

EXPLORE

"Jupiter-C Puts Up Moon": Launches Army's Space Mission

The story of Explorer I, the free world's first artificial satellite, goes beyond the traditional story of the Army team at Redstone Arsenal responding to the Soviet Union's launch of the Sputnik 1 on Oct. 4, 1957. To truly understand the remarkable accomplishment made by the men and women of the greater Huntsville/Madison County community, we need to step back in time a bit further than 1957.

On Sept. 15, 1954, the Army Ordnance Missile Laboratories at Redstone Arsenal published the first true engineered thesis for a minimum satellite vehicle utilizing existing Army Ordnance Corps hardware. Written by Dr. Wernher von Braun, the thesis proposed using the REDSTONE missile as the main booster of a four-stage rocket for launching artificial satellites. The plan was later expanded into a joint Army-Navy proposal called Project Orbiter and submitted to the Assistant Secretary of Defense on January 20, 1955. However, five days later, President Dwight D. Eisenhower officially sanctioned another artificial earth satellite undertaking, the U.S. Navy's Project Vanguard, for the United States' contribution to the International Geophysical Year.

As early as April 1956, the Army advised the Department of Defense that its JUPITER-C missile



THE THREE MEN RESPONSIBLE FOR THE SUCCESS OF EXPLORER I, AMERICA'S FIRST EARTH SATELLITE, WHICH WAS LAUNCHED JANUARY 31, 1958, ARE FROM LEFT TO RIGHT, DR. WILLIAM H. PICKERING, FORMER DIRECTOR OF THE JET PROPULSION LABORATORY, DR. JAMES A. VAN ALLEN, OF THE STATE UNIVERSITY OF IOWA, AND DR. WERNHER VON BRAUN, LEADER OF THE ARMY'S REDSTONE ARSENAL TEAM.

could orbit a satellite by the end of the calendar year as an alternate to Vanguard. In May 1956, however, the Defense Department informed the Army that it was not to initiate any plans or preparations for using any part of the JUPITER or REDSTONE programs as the basis for an orbital launch vehicle.

As part of its reentry test vehicle program, the Army at Redstone flight tested a staged REDSTONE missile on Sept. 20, 1956, that could have orbited the world's first satellite if permission had been granted to do so. Having proved that it had the necessary capability, the Army continued to offer its potential to launch a satellite as a backup to the Vanguard program, but again it was ordered to refrain from any efforts in this area.

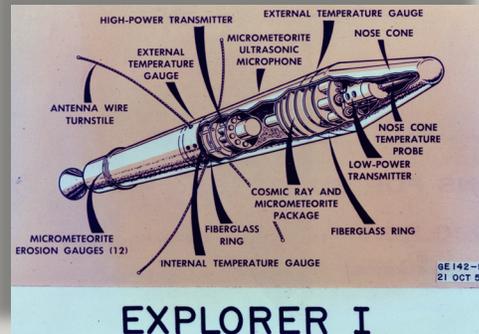
Dr. Ernst Stuhlinger, an original member of von Braun's team, revealed in a speech in July 1957 at the Army Science Symposium at the United States Military Academy, West

Orbit 1

Point, N.Y., that practically all components necessary for a successful satellite launch were available at Redstone Arsenal's Army Ballistic Missile Agency. These components, he said, were left from Project Orbiter. Instead, the Defense Department reaffirmed its close cooperation with Project Vanguard and denied that any of its research programs interfered with the intended tactical uses of the REDSTONE missile. As noted earlier, the Soviet Union launched Sputnik I, the world's first satellite, on Oct. 4, 1957. A month later, they orbited a second, larger satellite, Sputnik II, on Nov. 3, 1957. Five days later, on Nov. 8, 1957, the Secretary of Defense, Neil McElroy, directed the Department of the Army (and specifically the Army at Redstone Arsenal) to modify two JUPITER-C missiles and to attempt to place an artificial earth satellite in orbit by March 1958. The Navy made a last-ditch effort to launch their Vanguard. Project Vanguard faltered when it exploded on the launch pad on Dec. 6, 1957.

On Jan. 31, 1958, just 84 days after receiving the mission, the Army Ballistic Missile Agency launched the first U.S. satellite — Explorer I — into orbit. With the successful launch of Explorer I, the Army embarked on an ambitious program which rapidly advanced U.S. interests and goals in the Space arena. For example, the Army Ballistic Missile Agency placed additional Explorer satellites into orbit on March 26, 1958, July 26, 1958 and Oct. 13, 1959. Also, on March 3, 1959 Pioneer IV, a joint Army Ballistic Missile Agency/Jet Propulsion Laboratory project under the direction of the National Aeronautics and Space Administration (NASA), achieved a

velocity in excess of 24,560 miles per hour; passed within approximately 36,000 miles of the Moon; and traveled on to become the first U.S. satellite in permanent orbit around the Sun. And, the flight of monkeys Able and Baker on May 28, 1959, marked the first successful recovery of living beings after their return to earth from outer Space. Their survival of speeds over 10,000 miles per hour was the first step toward putting a man into Space



EXPLORER I

THIS CUT AWAY GRAPHIC ILLUSTRATES THE UNUSUAL DESIGN OF THE EXPLORER I SATELLITE AND ITS SCIENTIFIC EQUIPMENT. THE EXPLORER I CARRIED THE RADIATION DETECTION EXPERIMENT DESIGNED BY DR. JAMES VAN ALLEN AND DISCOVERED THE VAN ALLEN RADIATION BELT.

On July 1, 1960, the Army at Redstone formally lost all of its Space-related missions, along with about 4,700 civilian employees (including the Von Braun team) and \$100 million worth of buildings and equipment at Redstone Arsenal and Cape Canaveral to NASA's George C. Marshall Space Flight Center. At the activation ceremonies, von Braun, the new Director of the Center, remarked that "without the bountiful and courageous backing and support of the Army ... the free world would not jumped off into Space nearly so soon."

This article was taken from multiple sources contained in the Office of the Command Historian, U.S. Army Aviation and Missile Command.