



A handwritten signature in cursive script, reading "E. E. Sechler". The signature is written in dark ink on a light background.

Professor Ernest Edwin Sechler (1905 – 1979)

From Memorial Tributes: National Academy of Engineering, pp 259-260, by Hans W. Liepmann
http://www.nap.edu/openbook.php?record_id=565&page=259

Ernest E. Sechler, Professor of Aeronautics Emeritus at the California Institute of Technology (Caltech), died on August 14, 1979.

Born in Pueblo, Colorado, on November 17, 1905, Dr. Sechler entered Caltech as a freshman in 1924 and remained there all his life. He obtained his B.S. and M.S. in mechanical engineering and joined the small group of students and faculty who helped Theodore von Kármán build an aeronautics institute at Caltech, which became world famous under the acronym GALCIT. Ernest Sechler was the first recipient of an M.S. in aeronautics at Caltech and one of von Kármán's first PhD students, with a thesis on the ultimate compressive

strength of thin sheet metal panels. Much of his later research direction was set in this early, now classical, work and in his subsequent study of shell structures.

The impact of aeronautics on engineering in those early days was remarkable. Suddenly, a field was opened where large safety, or rather ignorance, factors could not be tolerated. Structures had to be light but fail-safe, and the aerodynamic forces had to be predicted with great accuracy. Dr. Sechler chose the first path, and the development of light, fail-safe structures became the main theme of his professional life.

It became evident that thin-shell structures were not restricted to airplanes; the design of the Palomar Observatory to house the new 200-inch mirror called for a large, movable dome. The cooperation of Theodore von Kármán and Ernest Sechler, with their experience and knowledge of thin shells, resulted in the first monocoque observatory dome, a thin-shell structure of remarkable resistance. Needless to say, the development of missiles and, in particular, large booster rockets called for thin-walled structures as well.

His two books, **Airplane Structural Analysis and Design**, written with L.G. Dunn, and **Elasticity in Engineering**, were published in 1942 and 1952, respectively. Both were republished as Dover paperbacks in the 1960s and currently retain their place on engineering shelves.

While Dr. Sechler's research contributions to lightweight structures are well known, only the more intimate circle of colleagues and students at GALCIT know of his contributions to education. During most of his academic career he was largely responsible for the admission of students to GALCIT and, in addition, was influential in student affairs throughout Caltech. He had an unbelievably intuitive understanding of the potential of an incoming student. In the forty years or so of my own recollection, I cannot remember a single case where his predictions were wrong. This unusual gift was most important in the development of the graduate school of aeronautics at Caltech.

Dr. Sechler's impact on engineering construction at Caltech is also noteworthy. He had a hand in the design of both the 10-foot wind tunnel and the cooperative wind tunnel. He influenced the construction of most experimental facilities in the institute and was well known for his commonsense approach to technical design problems, both at Caltech and in industry. Indeed, his consulting services for the aerospace industry, as well as for the National Aeronautics and Space Administration and other government agencies, will be remembered for a long time.

Ernest Sechler was a Fellow of the American Institute of Aeronautics and Astronautics and held memberships in the American Association for the Advancement of Science and the California Academy of Sciences. He was elected to the National Academy of Engineering in 1979.

Dr. Sechler's work will continue for a long time through the GALCIT students he influenced, many of whom are now leaders in industry and education.

He is survived by his wife, Margaret Nelson Sechler, his daughter, Lorraine Sechler Emery, and two grandsons, Jeff and Brett Emery.

-----by Hans W. Liepmann, 1979