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The First Saturn Rockets

Ten months after they provided the Jupiter C rocket to launch Explorer I, von Braun's Army team in Huntsville began developing a high-performance rocket for advanced space missions. Tentatively called Juno V and finally designated Saturn, the rocket work was turned over to NASA in late 1959.

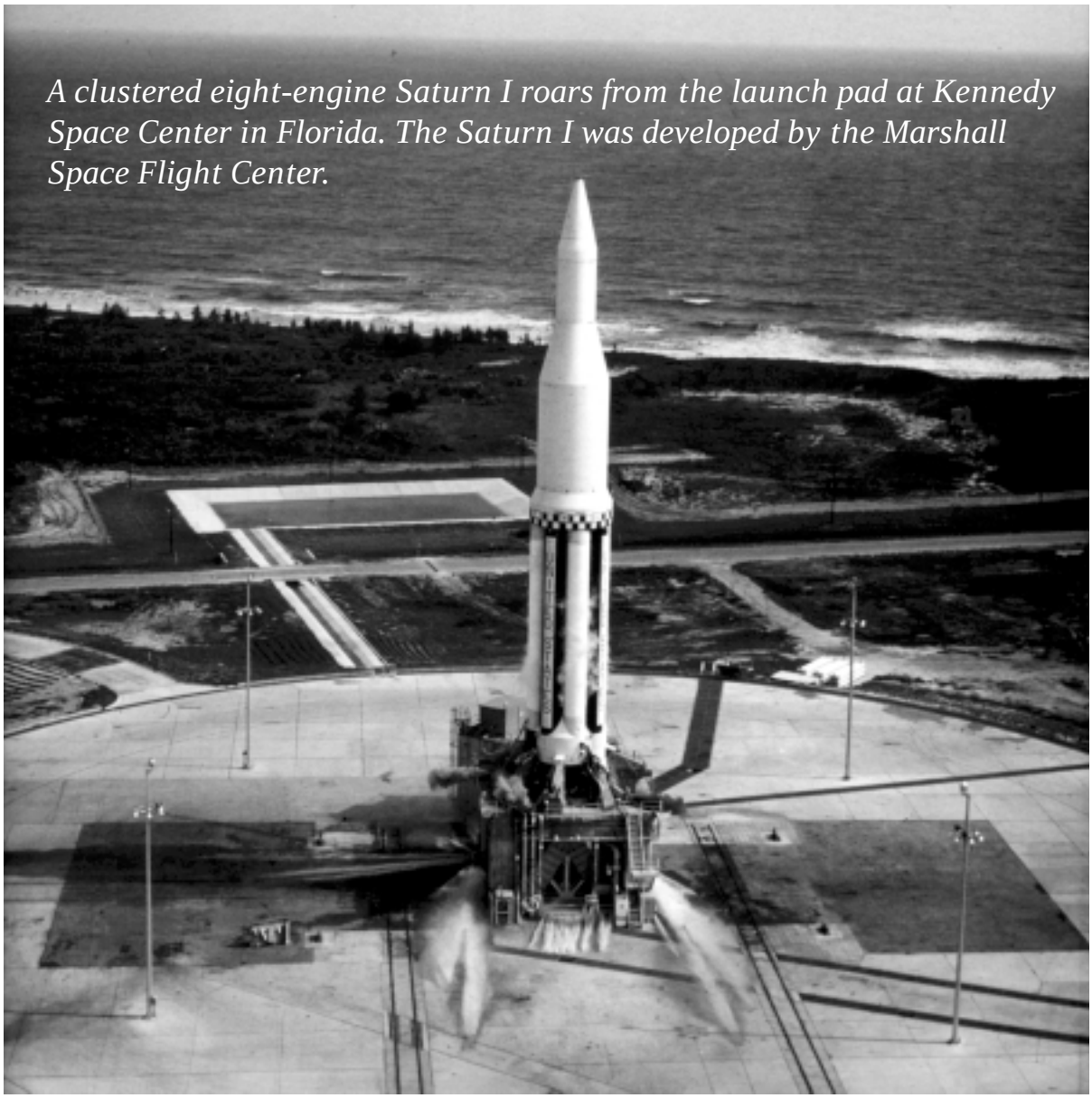
This Saturn I vehicle and its follow-on the Saturn IB served as test-bed rockets for the larger and more powerful Saturn V that would eventually carry the first humans to the Moon. Along the way towards developing the Saturn V, the Marshall Center also used the Saturn I for two early scientific efforts. One was called "Project Highwater." The second was called "Pegasus."

The initial firing of two Saturn I first-stage engines came on March 28, 1960, only a few days after President Eisenhower officially directed that the NASA facilities in Huntsville would be known as the George C. Marshall Space Flight Center. After the Center's activation on July 1, the Marshall Center assumed responsibility for Saturn. On October 27, 1961, the first Saturn vehicle flew a flawless 215-mile ballistic trajectory from Cape Canaveral. The 162-foot-tall rocket weighed 925,000 pounds and employed a dummy second stage.

The primary objective of the second Saturn flight on April 25, 1962, was to gather engineering data for future Saturn flights. However, the mission also included "Project Highwater." This experiment released nearly 30,000 gallons of ballast water in the upper atmosphere. Release of this vast quantity of water in a near-space environment marked the first purely scientific large-scale experiment concerned with the space environment. The water was released at an altitude of 65 miles where, within only 5 seconds, it expanded into a massive ice cloud 4.6 miles in diameter that continued to climb to a height of 90 miles.

Eight more Saturn I vehicles were flown. Following another Saturn I launch on September 18, 1964, the Marshall Center declared the Saturn I operational, noting that the vehicle had placed 39,000 pounds into orbit.

The eighth Saturn I flight on February 16, 1965, placed a Pegasus I satellite into orbit. "The Pegasus satellite will 'sweep' space, detecting and reporting collisions with meteoroids. The information will give scientists a better indication of the distribution, size and velocity of such particles near Earth," wrote one observer.



A clustered eight-engine Saturn I roars from the launch pad at Kennedy Space Center in Florida. The Saturn I was developed by the Marshall Space Flight Center.

The ninth flight of the Saturn I, on May 25, 1965, successfully relied on both stages built by private industry and managed by the Marshall Center. That mission also marked the first night launch of a Saturn and the launch of a Pegasus II satellite. The final flight of the Saturn I on July 30, 1965, climaxed what Marshall officials described as "a program which started the U.S. on the road to the Moon with 10 straight successes."

The Saturn I launch vehicle provided NASA with significant new payload lifting capabilities. However, the Saturn IB vehicle, the second member of the Saturn family, had even more power, enough for orbital missions with Apollo spacecraft.

The Saturn IB vehicle was a two-stage rocket. The first stage was called the "S–IB" and was based on a redesigned first stage for the Saturn I. The second stage was called the "S–IVB." It was based on the third stage of the mightiest Saturn vehicle of all, the Saturn V. The first Saturn IB vehicle was launched February 26, 1966. The next four were launched July 5 and August 25, 1966, and January 22 and October 11, 1968.