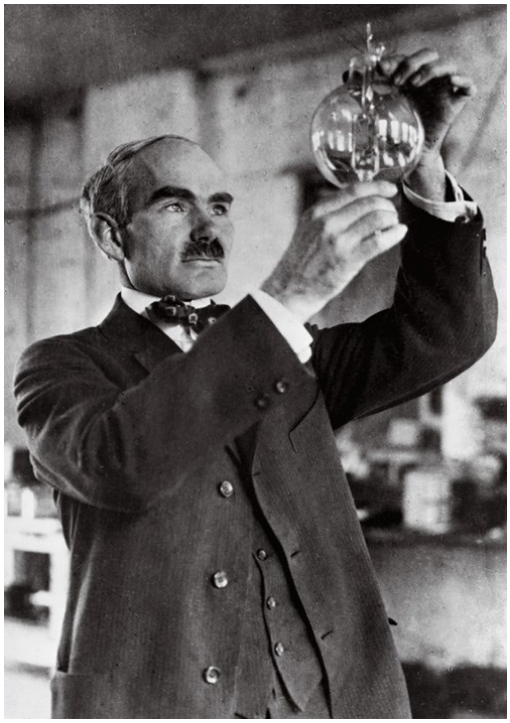
Living in the Past

Historical perspective

The father of electronics

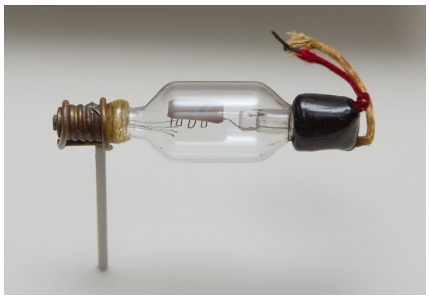


That's a lofty title to award somebody, especially when you realize that electronics has invaded just about every aspect of 21st Century life. But when you think about the pioneering and remarkable achievements made by Lee de Forest in the world of electrical circuitry, the contributions are nothing short of marvelous. His invention of the *audion* (triode vacuum tube) marked the start of broadcast radio and spelled the beginning of the end for spark-gap transmitters and silent motion pictures. To say that he was a game-changer and created disruptive technology are understatements.

After receiving a doctorate in physics from Yale, de Forest decided to dedicate his life to the study of wireless communication. Europeans had coined the phrase "radio" to represent that unseen operation, but de Forest was the one who made it into a household word here in the US. Lee spent years building companies, avoiding unscrupulous business partners, and fighting legal battles, all to provide himself an environment in which he could research his beloved discipline and develop the perfect radio transmitter-receiver. One of the problems with Marconi's receiver at the time was that he used what's known as a *coherer*, which had to be manually reset by a tap after receiving each dot or dash. De Forest believed he could improve on that inefficiency.

After experimenting with various methods of enhancing the tube diode in 1906, Lee made an electrical breakthrough by inserting a zig-zag-shaped metal wire in between the cathode filament and the anode plate. He named this wire a ***grid***, after the American football term *gridiron*, for its zig-zag shape on the playing field. He called the *triode* tube the ***audion***, because of the way it used the grid to control the audio signal output, providing *amplification* of the signal, something that previously had never been accomplished electronically.

In 1907, de Forest performed a number of tests by broadcasting music from his laboratory, and an experiment while on his honeymoon in Paris in 1908, by broadcasting musical selections from the Eiffel Tower. The first speech broadcast on public radio was in 1909, by none other than de Forest's mother-in-law, who spoke about Women's Suffrage.



The audion triode tube

All of this led the way to a huge explosion in vacuum tube capabilities and development, including long-distance telephone, radio broadcasting, and eventually, electronic computers. Nearly all of today's electronic heritage can be traced back to the audion and other de Forest developments. His addition of sound to motion pictures eventually earned him a star on the Hollywood Walk of Fame.