

**MEMORIAL RESOLUTION**  
**WALTER G. VINCENTI**  
**1917-2019**

Walter Guido Vincenti, Emeritus Professor of Aeronautics and Astronautics died at his home in Palo Alto on October 11, 2019. He was 102 years old.

Vincenti was hired at Stanford in January of 1957 as the first faculty member to join the newly planned Department of Aeronautics and Astronautics shortly before it was founded a year later. He was also a co-developer of the Stanford Program in Science, Technology and Society in 1971. Over his long career at Stanford, he received several of the highest honors offered in both fields.

Vincenti was born on April 20, 1917, in Baltimore Maryland, one of five children of Agnes and Guido Vincenti, emigrants from Italy. At about age five his family moved to Pasadena, California where he grew up. By that time his father had become quite successful in business and played an important role in the building of the Rose Bowl. After graduating from Pasadena High School, he decided to follow his two older brothers to Stanford rather than attend Caltech a few blocks away. Vincenti was a fine athlete and when he arrived at the Farm in 1934 he planned to play basketball. He played on the freshman team but found himself behind another Italian who had come from Galileo High School in San Francisco by the name of Angelo "Hank" Lusetti. Lusetti would later go on to develop the one-handed jump shot and be recognized as one of the greatest players of that era.

Seeing that there was "no future in that" Vincenti signed on as the basketball manager and focused on academics. He graduated with his BS in 1938 then spent two years of study in the Department of Mechanical Engineering, earning the degree of Engineer in 1940. Inspired by Lindbergh's transatlantic flight, he emphasized courses in airplane design offered through the faculty of the recently founded Guggenheim Aeronautics Laboratory.

Upon graduation in 1940, Vincenti became one of a small group of engineers hired to work at the newly developed Ames Aeronautical Laboratory at Moffett Field, then part of the recently established National Advisory Committee for Aeronautics (NACA). There he led the 1 by 3-foot supersonic wind tunnel team. During World War II he and several members of his group were drafted into the Navy as non-commissioned officers but were assigned to continue the aeronautical work they were engaged in at Ames. Over the next decade and a half, his team pioneered research on high-speed flight carrying out wind tunnel experiments and developing much of the mathematical framework needed to design aircraft that could "break the sound barrier."

At Ames, Vincenti became well known for his work in transonic and supersonic flow. He had also begun to move into the emerging area of hypersonic flight at extreme speeds where air begins to undergo chemical reactions and he made important contributions to the heat shield technology needed to protect spacecraft re-entering Earth's atmosphere. In January 1957 Dean Fredrick Terman hired Walter from Ames as the first full professor in the newly planned department. A few months later the Soviets launched "Sputnik" and the

space age was born. Over the next fifteen years Vincenti would continue to make pioneering contributions to our fundamental understanding of high-speed flow. The text *Introduction to Physical Gas Dynamics* that he co-authored in 1965 remains required reading for anyone working in the field.

Beginning in the late 1960's Walter's interests began to move toward fundamental questions about the theory of engineering knowledge and the nature of ethical engineering. He found that the subject inspired interest in many of his colleagues, all of whom recognized that it needed an academic home. In 1971 Walter co-founded a new interdisciplinary field of study at Stanford called the Program in Values, Technology and Society. It continues today under the name Science, Technology and Society and is one of the only programs at Stanford that offers both the BA and BS degrees. With most of his research then in the new field, Walter nevertheless drew heavily from his experience in Aeronautics. In 1990 he published the seminal book titled *What Engineers Know and How They Know It: Analytical Studies from Aeronautical History*. This award-winning book illuminates the nature of engineering knowledge through a series of case studies.

Walter was the recipient of numerous prestigious awards. In 1956 he received a Rockefeller Public Service Award for his work on heat shields.

In recognition of his contributions to teaching undergraduates, Stanford gave Walter the 1983 Lloyd W. Dinkelspiel Award. The citation reads: "For the uncluttered vision and the clarity of intellect this aeronautical engineer has brought to the epistemology of technology; for a devotion to students and a skill as a teacher so extraordinary that he is called saint by some, moving spirit by others, and teachers teacher by his colleagues; and for the courage and imagination that enabled him, a dozen years ago, to give up a discipline in which he had attained distinction in order to lend that distinction to another."

Walter was elected to the National Academy of Engineering in 1987, considered the highest recognition that can be given to an engineer.

The Society for the History of Technology awarded him the Leonardo da Vinci Medal in 1998 for lifetime achievement in the understanding of the history of technology.

In 2016 he was honored with the most prestigious award in the field of Aeronautics, the Daniel Guggenheim Medal, first awarded to Orville Wright in 1929. The citation notes his pioneering supersonic wind tunnel research as well as his contributions to the history of engineering technology.

In 2019, he received the Stanford Engineering Heroes Award, which is the highest award given by the Stanford University School of Engineering.

Walter's pleasures in life included dogs, the performing arts and supporting the cooking and painting of his late wife of sixty-six years, Joyce née Weaver.

Walter G. Vincenti Resolution (continued)

At the time of his death, he was survived by a daughter, Margi, a son, Marc, a sister Jeanne, two grandchildren, four nieces and nephews and four great grandchildren.

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