The Goddard Award

FOR EMINENT ACHIEVEMENT
IN ENERGY CONVERSION

1965

THE GODDARD AWARD is conferred in memory of Dr. Robert Hutchins Goddard, the father of modern rocketry. It is presented to a person (or divided among not more than three persons) who has made a brilliant discovery, or a series of outstanding technical contributions over a period of time, in the fields of propulsion or energy conversion.

The award consists of an honorarium of $10,000 presented by United Aircraft Corporation and a gold medal provided by Mrs. Esther Goddard, the widow of Dr. Goddard. The Goddard Award was established in 1963 by the American Institute of Aeronautics and Astronautics and United Aircraft Corporation.

Dr. Goddard's contributions to modern rocketry are recognized as among the most important technical accomplishments of modern times. It was he who laid the technical foundations for today's achievements in rockets, missiles, earth satellites, and manned space flight. Dr. Goddard was the first to explore and prove mathematically the practicability of using rocket power to reach outer space; to develop and launch a liquid-fueled rocket; to develop gyro-steering apparatus, cooling systems, pumps, ignition systems, rocket engines, and landing devices for rockets, and to patent the idea of multi-stage rockets. Dr. Goddard was on the faculty of Clark University, Worcester, Massachusetts, for 29 years. He died in 1945.

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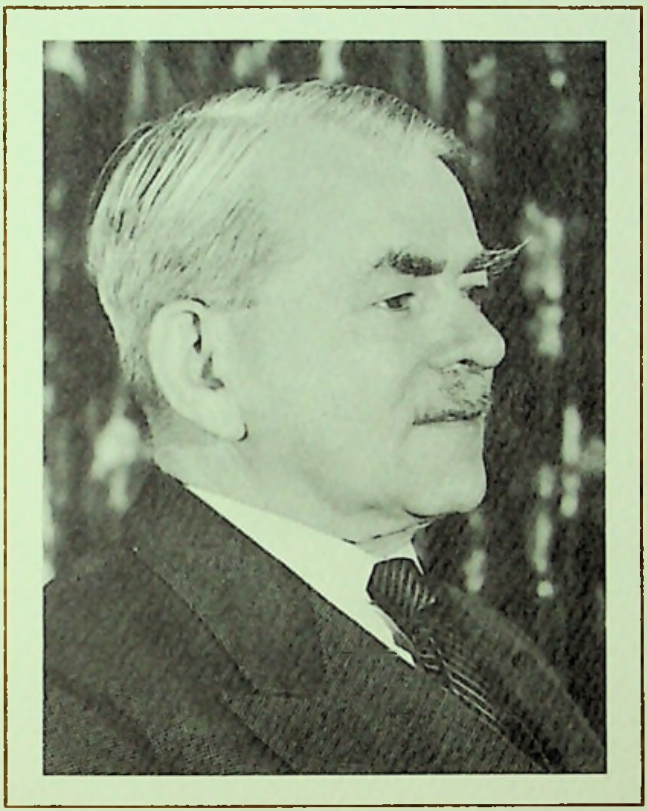

Sir Frank Whittle

For imagination, skill, persistence, and courage in pioneering the gas turbine as a jet propulsion aircraft engine, thus revolutionizing military and commercial aviation for all time.

Sir Frank Whittle:

New Vision to an Old Idea

Sir Frank Whittle took an old idea — the constant pressure gas turbine — conceived of using it for jet propulsion, and then had the vision to realize that most of the objections to a practical engine could be overcome by operating it in the aircraft environment of low temperature and high speed. He refused to accept the commonly held views that materials were unavailable to withstand temperatures needed to obtain useful work, that compressors could not be improved in efficiency, or that combustion could not be controlled in a limited space.

Almost single-handedly, Sir Frank created a private research group (Power Jets Ltd.) that designed and tested the first Whittle engines and eventually proved to the British government that jet propulsion was practical. His 1930 patent undoubtedly influenced the German development of gas turbine propulsion during World War II, paralleling the British effort. Before the war had ended, the Whittle engine not only had flown in the first experimental jet aircraft, but had reached the United States to lay the foundation for the entire post-war American aircraft engine industry.

Sir Frank's contribution to the jet engine is primarily an engineering one, but his skill in synthesizing the talents of others into solving the tremendous technical problems needed to turn his conception into a practical, lightweight

propulsion device makes him truly the father of the jet age of aviation. In his dogged patience, his imaginative thinking and his persistence in the face of odds, Sir Frank bears a startling resemblance to Dr. Robert H. Goddard, in whose memory this award is given.

Sir Frank Whittle was born in 1907 in England. Educated at Leamington College, he wrote his science thesis about propulsion while a flight cadet at the Royal Air Force College at Cranwell, from which he was graduated in 1928. He was posted as a pilot with the 111th Fighter Squadron and then became a flying instructor. His 1930 patent and enthusiasm for jet propulsion led to the Officer's Course for Engineering at Henlow and then to graduate study at Cambridge from 1934 to 1937.

Because he had succeeded in forming Power Jets Ltd. in 1936 to test his first aircraft type engines, he was placed on the Special Duty List by the R.A.F. until the end of the war, during which period the jet engine became a practical device. He retired from the R.A.F. in 1948 with the rank of Air Commodore. He serves today as a consultant to Bristol Siddeley Engines Ltd.

Honors began to accumulate in 1946 with the Gold Medal of the Royal Aeronautical Society, the Daniel Guggenheim Medal, the Kelvin Gold Medal, the U. S. Legion of Merit, to mention but a few, as well as honorary degrees from Oxford, Cambridge, Edinburgh, Leicester, and many other universities. Sir Frank was knighted by King George VI at an investiture in July, 1948.

Unshaken in Confidence

"Whittle's contribution was the association of jet propulsion and the gas turbine. Before him the gas turbine had been regarded, like other turbines, as a machine for supplying shaft power. Whittle recognized it as an ideal means of providing jet propulsion for aircraft . . . It is one thing to have an idea. It is another to have the technical and executive ability to give it flesh. It is still another to have the tenacity of purpose to drive through to success unshaken in confidence, in the face of discouraging opposition. Whittle, whose name in the annals of engineering comes after those of Watt, Stephenson, and Parsons only for reasons of chronology or alphabetical order, had these things."

Sir Harold Roxbee Cox, on Oct. 2, 1947, in his capacity as director of the National Gas Turbine Engine Establishment (Great Britain)

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Presented at an Honors Convocation
of the Aerospace Sciences Meeting
American Institute of Aeronautics and Astronautics

New York Hilton Hotel
New York City
January 26, 1965