

What Is the Most Important Engineering Feat That Promoted Discovery

On October 4th, 1957, the Soviet Union launched an artificial satellite into earth's orbit. The name of the satellite was Sputnik. Sputnik was an engineering feat that promoted discovery in the United States at a rate not previously seen before. Sputnik enabled discovery because of four factors, fear, a challenge by President John F. Kennedy, congressional funding, and the sheer magnitude of the president's challenge.

Sputnik was the size of a basketball and weighed only 187 pounds. By putting an object into orbit around the earth, the Soviets ushered in the space age. Less than a month later Sputnik II was launched. Sputnik II was even more impressive because it carried a payload consisting of a dog (Laika) into orbit. The ability to put an artificial satellite into orbit caught the world's attention and the United States off guard. The fear was that satellite technology could be translated into the ability to launch nuclear weapons from the Soviet Union to the United States. In 1958 congress passed the "Space Act" creating the National Aeronautics and Space Administration (NASA). NASA was tasked to create the technology to counter the Soviets threat. Less than one year later the United States launched Explorer I. Not only did Explorer I counter the threat, it led to the discovery of magnetic radiation belts around earth.

In the early 1960's, John F. Kennedy's administration recognized that the Soviets had achieved a head start in space technology and large rockets. Kennedy reached out and challenged America to put a man on the moon by the end of the 1960-decade. Kennedy also persuaded congress to fund this challenge by increasing NASA's budget. In Fiscal Year 1962, Congress authorized an increase in NASA's budget to an unprecedented 5400 million dollars. This budget equated to approximately 50 cents for

every man, women, and child in the United States. Expanding the budget provided the fuel for discovery.

The shear magnitude of the challenge became the engine for discovery. The concept of putting a man on the moon required discovery unlike any before. Advances in almost every aspect of science were required to carry out the mission. The biggest obstacle was the development of a propulsion system that could escape earth's gravity and propel a vehicle over 500,000 miles. The next challenge was to create the necessary science to sustain human life in the hostile environment of space. Discoveries were required in human health and environmental science in order to create an "artificial earth" within the space capsule. Advances were necessary in the field of computers, navigation, and communication equipment to safely operate and communicate with the spacecraft. Zero gravity had to be explored in order to understand how men and machinery could operate in space. Lightweight, high strength materials had to be developed to limit takeoff weight of the spacecraft.

Sputnik was the most important engineering feat that promoted discovery. The driving force for discovery was the fear that the Soviets would obtain technological superiority over the United States. Kennedy's administration recognized that the United States could not lag the Soviet Union in space technology because the consequences were unimaginable. Equally important was Kennedy's foresight to fund the discovery. The seeds were planted and discovery grew.