of the “Hydraulics” section in the 1916, 1924, and 1930 editions of *Marks Hydraulic Engineers Handbook*.

Schoder’s consulting services were widely sought after by industry and by public agencies, and they included field and laboratory tests, calibrations of flow-measuring devices, and model studies.

Professor Schoder’s teaching reflected his conviction that laboratory experimentation was an essential part of both undergraduate and graduate instruction. He believed that experimental thesis research taught the student independence in thinking and in action. He felt also that the experience of laboratory experimentation requiring great accuracy as well as rigorous analysis and interpretation was a disciplining exercise necessary to the development of a good engineer. Students found Professor Schoder one of those rare individuals whose primary goal was the development of his students. His dedication to his field was infectious; his intellectual honesty was pervasive.

His colleagues and friends remember Ernest Schoder as a fundamentally shy, yet genial person whose manner and individualism evoked positive reactions in those who knew and worked with him. Students and colleagues alike recall the many campus stories and episodes in which Professor Schoder, the perennial bachelor professor, was the central figure.

Solomon C. Hollister, John E. Perry, Charles D. Gates