

# Fred William Ocvirk

*December 28, 1913 — May 21, 1967*

Fred William Ocvirk was born in Chicago, Illinois, on December 28, 1913. His unexpected death, at the age of fifty-three on May 21, 1967, cut short a career of service that was notable for significant accomplishments in the past and for the promise of many more years of productivity.

Professor Ocvirk obtained his education in the field of civil engineering, receiving the B.S. degree from Wayne University in 1938 and the M.S. degree from the University of Illinois in 1940. His association with Cornell University began in 1940 when he became an instructor in the engineering science management war training program conducted by the University in Buffalo. He taught courses in mechanics, aerodynamics, aircraft structures, and civil engineering structures and was appointed Assistant Professor of Aeronautical Engineering in 1944. Later in that year he took a leave of absence to accept a position with the Johns Hopkins University Applied Physics Laboratory as a senior engineer in the design of structural components for gun directors and guided missiles.

In November of 1945, Fred Ocvirk joined the Cornell faculty in Ithaca as an Assistant Professor in the Graduate School of Aeronautical Engineering, and in 1947 he transferred to the Sibley School of Mechanical Engineering where he taught in the Department of Mechanics.

In 1949, his deep interest in the applications of engineering mechanics to problems in engineering design led him to accept an appointment for part-time research on bearing lubrication in the Department of Machine Design in the Sibley School of Mechanical Engineering. This research was a project that was sponsored by the National Advisory Committee for Aeronautics (now NASA). In 1950, he became a full-time Research Associate and in 1951 he was appointed Associate Professor of Mechanical Engineering in the Department of Machine Design. Although from this date on, the major share of his time was given to teaching undergraduate and graduate courses and to working with graduate students, his interest in and enthusiasm for lubrication research continued at a high level and at the time of his death, he was a principal investigator for a project sponsored by the National Science Foundation.

He was the author or co-author of some fifteen papers and reports on lubrication and became internationally known for his analytical development in 1952 of the “short bearing” theory. His development is now universally known as the “Ocvirk solution.” It was particularly gratifying to Professor Ocvirk when his investigations led to a better method for designing journal bearings. In the process of correlating experimental data with theoretical results it

was observed that the family of curves previously required to express the most important relationship between bearing parameters and performance criteria could be collapsed into a single curve if a particular dimensionless group, that came out of the theory, were used as the independent variable in plotting experimental data. Professor Ocvirk called this dimensionless number the “load number,” but, since 1960, others working in lubrication have called it the “Ocvirk number.”

In 1955, Professor Ocvirk was awarded the Alfred E. Hunt Memorial Medal by the American Society of Lubrication Engineers in recognition of his paper, “Measured Oil Film Pressure Distribution in Misaligned Plain Bearings,” judged to be the best paper published in 1954 on the subject of lubrication. In 1958, he received the Outstanding Alumnus Award from Wayne State University. He was promoted to Professor of Mechanical Engineering at Cornell University in 1959.

Professor Ocvirk was a major contributor to the development of new courses and curricula. He was an outstanding teacher in the classroom and further gave much of his time in helping students individually in his office. He regularly was in charge of a multisectioned course, and he worked diligently and enthusiastically with his fellow professors in planning the course. Although he was interested in every facet of machine design and had taught almost every course offered by the department, he was uniquely qualified, by education and professional engineering experience, in the subject of high-speed rotating machinery. A result of this special capability was the development of an elective course, “Mechanical Design of Turbo-machinery,” that was selected by practically every graduate student with a major or minor in machine design. Taking this course was a particularly valuable experience because of the opportunity for getting thoroughly acquainted with Professor Ocvirk’s philosophy relative to engineering design, in particular, and to life, in general. Professor Ocvirk is also widely known for his text, “Mechanisms and Dynamics of Machinery,” written with H. H. Mabie, published in a second edition in 1963.

Professor Ocvirk served in a consulting capacity with many major companies and research organizations, such as the Bendix Corporation, the Boeing Airplane Company, the Carrier Corporation, the Cornell Aeronautical Laboratory, Glacier Metal Company, Ltd. of England, and the University of California.

Professor Ocvirk was a willing worker and carried more than his share of responsibility as a member of numerous honor and professional societies. He was a member of Phi Kappa Phi, Pi Tau Sigma, Sigma Xi, Tau Beta Pi, the American Society for Engineering Education, and the American Society of Mechanical Engineers. He was particularly active as a member or chairman of many important committees of both the lubrication division and the southern tier section of the American Society of Mechanical Engineers.

Professor Ocvirk's dedication to his profession left little time for the usual hobbies. His favorite method of relaxing was to travel, preferably by ship. His interest in travel began with a trip made with friends one summer while in college. The trip to the West Coast was made "on a shoestring," and Fred liked the experience and the sights so much he resolved to spend his extra money and time on travel. Almost every summer in later years found him and Mrs. Ocvirk overseas. They traveled to Hawaii and through the Panama Canal, to the West Indies, several times to Europe, and around the world. The latter trip was in conjunction with a Fulbright Award in 1963 for a visiting lectureship at the University of New South Wales in Sydney, Australia. On their way they visited with former students in India. They had planned to spend the summer of 1967 in Scandinavia.

His wife, Milacent Grimes Ocvirk, is supervisor of English in the Ithaca public schools and is associated with the work in education at Cornell University as supervisor of practice teaching in English in Ithaca public schools. Together they carried on their professional careers, and their circle of friends included many persons associated with the secondary schools of Ithaca as well as Cornell University.

*Arthur H. Burr, George B. Dubois, Dennis G. Shepherd, Richard M. Phelan*