

Transcribed Excerpt from Biography of John Robinson Pierce, 2004

John Robinson Pierce is most renowned for being the father of communications satellites, namely, Echo and Telstar. He was also an active stimulator of innovative research in his division at Bell Labs from the mid-1950s to 1971. He was able to challenge and inspire many of the brightest researchers in communication science and technology, leading to a host of discoveries and innovations that created today's digital era. All who knew him were affected by his wit and quick, intelligent grasp of science and technology. He was a gifted author, not only of books that explained communication science and technology to non technicians but also of science fiction. His many keen comments are treasured memories of him that continue to inspire his many friends and colleagues. This wit led him to coin the term "transistor" for the device that his colleagues at Bell Labs had invented. We have all benefited from his innovativeness, intelligence, energy, and enthusiasm for communication science and technology.

As early as 1954 John had studied the practicality of using communications satellites to relay signals back and forth from Earth. In the summer of 1958 Pierce and Kompfner attended a summer study in Woods Hole, Massachusetts, sponsored by the Air Force. There they promoted the idea of a balloon satellite for communications, work that John would later say "had the most impact of anything I have ever done." A signal was to be sent to the satellite and bounced back to Earth. But Mervin Kelly, then president of Bell Labs, was not enthusiastic and refused to pursue it. His reasons involved the hostility of the U.S. Department of Justice and its aversion to the Bell System's "monopoly." Kelly retired in 1959, and his successor as president of Bell Labs, James Fisk, thought it was proper to proceed with the idea; Echo thus became reality. The Echo passive satellite was launched on August 12, 1960, and a message recorded by President Eisenhower was bounced off it. Pierce on to promote the idea for an active communications satellite, Telstar, which was to use transistors and a traveling-wave tube. However, the government then decreed that the Bell System, which was a regulated monopoly, should not work in satellite communications, just as Kelly had feared. (Kelly also foresaw the Justice Department's antitrust suit against the Bell System.) So Telstar was not deployed as a communications business. John would later state, "I took that hard ... [but] I liked Bell Labs better than I liked satellites.

John, Claude E. Shannon, and Bernard M. Oliver described the idea of digital encoding of speech and other communication signals under the term "pulse code modulation" (PCM) and in 1948 published a paper entitled "The Philosophy of PCM" describing this technique in the Proceedings of the Institute of Radio Engineers. This paper and the ideas to and followed from it were the beginnings of today's digital era.