

## Daniel Guggenheim Medal

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MEDALIST FOR 1964(Posthumous)

*For pioneering in rocket development and astronautics, including the first liquid-propelled rocket flight, and contributions toward aerodynamically applicable reaction engines.*



### ROBERT HUTCHINGS GODDARD

A quiet, unassuming physicist and engineer, Dr. Robert H. Goddard deserves to be called the father of America's space program.

In 1912, this native of Worcester, Massachusetts began a three-year study of using rocket power to reach high altitudes—a period in which he proved experimentally that a rocket could produce thrust in a vacuum and actually received the first U.S. patent on a system of multi-stage rockets.

Goddard was a tireless, painstaking man with the insatiable curiosity of the true scientist. In many respects, he was years ahead of his time—in World War I, for example, he developed the basis for a weapon that helped win World War II: the rocket gun known as the bazooka. In the early twenties, he published the first basic mathematical theory applicable to rocket propulsion and flight, and between 1920 and 1926 he developed and launched the first liquid-fueled rockets.

Under Guggenheim grants, Goddard spent several years in rocket research at a proving ground in New Mexico prior to World War II—a period in which he developed a number of large, successful rockets including one that broke the sound barrier and others which included such advancements as gyroscopic control, steering by means of vanes in the engine's jetstream, gimbal steering and power-driven propellant pumps. These features later appeared on Germany's V-2 rockets, offering further evidence of Goddard's genius.

During World War II, he served as director of research for the Navy's Bureau of Aeronautics and among his achievements in that post were the development of jet-assisted takeoffs and variable-thrust liquid propellant rockets.

Goddard died in 1945, before his predictions of jet travel and space exploration came true. But his name lived on in the form of the Goddard Space Flight Center in Maryland, a major facility of the National Aeronautics and Space Administration.