



C. S. Hall

ARNOLD HALL

1915–2000

Elected in 1976

“For contributions in aeronautics, including design and construction of the first large-scale British transonic wind tunnel and other developments in aircraft navigation and structures.”

SUBMITTED BY THE HOME SECRETARY

SIR ARNOLD HALL, aeronautical engineer, scientist, and industrialist, died January 9, 2000, at the age of 84.

Born in Liverpool to parents who had left school at the age of 12, Arnold Hall grew up during the Depression. His father was an upholsterer, and his mother a brilliant self-taught pianist. “My mother tried to teach me, but I’m afraid I was something of a disappointment to her. My interests were always in engineering and science,” Hall recalled. “I was too busy making steam engines and other gadgets.”

He attended Alsop High School at Walton, then an all-boys school, to which he won a scholarship. He excelled in mathematics, science, and engineering. He enrolled at Clare College, Cambridge, where, in addition to a first, he won the Moir Prize in Engineering, the Seely Prize in Aeronautics, and the Ricardo Prize in Thermodynamics. On a postgraduate fellowship he worked with Frank Whittle on compressor stress calculations for Whittle’s jet engine. On exhibit at the Science Museum in London, it was the first in the world to run.

Hall joined the Royal Aircraft Establishment (RAE), Farnborough, in 1938. During the war he managed teams that produced both the advanced bombsight and the gyro gunsight, which from D-Day onward more than doubled the kill rate of Allied fighter aircraft. After the war he was appointed Zaharoff Professor of Aviation at the Imperial

College of Science and Technology. He initiated construction of the laboratory for aerodynamics and construction research. In 1951, upon the death of the Farnborough director, Hall was appointed director of the RAE with the understanding that after five years he would return to Imperial College.

Hall's Comet investigation became the model for major aviation inquiries. In May 1952 the first passenger-service Comet took off from Heathrow, establishing Britain as a leader in the aviation industry. The Comet 1 was a symbol of confidence and promised financial success for Britain's aviation industry. However, after two years in service, three Comets failed in flight, causing panic in the industry.

All Comets were grounded. The government sought Hall's advice and answers for the failures, for which there appeared no obvious explanation. RAE teams were asked to conduct an independent investigation of all possible causes. Hall thought that some of the crucial stress calculations could not be answered by mathematical theory alone. He organized and oversaw the building of the "whole pressurized aircraft" test rig at Farnborough. These labs created an environment in which the stresses of repeated flight cycles could be tested on the aircraft. The evidence revealed that failure of the aircraft's pressurized cabin was at fault. The conventional testing that had been used until this time proved to be inadequate in determining the "fatigue life" of aluminum alloys under repeated stress.

When his Farnborough agreement came to an end in 1955, Hall accepted a position with the Hawker Siddeley Group as technical director of Bristol Siddeley Engines. Four years later he was appointed managing director of the newly formed Bristol Siddeley Engines, Ltd. In 1967 he was named chairman and managing director of the Hawker Siddeley Group. By the mid-1970s the Hawker Siddeley Group employed about 85,000 people, and had expanded its portfolio to include electrical and civil engineering. Hall believed in private enterprise and was opposed to the government's nationalization proposals. He left the aircraft industry in 1977 when the government nationalized the industry.

In 1975 he was appointed Businessman of the Year for his “vision, courage and commercial discipline.” He was a fellow of both the Royal Society (1953) and the Royal Aeronautical Society, of which he was president in 1958–1959. He was knighted at the age of 39 in 1954. He received the von Baumhauer Medal of the Netherlands Association of Aeronautical Engineers for his contributions to flight safety. He also was awarded the Gold Medal of the Royal Aeronautical Society in 1962 and was elected a member of the National Academy of Engineering in 1976.

Hall was concerned about the need for improved technical education, which led to his involvement in the creation of Warwick University, serving as a pro-chancellor from 1965 to 1970. He was chancellor of the Loughborough University of Technology from 1980 to 1989.

A note in his obituary in the *Guardian* reads:

He appeared to have no recreations, no passions, but in fact there were two: his family and deep-sea sailing. Late in life, when he had given up sailing, Hall said it was his great good fortune to have been blessed by a family who “always put up with my eccentricities and was never too harsh when I made mistakes.” For this quiet giant who was usually right, their support was crucial.

Hall is survived by his second wife, Iola; three daughters from his first marriage; a stepdaughter and stepson from his first wife’s first marriage; and three stepsons and five stepdaughters from his second wife’s first marriage.