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This U.S. Navy photo, by Ensign John Gay, depicts the moment when an F-/A-18 Hornet breaks the sound barrier on the 7th of July, 1999. The Navy provides its description. "Off the coast of Pusan, South Korea: An F/A-18 Hornet assigned to Strike Fighter Squadron One Five One (VFA-151) breaks the sound barrier in the skies over the Pacific Ocean. VFA-151 is deployed aboard USS *Constellation* (CVN 64)." Scientists believe the white halo forms when an increase in air pressure around the aircraft, at transonic speeds, produces condensed water droplets.

Was there, in fact, a sound barrier? The only way to know for sure was to try and fly a plane as fast as the speed of sound - and then see what happened. U.S. Air Force Captain Chuck Yeager was given the job to find out what happened.

Yeager took the controls of an experimental X-1 on October 14, 1947. The X-1, powered with XLR-11 rocket engines, did not take off from the ground under its own power. It was transported under the bomb bay of a B-29 and air-launched at 21,000 feet. When he was dropped from the B-29, Yeager safely ignited the X-1's powerful engines. If they had not ignited, the X-1 would have fallen out of the sky.

With powerful engines and a design that minimized drag, Yeager's plane safely flew at 700 miles per hour. It was the speed of sound for his plane given all the flight conditions existing at the time.

The "mach meter" on the X-1 recorded a "mach jump" at the moment the plane achieved the speed of sound. (Follow this link to a NASA photograph of the plane at the precise moment it achieved mach speed. Note the exhaust. Note the tape from the mach meter.) For the first time ever, people on the ground at Edwards Air Force Base heard the now-common "sonic boom."

Turns out, there was no barrier after all. Yeager had flown right through it. Another obstacle barring supersonic flight had been removed.

Was it now possible to fly into space? President John F. Kennedy thought so. He made it a mission for America to achieve a safe manned moon landing and return before the end of the 1960s. (Follow the link to NASA's video of the President giving the now-famous speech.)

At the time, it seemed more than the United States could achieve. While the Soviets were moving ahead with satellites and sophisticated space technology, America had experienced a series of humiliating test rocket failures.

The race for space - and the Moon - was on.

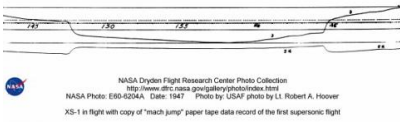
See Alignments to State and Common Core standards for this story online at:

<http://www.awesomestories.com/asset/AcademicAlignment/THE-SOUND-BARRIER-History-of-Flight>

See Learning Tasks for this story online at:

<http://www.awesomestories.com/asset/AcademicActivities/THE-SOUND-BARRIER-History-of-Flight>

Media Stream



NASA Dryden Flight Research Center Photo Collection
<http://www.dfc.nasa.gov/gallery/photo/index.html>
NASA Photo: E95-6204A Date: 1947 Photo by: USAF photo by Lt. Robert A. Hoover
X-1 in flight with copy of "mach jump" paper tape data record of the first supersonic flight

Mach Meter Tape - Reading

Image online, courtesy NASA.

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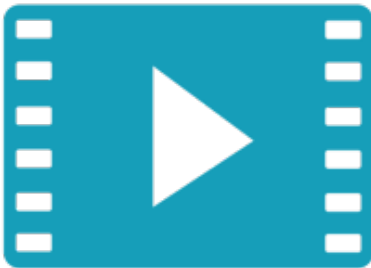
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THE SOUND BARRIER

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Sound Barrier - Broken for the First Time

From The Right Stuff, a film about test pilots and the Mercury 7 astronauts.

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