



Edwin Louis Resler

November 20, 1925 – July 21, 2019

Edwin Louis Resler, Jr. died in Ithaca on July 21, 2019.

Edwin Resler's passing marks the end of a generation at Cornell that moved university research from the age of propellers into the jet engine, rocket, and space age. Ed was the director of the Graduate School of Aerospace Engineering (GSAE) from 1963 to 1972. Ed also served as the director of the Sibley School of Mechanical and Aerospace Engineering for a five-year term starting in 1972, when that school was formed by a merger of the GSAE with the Sibley School of Mechanical Engineering.

Aerospace Engineering research at Cornell in the 50s and 60s was truly cutting edge. The graduate program was close-knit, with strong links to industry and government labs. It attracted distinguished visitors from all over the world, including Theodore von Karman. Many of the entering students were World War II veterans, some of whom created a small flying club. Ed was proud that GSAE graduates included a half dozen CEOs of major airlines as well as the chief test pilot of the first Boeing 747, Jack Waddell [MS 1951].

Graduate students at GSAE regularly presented their work to the faculty and visitors in stimulating give-and-take sessions. In an interview from 1965, Ed explained why students couldn't rely on written materials: "We can't wait for reports to be published...If we waited for reports, we would be too far behind. We get our information while the research is in progress and coordinate our work with the work being done elsewhere." Ed also explained that the school aimed to prepare students to perform the research needed for a return trip to Mars. "If we trained someone for a moon shot, he would find his information obsolete as soon as he graduated." Later, Ed recalled that he would do research, then write up weekly progress reports with the help of long-time administrator Toni (Alice) Anthony. Once the reports were sent to the sponsor, they would promptly be classified and become inaccessible to Ed and his colleagues.

In 1956-7, Ed helped design the new home of GSAE, Grumman Hall. The building was named after one of Cornell's alumni, Leroy R. Grumman, who had advanced aeronautical design before WWII. Out of GSAE, in the early days of Sputnik, evolved Engineering Physics as well as the Center of Applied Mathematics at Cornell. As Director, Ed was responsible for establishing the Laboratory of Plasma Physics in 1967, a collaboration of Cornell GSAE with the University of Maryland and the Naval Research Laboratory.

In his first few decades at Cornell, Ed's research encompassed wave engines, shock tube studies of reentry and chemical kinetics, lasers, the chemistry of hypersonic flight, magnetohydrodynamics and ferrohydrodynamics, and control of sonic boom through engine design. His thesis research on strong shock waves in gases resulted in a widely referenced paper with advisor Arthur Kantrowitz and S.C.Lin, that would later have implications for understanding elements of astrophysics. Ed's more than a dozen papers on magnetohydrodynamics and magnetoaerodynamics, some with his mentor W R Sears, formed the basis of the development of magnetohydrodynamic propulsion of sea-going vessels, featured in the 1990 thriller "The Hunt for Red October." Various MHD generators and pumps were built in the Cornell GSAE labs.

In the 70s, Ed turned his attention the mechanical side of Mechanical and Aerospace Engineering, specifically to automobile engines and the air pollution they produced. He was a pioneer in the development of stratified charge and exhaust gas recirculation for control of nitric oxide emissions and alleviation of knock. Among nearly a dozen patents Ed held, eight involved vehicle engine innovations for low emissions. At one time, Ed had outfitted the car used in senior lab for Mechanical Engineering students so that exhaust gas recirculation could be readily turned on or off, demonstrating its immediate impact on pollutants.

Ed was born in Pittsburgh, Pennsylvania. He attended Carnegie Tech, then entered the Navy and continued his education at Bethany College and the University of Notre Dame through the V-5 and V-12 programs. He served at the Miami Naval Air Station. In 1947, Ed graduated from the University of Notre Dame with a degree in Aeronautical Engineering. In 1947, Ed enrolled as a graduate student in the one-year-old Graduate School of Aeronautic Engineering (later renamed Graduate School of Aerospace Engineering) and earned his Ph.D. in 1951. He joined the Cornell faculty as an assistant professor of Aeronautical Engineering upon completion of his degree. Starting in 1952, he was an associate research professor at the University of Maryland's Institute for Fluid Dynamics and Applied Mathematics. Ed was recruited by Bill Sears to return to Cornell as a professor in 1956. He held joint appointments in Aerospace Engineering, Engineering Physics, and Electrical Engineering, serving on the faculty until his retirement and appointment to emeritus status in 1993.

Ed was the inaugural Joseph N. Pew Professor of Engineering. He was a Fellow of the American Institute of Aeronautics and Astronautics, and a Corresponding Member of the International Academy of Astronautics. Ed received the Honor Award for distinguished alumni from the University of Notre Dame College of Engineering in 1987. Ed served on and chaired committees related to aerodynamics for NASA and its predecessor NACA, as well as on the editorial boards of *Physics of Fluids* and the *AIAA Journal*. He was the chair of the American Rocket Society's Magnetohydrodynamics Society.

Ed consulted for many aerospace corporations including TRW, GE, Pratt and Whitney, Ingersoll Rand and AVCO.

Ed married Frances Williams in 1948, and they had five children: Edwin, Timothy, Carl, Daniel, and Suzanne. Ed and Frances lived on Turkey Hill Road and also spent time in Florida. They enjoyed hosting family reunions at their country home or at cottages on Cayuga Lake. Ed and Frances regularly attended football games, plays at the Hangar Theater, and picnics as part of a group known as the “gang of ten.” Neighbors recall Ed’s heartfelt hospitality—his eagerness to share what he knew about a place and to make sure that a visitor was comfortable. As befits a hands-on experimentalist, Ed frequently engaged his children in do-it-yourself home projects, from electrical to plumbing, to felling trees. Ed was an avid tennis and squash player who spent many hours playing on the clay courts in the gorge near Grumman Hall. As one former colleague reflected, Ed was an engaging fellow, with a positive outlook, who always looked to the future with a smile on his face.

Written by Elizabeth M. Fisher (chair), Albert R. George, Sidney Leibovich, and Francis C. Moon