



*W. O. W. O. W.*

## WILLIAM REES SEARS

1913–2002

Elected in 1968

*“For contributions to research and practice of aerodynamical engineering.”*

BY GEORGE SUTTON

WILLIAM R. SEARS, one of the leading aerodynamicists and educators of the 20th century, died on October 12, 2002, at the age of 89.

Bill received his undergraduate degree from the University of Minnesota in 1934, then studied under Dr. Theodore von Kármán at Caltech, where he received his doctorate in 1938. His forte was analysis of aerodynamic flow, long before computer simulations were developed.

Bill was a warm, kind, interested person who helped and mentored many people. While at Caltech, he married Mabel Rhodes, Dr. von Kármán’s secretary, and wrote his thesis on unsteady flow around airfoils. During World War II, he became the chief of aerodynamics and flight testing at Northrop Aircraft, Inc. Later, he headed the team that designed the first flying-wing aircraft (many of today’s military aircraft are essentially flying wings) and the P-61 (the famous *Black Widow*). Near the end of the war, Bill visited and debriefed German engineers and scientists.

Bill Sears then chose to return to academic life. In 1946, he became the first director of the Graduate School of Aeronautical Engineering at Cornell University. In addition to working on unsteady aerodynamic flows with his students, he contributed to the development of one of the first high-temperature shock tubes, which made it possible to measure

the electrical conductivity of ionized gases and later simulated hypersonic heating. He was also the editor-in-chief of the *Journal of Aeronautical Sciences*. I am personally indebted to him for swiftly accepting my papers on ablation heat protection for reentry into the Earth's atmosphere.

In 1963, Bill decided it was time for a change. He stepped down as director of the Aero School after 17 years to found and become director of Cornell's Center of Applied Mathematics. In 1974, he joined the faculty of the University of Arizona in Tucson, where four years later, he was named Professor Emeritus. He remained an active faculty member, however, and completed much of his important analytical and experimental work on adaptive-wall wind tunnels during his retirement.

When he was a junior faculty member at Caltech, he was asked to direct the Civilian Pilot Training Program, a federal program that offered young people the possibility of earning a private pilot's license and receiving preparation for possible military flying in the event that the United States entered the war. Bill not only administered the program but also took the opportunity to get his own license. His move to Cornell allowed him time to fly. Bill logged some 8,000 hours over his 50 years as a private pilot. He owned several small airplanes over the years, the last one his beloved Piper Twin Comanche.

Bill was also an accomplished musician. As a percussionist, he had worked his way through college as a drummer in dance bands. After moving to California, he was a timpanist with the Pasadena Symphony for a few seasons. Later, at Cornell, he became an expert recorder player with a university group interested in medieval music. He played with the Collegium Musicum at the University of Arizona for 20 years and gave a recorder concert to the Cornell Club of Arizona.

Bill was elected to NAE in 1968. He was also honored by the University of Minnesota, American Society for Engineering Education, Israel Aeronautical Society, American Institute of Aeronautics and Astronautics (AIAA), Royal Aeronautical Society, American Academy of Arts and Sciences, and

International Academy of Astronautics (IAA). He also served on many federal advisory boards, councils, and committees and was a consultant to the aeronautical industry. He was the author of more than 100 articles published in refereed journals.

His son, David wrote that “in 1993, Bill published his memoirs: “*Stories From a 20th Century Life*” (Parabolic Press). A careful reading of this interesting volume reveals no unkind words about any of the persons he worked with over his long career; this was Bill’s way of doing business, always upbeat and positive.”

He also remembers his father as a wonderful storyteller with a terrific sense of humor, evidenced in this short excerpt from his father’s memoirs:

Having arrived in Pasadena, I met my classmate Thurm Erickson, who drove me to the Caltech campus on California Street; I located the Guggenheim Laboratory of Aeronautics, opened its big copper front door, climbed the narrow stairs to the second floor, and presented myself to the young lady in the little office at the top of the stairs as a new graduate student. She was Miss Mabel Jeanette Rhodes, the department’s secretary. We looked into one another’s eyes, we gasped, bells rang, and the Guggenheim building trembled! Well, not exactly. That is what should have happened.

Bill is survived by his daughter, Susan Sears, of Indianapolis and son, David Sears, of Bethesda, Maryland; and grandchildren Colin and Shelby Sears, of Portland, Oregon. His wife, Mable died in 2004. He also leaves many friends, colleagues, and former students, whose lives he touched and enriched. William Rees Sears cast a bright, stimulating, and cheerful light on countless people around the world, and he will be sorely missed.

With thanks to Dr. Frank Marble, from whom part of this tribute were excerpted.