

Maranda Allen

Mr. Rutherford

Oxford Scholars

11 April 2017

### Radio Technology in WWI

World War I is known as 'the war to end all wars' due to the great destruction of property and lives, previously unheard of at the time. This destruction was mostly caused by the rapidly advancing war technology of the time. Tanks, chemical warfare, and planes were first used in battle during this war. Among these was radio technology, which became widely popular just before the war. Advancements made to radio during the war itself were oscillators and amplifiers, and improved message systems. These advancements made radio communication faster and more reliable. Radio technology of the early 20th century greatly influenced the outcome of World War I, and became the structure for air traffic control systems in use today.

One of the greatest benefits of radio over other communication technology of the time, such as the telegraph, was that it was wireless. Telegraphs required long wires running along the ground, connecting to each place the message was intended to be sent. The telegraph also require more time and training to operate, as each message had to first be translated from Morse Code. One of the major issues within the telegraph system was interception. Wherever exposed wires were in contact with the ground, the messages sent over them could easily be intercepted by enemy forces. However, radio eliminated a large percentage of this risk because of the lack of wires. By 1916, messages were able to be transmitted from about 140 miles by the US military. The fact that radio devices had no need

for wires to connect them to each other helped soldiers become more mobile, and allowed for communication between vehicles. World War 1 was the first recorded use of communication via radio between two planes, "...after further development, radio messages could be exchanged between two airborne planes,"(Keystone) and between two tanks. Towards the end of 1916 brought about the creation of microphones fitted to the inside of pilot's helmets, and therefore the first instance of a pilot directly speaking to ground control through radio.

Radio also helped improve strategies in real time battles by sending information more quickly. Earlier in the war, messengers were used to send intel to larger forces far from the main strategist. However these messengers also had the highest mortality rate among soldiers. Messenger dogs and carrier pigeons were also used, as dogs could run more quickly and pigeons were less affected by the chemical warfare closer to the ground, each had limitations and were not fully reliable due to the fact that they were animals. Radio was able to solve the problems of earlier messenger systems by offering reliable two way communication in real time.

"In ground operations, radio made it possible for commanders to synchronize and control units spread over vast distances... In the air, radio communications made it possible for aircraft in flight to coordinate their actions, and to coordinate close support for troops on the ground." (1914-1918 Online)

The use of radio during World War I lead to many great advances in communication, one of the most influential being modern air traffic control. Croydon Airport in London, England was the first airport to adopt an air traffic control system in 1921. Later in 1930 the Cleveland Municipal Airport was the first in the United States to create an air control tower

with a radio-based system. Before 1935, twenty other US cities built their own radio-based control systems. The development of radar technology by Robert Watson-Watt in the mid 1930s further changed air traffic control, as it was used to aid aircraft from crashing into each other while midair. All airports in the US had implemented this system by 1973, and by 1975 the US adopted an automated system for terminals universally.

Radio technology had made great advancements by the time the US had entered World War I. However, the greatest advancements were made out of necessity for battle and in ingenuity of strategy. Radio made communicating on the battlefield faster and more convenient and between vehicles to ground control possible. Radio technology increased the range and mobility of correspondence during the war itself. The advancements also had long term effects on American society. It sparked the creation of air traffic control in airports around the country. Radio technology had progressed greatly during the war out of necessity, but that progress has had positive outcomes on our society today.

#### Works Cited

Dubenskij, Charlotte. "World War One: How Radio Crackled into Life in Conflict." BBC News.

BBC, 18 June 2014. Web.

"How WWI Led to the Creation of Air Traffic Control." Keystone. N.p., 30 Sept. 2014. Web.

Lallanilla, Marc. "The Science of World War I: Communications." LiveScience. Purch, 15 May 2014. Web.

"The Beginning Of Air Traffic Control." AvStop. N.p., n.d. Web.

Zabecki, David T. "Military Developments of World War I." New Articles RSS. N.p., n.d. Web.