The Race to Space:
Effects on American Communication Culture

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After the dust settled from World War II, the United States entered into a far riskier conflict with its former ally, the Soviet Union. Known as the Cold War, this conflict was bloodless, requiring one to find another way to decide the victor, and the space race was one such attempt. Over several years the space race served as a nonviolent "battle" between the two countries in what would become a race for the moon. Many present-day technologies can be traced back to developments made during the space race, but one of the more obvious, yet understated, are satellites. Paving the road into space, artificial satellites started it all. Beyond merely preparing for manned space missions, satellites would provide extensions to communication technologies such as telephone, radio, and television. This expansion of communications during the space race had an enduring effect on American culture, connecting them not only with one another, but the rest of the world.

The Soviets would officially begin the space race by launching the first artificial satellite into orbit in 1957, Sputnik I. Sputnik was a metal sphere measuring twenty-two inches in diameter and weighing approximately 184 pounds.[1] The satellite carried several different types of instruments to measure conditions in space, and a radio transmitter to send collected data back to Earth through a series of encoded beeps.[2] According to popular history, the launch of Sputnik set off a wave of panic across the United States, but this is only partially true. For the elite of society, the wealthy and educated, Sputnik was a great cause for concern and an issue of security. For the majority of American citizens however, Sputnik was simply a new technology

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[1] Kim Mcquaid, "Sputnik Reconsidered: Image and Reality in the Early Space Age," *Canadian Review of American Studies* 37, no. 3 (2007): http://libproxy.ung.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=a9h&AN=31374776&site=ehost-live.

[2] "Sputnik I," *Current History (pre-1968)* 34, no. 000197 (1958): http://libproxy.ung.edu/login?url=http://search.proquest.com/docview/202914185?accountid=159965.

that they did not fully understand or care about.[3] It was not until several years later that Americans became invested in the space race or even affected by it.

Despite the public's lack of enthusiasm for space exploration, the United States was not far behind the U.S.S.R., launching its first artificial satellite, Explorer I, in 1958. The satellite was a repurposed missile and was quite smaller than Sputnik, weighing only 18 pounds. Like Sputnik the satellite carried radio transmitters to send data recorded from space to Earth, though they died after only a few weeks.[4] In an attempt to extend the life of their radio transmitters, the U.S. launched the test satellite Vanguard I on March 17, 1958. This small satellite, weighing only three and a half pounds, was outfitted with six small solar batteries, spaced around the shell to catch as much sunlight as possible.[5] These solar cells powered one of the radio transmitters on the Vanguard and extended its life to months as opposed to weeks.[6] Though the immediate goal was to use this extension of radio life to increase the amount of data that could be collected, it also made the idea of a communications satellite possible.

Project SCORE (Signal Communications by Orbit Relay Equipment), the first attempt at establishing a communications satellite, was launched only months after Vanguard I. The satellite was another modified missile, this time an Atlas ICBM (intercontinental ballistic missile). It was the largest satellite the United States had successfully launched into orbit, weighing between 8,700 and 8,800 pounds.[7] Instead of merely relaying data from space, Atlas

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[3] Kim Mcquaid, "Sputnik Reconsidered…"
[4] "Explorer I in Orbit 3 Years," *New York Times (1923-Current File),* Feb 01, 1961, http://libproxy.ung.edu/login?url=http://search.proquest.com/docview/115383171?accountid=159965
[5] "Vanguard I," *Science* 127, no. 3300 (1958): http://www.jstor.org/stable/1754867.
[6] Richard Witkins, "VANGUARD KEEPS THE U.S. IN SATELLITE RACE," *New York Times (1923-Current File)*, Mar. 23, 1958, http://libproxy.ung.edu/login?url=http://search.proquest.com/docview/114609048?accountid=159965
[7] "U.S. Orbits 8,700-Lb. Atlas, Dwarfing Big Soviet Satellite," *The Atlanta Constitution (1946-1984)*, Dec. 19, 1958, http://libproxy.ung.edu/login?url=http://search.proquest.com/docview/1554899206?accountid=159965

was launched into space with a recorded message from President Eisenhower. By utilizing the Jupiter Test, a special communications test system, ground teams could send messages to the satellite, and receive a specific response.[8] This response was the recorded message from the president, which was then broadcast to public radios.[9] Project SCORE was evidence that voice messages could be successfully sent through space via satellite, an impressive step toward an active communications satellite. However, the message from the president also served as a way to increase public interest in the space race, while also initiating a change in American communication culture. As the first radio broadcast from space, Project SCORE was the first in a long line of subsequent radio transmissions continuing to this day.

Aside from radio signals, the U.S. also experimented with sending images via satellites. In August 1959, the Explorer VI was launched and was equipped with a television like camera. Seven days after its launch, the satellite sent back the first photograph of Earth taken from space.[10] The picture was of poor quality, but it was proof that images could be transmitted from a satellite to Earth. It is not a far jump to imagine the transmission of television programs from satellites, and that is exactly what Americans began to consider in the years to come.

Echo I, launched in 1960, was the first passive communications satellite, or a satellite that simply reflects radio signals that are sent to it.[11] Several tests were conducted soon after the satellite was launched, including a radio transmission from an Air Force center in New York to

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[8] Ibid.
[9] "Fort Stewart Triggers Ike's Atlas Broadcast," *The Atlanta Constitution (1946-1984)*, Dec. 20, 1958, http://libproxy.ung.edu/login?url=http://search.proquest.com/docview/1620787355?accountid=159965
[10] "SCIENCE NOTES," *New York Times (1923-Current File)*, Oct. 04, 1959. http://libproxy.ung.edu/login?url=http://search.proquest.com/docview/114794223?accountid=159965
[11] John Shanely, "TV: Echoes of Echo I," *New York Times (1923-Current File)*, Aug. 16, 1960. http://libproxy.ung.edu/login?url=http://search.proquest.com/docview/115204944?accountid=159965

Trinidad in the West Indies, a distance of 2,400 miles.[12] In another test, a telephone signal was bounced of the satellite from California to New Jersey, and vice versa, resulting in a relatively clear trans-continental telephone conversation.[13] Through these tests Echo proved that long-distance communications were not only possible via satellite, but also more efficient that traditional relay techniques. Echo I was a giant step toward active communications, and excited the imaginations of many looking toward future possibilities, particularly trans-Atlantic telephone and television broadcasts. Prior to satellite telephone technology, the only way to make a call across the Atlantic was by transmitting messages through underwater cables, which could support approximately only eighty channels.[14] Echo provided the evidence that voice messages could be sent via satellite, a more cost efficient and easier method than constructing hundreds of undersea cables.

Though the previous technological advances affected the possibilities of America's communications culture, AT&T's Telstar communications satellite was the breakthrough that would completely change it. In July of 1962 the Telstar satellite was launched, and unlike Echo I, Telstar did not simply reflect radio signals, but received them and transmitted its own signals, becoming known as an active communications satellite. The first call completely transmitted through satellite was between the chairman of AT&T and the vice-president of the United States on July 10, 1962. Only twenty minutes later, the first live trans-Atlantic television broadcast was picked up in Brittany France, and was answered the next day by a television transmission from

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[12] John Finney, "PRESIDENT HEARD," *New York Times (1923-Current File)*, Aug. 13, 1960. http://libproxy.ung.edu/login?url=http://search.proquest.com/docview/114931717?accountid=159965

[13] "ECHO I IS JOINED TO PHONE SYSTEM," *New York Times (1923-Current File)*, Aug. 15, 1960. http://libproxy.ung.edu/login?url=http://search.proquest.com/docview/115190858?accountid=159965

[14] John Finney, "PRESIDENT HEARD"

France.[15] Both of these achievements would cause great change in America. "Live" communications would allow Americans to receive more quickly than they had before. They would also be more connected to the world, being able to receive television broadcasts from other countries, and having the ability to more easily make overseas calls. While a major development in communications technology, Telstar was still limited by its orbit. In order to successfully transmit signals, the satellite had to be in the direct line of sight of both the sender and receiver. However, the satellite orbited the Earth several times a day, limiting the time messages could successfully be sent.[16] While not perfect, the Telstar connected the world more closely than it had ever been before. By providing live communications between America and other countries, the Telstar gave Americans the opportunity to be more involved with the rest of the world.

The next steps moving closer to modern communications satellites were made by the Syncom II and Syncom III. Syncom II was launched on July 26, 1963 and was the first synchronous satellite, meaning it stayed in one area over the Earth. In this case, the satellite orbited in a figure eight around one point of the equator over the Atlantic Ocean.[17] Syncom II was able to provide reliable transmissions because of its relatively stationary orbit compared to previous satellites, but could still be improved. Syncom III, launched in 1964, was the first geostationary satellite, staying over one spot of the world at all times. This advance was the final piece of the puzzle building up to modern satellites and communications. Since the satellite did not "move", it could receive and transmit signals reliably and at any time. This solidified the

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[15] "Telstar's Role," *New York Times (1923-Current File)*, Jul. 15, 1962. http://libproxy.ung.edu/login?url=http://search.proquest.com/docview/115641455?accountid=159965

[16] Ibid.

[17] "Broadcast Satellite Hangs Over Atlantic," *New York Times (1923-Current File)*, Jul. 27, 1963. http://libproxy.ung.edu/login?url=http://search.proquest.com/docview/116654512?accountid=159965

link between America and other countries created by Telstar, giving Americans relatively indefinite access to other countries. The Syncom III displayed this connection between the world when it was used to broadcast the 1965 Olympics from Tokyo to the western coast of the United States.[18] The abilities of these satellites were only the foundation for modern communications satellite, which have even further connected the world.

The race that ended when an American stepped foot on the moon, spurred the creation of thousands of technological advances we use in everyday life. However, the most obvious, yet oftentimes overlooked, was the development of satellites. Originally designed to collect data from space, satellite soon became a means for communication. From simple radio signals, to live television broadcasts, great technological leaps were made during the early space race, and would forever change the way Americans communicate. Once hindered by relayed radio broadcasts and ineffective long distance telephone call, the people of America suddenly had a new and superior way to communicate. Satellite communication not only fostered easier communication within America but further connected Americans with the rest of the world.

[18] Jack Gould, "Delay in Televising Olympics on Coast Irritates Japanese," *New York Times (1923-Current File)*, Oct. 11, 1964. http://libproxy.ung.edu/login?url=http://search.proquest.com/docview/115903453?accountid=159965

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