

**Robert Hutchings Goddard (1882 - 1945)**

An American engineer who realized that solid substances were too heavy to power rockets, and so designed the first liquid-fuelled rocket.

Raised by his old-line Yankee family in middle-class suburbs of Boston, Goddard was a studious child whose academic development was thwarted by ill health.

The American government was at first not interested in his ideas, but after his death Goddard's widow received over one million dollars for the use the government had made of his designs in the American Space programme.



Goddard worked out the theory of rocket propulsion independently; and then almost alone he designed, built, tested, and flew the first liquid fuel rocket on 16 March 1926 in Massachusetts. Although Goddard seriously studied experimental physics throughout his life, whether teaching or doing applied research for the government, he began to dream of astronautics in 1899 and rocket engineering remained his prime preoccupation.

The publication in 1919 of his seminal paper "A Method of Reaching Extreme Altitudes" gave Goddard distorted publicity because he had suggested that jet propulsion could be used to attain escape velocity and that crashing a flash-powder missile on the moon could prove this theory. Sensitive to criticism of his moon-rocket idea, he worked quietly and steadily toward the perfection of his rocket technology and techniques.

During most of the 1930's Goddard demonstrated, despite many failures in his systematic static and light tests, progressively more sophisticated experimental boosters and payloads, reaching speeds of 700 miles per hour and altitudes above 8000 feet in several test flights.

By temperament and training Goddard was not a team worker, yet he laid the foundation from which team workers could launch men to the moon. The government awarded his estate one million dollars for all rights to the collection of over 200 Goddard patents.