Fathers of the jet age receive the Charles Stark Draper Prize

The National Academy of Engineering (NAE) USA presented the Charles Stark Draper Prize for 1992 to Sir Frank Whittle and Hans J. P. von Ohain, the two men who independently invented the jet engine. The biennial Draper Prize, the world's largest for engineering, carries a stipend of $375,000 and is presented during National Engineers Week.

In the years preceding World War II, two young engineers (Whittle in England, von Ohain in Germany), unknown to each other, imagined a novel means of propulsion that was more powerful, quieter, and far less complex than the piston engines and propellers that powered the aircraft of the day. Despite the jet's obvious military potential, bureaucratic inertia in both countries prevented the jet from having a major effect on the course of the war. Since World War II, the jet engine has revolutionized transportation, medicine, and defence—benefiting millions worldwide and earning its inventors the Draper Prize, which was established by NAE in 1988 to recognize living individuals whose outstanding engineering achievements have contributed to the well-being and freedom of all humanity.

'It's difficult to imagine a world without the jet, yet it took Frank Whittle and Hans von Ohain to do what is even more difficult—to imagine a world with the jet,' said Robert M. White, president of the 1,600-member NAE, a private, non-profit organization that advises the US federal government on engineering and technology matters. White delivered his remarks at the black-tie presentation dinner in the Diplomatic Reception Rooms of the Department of State.

Whittle, 84, and von Ohain, 80, whose almost simultaneous development of the jet engine stands as one of history's most uncanny examples of independent invention, are today good friends who freely credit each other for the breakthroughs that led to the jet engine.

In his remarks, von Ohain stressed the need to 'be open to change, challenge assumptions, and take a chance on new ideas. The Draper Prize can help to encourage young engineers to explore original and untried concepts'.

'Invention requires a return to first principles and simplicity,' said Whittle, 'in which one looks to the basics–natural logic–for inspiration. Then it's a matter of hard work and sound engineering judgement'.

Special Assistant to the President for Science and Technology D. Allan Bromley, who participated in the presentation of the prize, noted that 'the jet engine was the product of technical skill and personal drive—the kind of combination we need to reproduce again and again'.

As a result of Whittle's and von Ohain's innovation, the commercial jet aircraft industry now connects thousands of points on every continent. In 1990 the world's commercial airlines carried more than one billion passengers—423 million in the US alone. Worldwide, the jet aircraft industry employs hundreds of thousands of people (700,000 in the United States) and accounts for billions of dollars in trade.

The Draper Prize is endowed by the Charles Stark Draper Laboratory Inc. of Cambridge, Mass. Charles 'Doc' Draper was the father of modern inertial guidance systems that are used in aircraft, space vehicles, strategic missiles and submarines. Draper also developed the sophisticated navigational system that landed the Apollo astronauts on the moon and returned them safely to earth.

White noted that the Draper Prize 'focuses world attention on the central role of engineers in advancing human welfare, and on the remarkable individuals responsible for reducing their ideas to practical use'.

The first Draper Prize was awarded in 1989 to Jack S. Kilby and Robert N. Noyce, the engineers who invented and developed the integrated circuit—the 'brain' in all modern electronic equipment, from watches to VCRs to aircraft instrumentation.

Hans J. P. von Ohain

Born in Dessau, Germany, in 1911, von Ohain received his doctoral degree in physics from the University of Goettingen in 1935.

Struck by the possibilities of jet propulsion while still a student, von Ohain showed a model of one of his early designs to aircraft manufacturer Ernst Heinkel, who immediately hired the young engineer. Heinkel supported von Ohain's engineering work with money and by pairing him with two outstanding coworkers, Wilhelm Gundermann and Max Hahn. By 1937 von Ohain had successfully tested an engine in his workshop. On 27 August 1939, at Marienhe Airfield on the Baltic Sea, von Ohain's engine powered history's first flight of a jet aircraft. Von Ohain came to the United States in 1947 and continued his work at Wright-Patterson Air Force Base in Ohio. He later was named chief scientist of the Aero Propulsion Laboratory. In 1978 he retired from the Air Force and joined the University of Dayton Research Institute (UDRI), where he is a senior research engineer.

A naturalized US citizen, von Ohain is a member of the National Academy of Engineering. He is an Honarary Fellow of the American Institute of Aeronautics and Astronautics (AIAA). He has received numerous awards and honors, including the Air Force's Exceptional Civilian Service Award.

Frank Whittle

Sir Frank Whittle was born in 1907 in Coventry, England. He has graduated

from: Leamington College, 1923; the Royal Air Force (RAF) Aircraft Apprentices Wing, 1926; the RAF College (Cranwell), 1928; the RAF Officers' School of Engineering, 1934; and Cambridge University, 1936.

In March 1936 Whittle and others formed Power Jets Ltd. On 15 May 1941, an aircraft powered by Whittle's engine flew for the first time at Cranwell, Lincolnshire. Power Jets Ltd. was nationalized in 1943, and the technology Whittle had developed became the foundation of the jet engine business of Rolls-Royce, De Havilland, and other companies. When he retired from the RAF in 1948, Whittle had attained the rank of Air Commodore. He then served as a technical adviser for various organizations. In 1976 he emigrated to the United States. From 1977 to the present he has been a member of the faculty of the US Naval Academy in Annapolis, Md. He is currently adjunct research professor.

Whittle is a Foreign Associate of the National Academy of Engineering, a Fellow of the Royal Society, a Fellow of the (UK) Fellowship of Engineering, and a Foreign Member of the American Academy of Arts and Sciences. In addition to other awards and honors, Whittle was knighted by King George VI in 1948 and received the Order of Merit from Queen Elizabeth II in 1986.

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