



C. Richard Hoelzer

CARL RICHARD SODERBERG

1895-1979

BY ASCHER H. SHAPIRO

ON OCTOBER 17, 1979, the full life of C. Richard Soderberg, Institute Professor Emeritus at the Massachusetts Institute of Technology, came to an end. He was eighty-four years of age. With roots in the simple realities of a boyhood in a fishing family on a remote Swedish island, his qualities of mind and character led him first into a distinguished industrial career as an engineer in his adopted country; then, after refusing advancement to a high managerial position, he went on to an even more illustrious career in education and as a consultant, and finally to a vigorous professional and intellectual life in his retirement. His years were marked by an expansive and seemingly unlimited passion to learn and by a capacity to teach, by a superb intuitive sense of design and rightness, by an unflagging breadth of intellectual interest, by a deep understanding of the social and historical forces set in motion by technology, and by a warmth and nobility of spirit that endeared him to his colleagues and friends.

C. Richard Soderberg was born on February 3, 1895, in Ulvohamm, Sweden, one of eight children, and grew up on the sea. He studied with the one teacher of a small, one-room school, but the future pattern of his intellectual life was even then foreshadowed by wide reading from books. With assistance from various places, he went to the technical gymnasium on the mainland and subsequently to the Chalmers Institute of Technology in Göteborg, where he graduated as a Naval Architect in 1919. Then, in one of life's fateful turns, he came to the Massachusetts Institute of Technology (MIT)

on a fellowship from the American Scandinavian Foundation, where he earned a bachelor's degree in naval architecture in 1920. Although his life afterward was centered in the United States, he never gave up close associations with his homeland.

In 1921 Dick Soderberg married Sigrid Kristina Löfstedt of Boston, and theirs was a lifelong companionship. He was acutely lonely when she died in 1975. Their three children are C. Richard Soderberg, Jr.; Lars O. Soderberg; and Barbro K. (Mrs. Sven O.) Dirke.

Professor Soderberg's career in its several phases marks him as a towering figure in that transformation of American engineering that took place during the decades from the 1920s to the 1960s. At the Westinghouse Electric and Manufacturing Company, where he worked from 1922 to 1938 except for a two-year hiatus at ASEA in Sweden, he rose in 1933 to the position of Manager of the Turbine Division. During those years he was involved with various aspects of power production: railroad electrification, electric motors, and, most importantly, steam-turbine-driven electric generators. An authority on the engineering design of steam turbines, he made long-lasting contributions in two areas of applied mechanics: the dynamics, vibrations, and balancing of rotating machinery; and the development of design criteria for safe working stresses under oscillatory applied loads.

Professor Soderberg's deep interest in engineering education was awakened through his activities in the 1920s and 1930s at what was known as the Westinghouse Design School. This was an in-house training program for young engineers to enable them to deal with the demanding problems of steam turbines and electric generators operating at high speeds and temperatures, problems for which they were ill prepared scientifically by the type of education then in vogue at schools of engineering in the United States.

The years at Westinghouse were of great significance when Dick Soderberg came to MIT as a Professor of Mechanical Engineering in 1938. Reflective and philosophical by nature, he foresaw the face of things to come and became one of those contributory to the revolution in U.S. engineering education that was beginning then and which, accelerated by World War II, wholly changed engineering schools by the end of the 1950s.

At MIT Professor Soderberg taught applied mechanics. During the war years he became Graduate Registration Officer of the Mechanical Engineering Department. Graduate programs in engineering were then burgeoning and there was ample opportunity to shape the future. When Jerome Hunsaker became heavily occupied in Washington as Chairman of the National Advisory Committee for Aeronautics (NACA), predecessor of the National Aeronautics and Space Administration, Dick Soderberg ran the department. In 1947 he succeeded Hunsaker formally as Head of the department, and led the department through the critical years of postwar growth and development. In 1954 (sixteen years after his arrival at MIT) when he was appointed Dean of the School of Engineering, the Department of Mechanical Engineering had acquired a form and style that made it renowned the world over.

Both as Head of the department and as Dean of the school, Professor Soderberg was concerned with the broader issues of engineering education—with general aims, with philosophical background, and with the development of character and professional style. He constantly stressed as a philosophical premise the dignity of useful work and the value of preparing for such a career.

A year after appointment to the illustrious position of Institute Professor, Dick Soderberg in 1960, at age sixty-five, went on so-called half-time service, but of course he remained fully active. So much so, indeed, that after mandatory full retirement at age seventy, he was recalled to serve for a half year as Acting Head of two departments, Mechanical Engineering, and Naval Architecture and Marine Engineering.

During his busy years at MIT, Professor Soderberg maintained remarkable associations with industry. The three mentioned below are particularly notable, for he did what few consultants with limited time can accomplish: he was the catalyzing agent and provided the intellectual leadership for developments of far-reaching consequence.

His efforts at the Elliott Company toward the development of a gas turbine for ship propulsion led to development of the first marine gas turbine power plant in the United States.

For forty years Dick Soderberg maintained a close association

with his native country through periodic consulting trips to Stal-Laval Turbin AB, a manufacturer of power station turbines, industrial steam and gas turbines, and marine turbines; he was highly instrumental in the progress of the company.

His long consulting association with United Aircraft Corporation was a major factor in the development of the now-famous J-57 aircraft turbine engine. The manner in which Dick Soderberg led the company from the reciprocating engine era to the rotary gas turbine, and in so doing revolutionized air travel, is remarkable: he guided and inspired the newly formed group of young engineers who, starting from scratch, developed the dramatically new series of engines that made Pratt and Whitney the leading manufacturer of jet engines in the world.

During the several phases of his career, Professor Soderberg was the author of fifty-two technical articles, and he received eighteen patents. He served on many government committees for the Department of Defense, NACA, the U.S. Air Force, and the National Defense Research Committee. He was honored by election to membership in illustrious scientific academies: the National Academy of Engineering (NAE), National Academy of Sciences (NAS), American Academy of Arts and Sciences, and the Royal Swedish Academy of Engineering Sciences. He participated heavily in the activities of the NAS, the NAE, and the National Research Council and was active in professional activities of the American Society of Mechanical Engineers.

Many other honors were bestowed upon him. In 1958 Professor Soderberg was made Knight of the Royal Order of the North Star (Sweden), and in 1968 the King of Sweden named him Commander of the Royal Order of the North Star. His medals include the John Ericsson Gold Medal of the American Society of Swedish Engineers, 1952; the Medal of the American Society of Mechanical Engineers, their highest award, 1960; the DeLaval Medal of the (Swedish) Royal Academy of Engineering Sciences, 1968; and the Gustav Dalen Medal of Chalmers Institute of Technology, Sweden, 1970. He received the honorary degree of Doctor of Technology from Chalmers Institute of Technology in 1951, and the Doctor of Engineering from Tufts University in 1958. In 1975 MIT established in

his honor the Carl Richard Soderberg Professorship of Power Engineering.

Finally, a personal note: When Dick Soderberg started at MIT as a full Professor, I started as a lowly lab assistant, fresh with a bachelor's degree. It was my good luck to be close to him for forty years. He was my teacher, guide, friend, boss, and colleague. He was wonderfully well read and intellectually stimulating; for this his chronic insomnia may have been a blessing, for he read in the middle of the night. He was unfailingly attentive to and respectful of junior colleagues and students. I never knew him to have an enemy or heard that anyone felt unkindly or unfairly treated by him. A bear of a man, he sometimes blustered when pushed, but he was never less than open minded. He was truly a remarkable man.