

Major General George Owen Squier

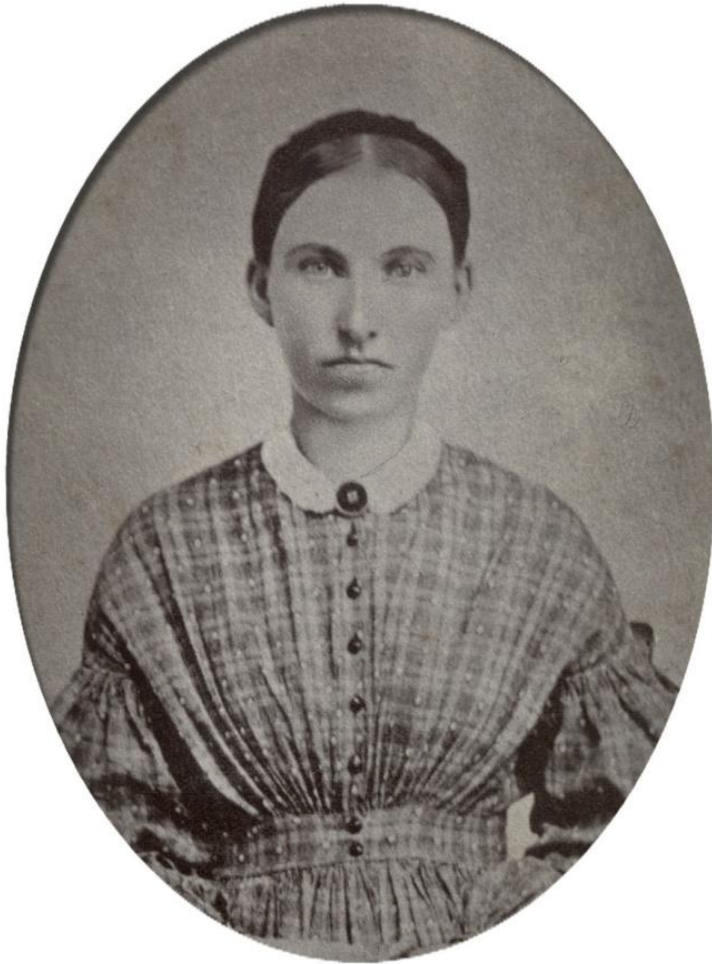
Aviation Pioneer, Inventor, Champion
of American World War I Radio and
Founder of Muzak

Major General George O. Squier, Chief Signal Officer of the Army (1917-1924)



- Franklin Medal of the Franklin Institute, Phila.
- Member, National Academy of Sciences
- KCMG (Britain)
- Commander of the Cross (Italy)
- Commander, Legion of Honor (France)
- Distinguished Service Medal (US)

Emily Squier, George Squier's mother, who died when he was seven, and George in 1865



Mrs. Emily Gardner Squier , wife of Almond Justice Squier of Dryden Mi. Mother of Major General George O. Squier U.S. Army and Mrs. Mary Squier Parker of Dryden. Born in 1835, died in 1872. Buried in North Cemetery , Dryden Michigan .

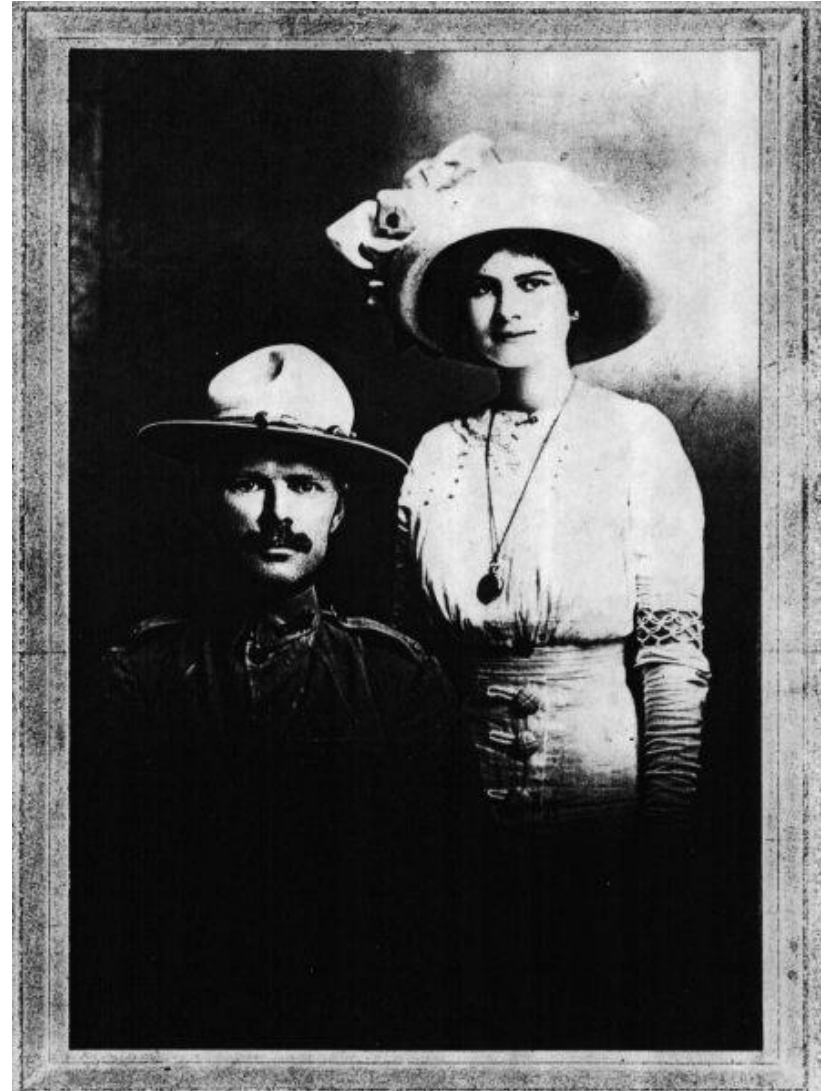


Ethan Squier, George Squier's grandfather



- George's father, Almon, was a drunk and failed at all he attempted
- George was raised by Grandfather Ethan, a tough and God-fearing Michigan farmer
- Ethan thought George's mathematics ability best suited him to be a store clerk

As a boy with his sister Mary and, many years later, after her marriage to Dr. E.H. Parker



Main Street, Dryden Michigan c.1890, a farming community about fifty miles north of Detroit



George Squier as a West Point Cadet



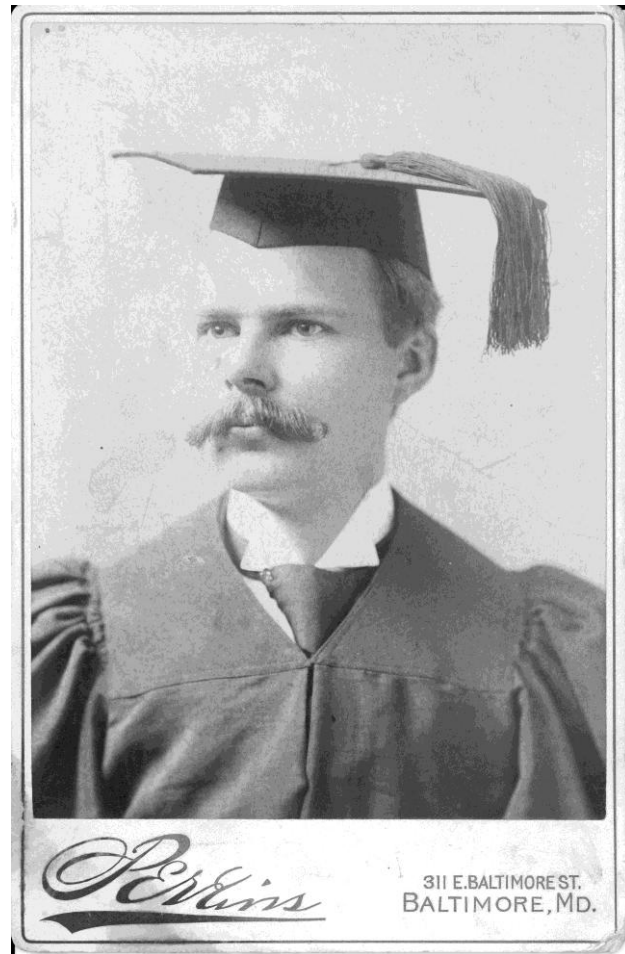
- George wanted to become a “man of letters”
- Placed first in competitive exam for West Point
- Studied wave motion physics under Peter Michie
- 7th in the 1887 class

George Squier as a young lieutenant at Fort McHenry



- Chose the artillery, assigned to Ft. McHenry in Baltimore
- Almost killed in summer 1890, when a 4.25" Rodman exploded
- Instructed National Guardsmen in Ohio and gained a reputation for knowledge and a good attitude

George Squier, new Johns Hopkins Ph.D. in Electrical Engineering (1893)



- In 1888 applied to Hopkins for full-time study toward a Ph.D. in electrical engineering
- Juggled military assignments and academic requirements
- Dissertation: Electro-Chemical Effects due to Magnetization
- First U.S. Army officer to hold a doctorate

George Squier as a Captain



- With others founded the *Artillery Journal*
- Proposed an Army Electrical Engineering Laboratory, established at Ft Monroe
- From 1895 to 1898 Squier supervised a program of research on artillery problems at Fort Monroe, including effects of magnetization of steel on guns (60 years later applied to razor blades)

George Squier on the deck of the cableship *Burnside* in the Philippines

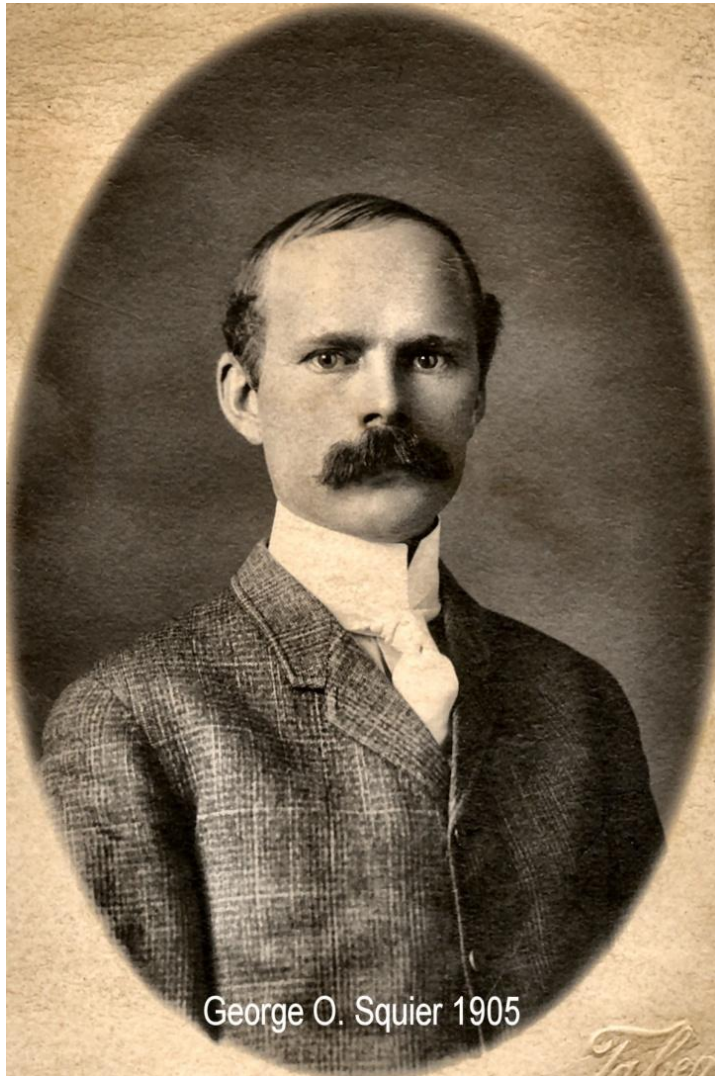


- Squier transferred to the Signal Corps in 1899
- In 1900 CSO General Greely assigned Squier to Philippines to connect principal islands with 30 cables totaling 1300 mi.
- This was the second attempt (*USS Hooker* sank)
- Job completed in 1903

George Squier (second from right in the second row) at Camp Atascadero in the Philippines

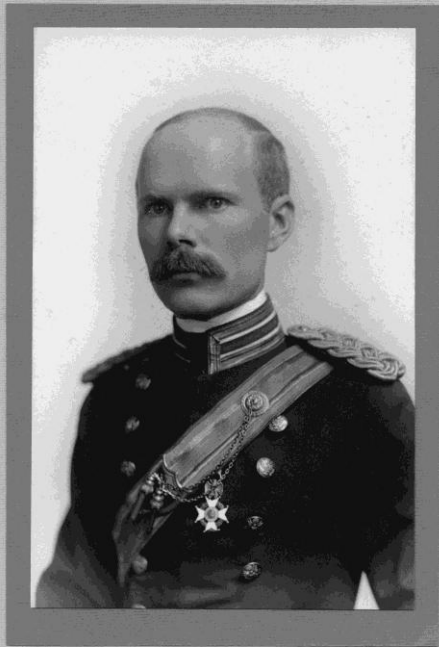


George Squier in civilian dress, 1905



- Collaborating with Dr. Albert Crehore, whom he had met at Hopkins, invented and patented the polarizing photochronograph, a camera with a massless shutter, to measure projectile velocity within the barrel and at the muzzle of cannon
- Founded a company with Crehore to apply it and another similar invention to submarine telegraphy
- Company eventually founded

George Squier, assistant commandant at the US Army Signal School, Fort Leavenworth, Kansas



- Army Signal School founded in 1906, with responsibility for aviation as well
- With Billy Mitchell, Squier taught signaling by optical, acoustic and electrical methods, and led seminars
- Began intense study of military aviation, both lighter and heavier than air

Sign at Fort Myer showing George Squier was the second passenger of the Wright Brothers



Worlds First Passenger Flight
Arlington County , Virginia

On September 8, 1908, near this site, Orville Wright carried aloft in public his first passenger, Lt. Frank P. Lahm, for a flight lasting 6 minutes and 24 seconds. Three days later, he took Major George O. Squier on a flight of 9 minutes and 6 seconds duration. From this primitive beginning has evolved an air transportation system that today spans the globe.

- Aeronautical Division of Signal Corps founded in 1907-Squier became Assistant CSO
- From 1906-1909 focused on developing aviation for the Army, including efforts to persuade Congress to appropriate funds to purchase aircraft
- Squier responsible for preparation of first specification for Army aircraft

Wright brothers plane at 1908 Fort Myer trials

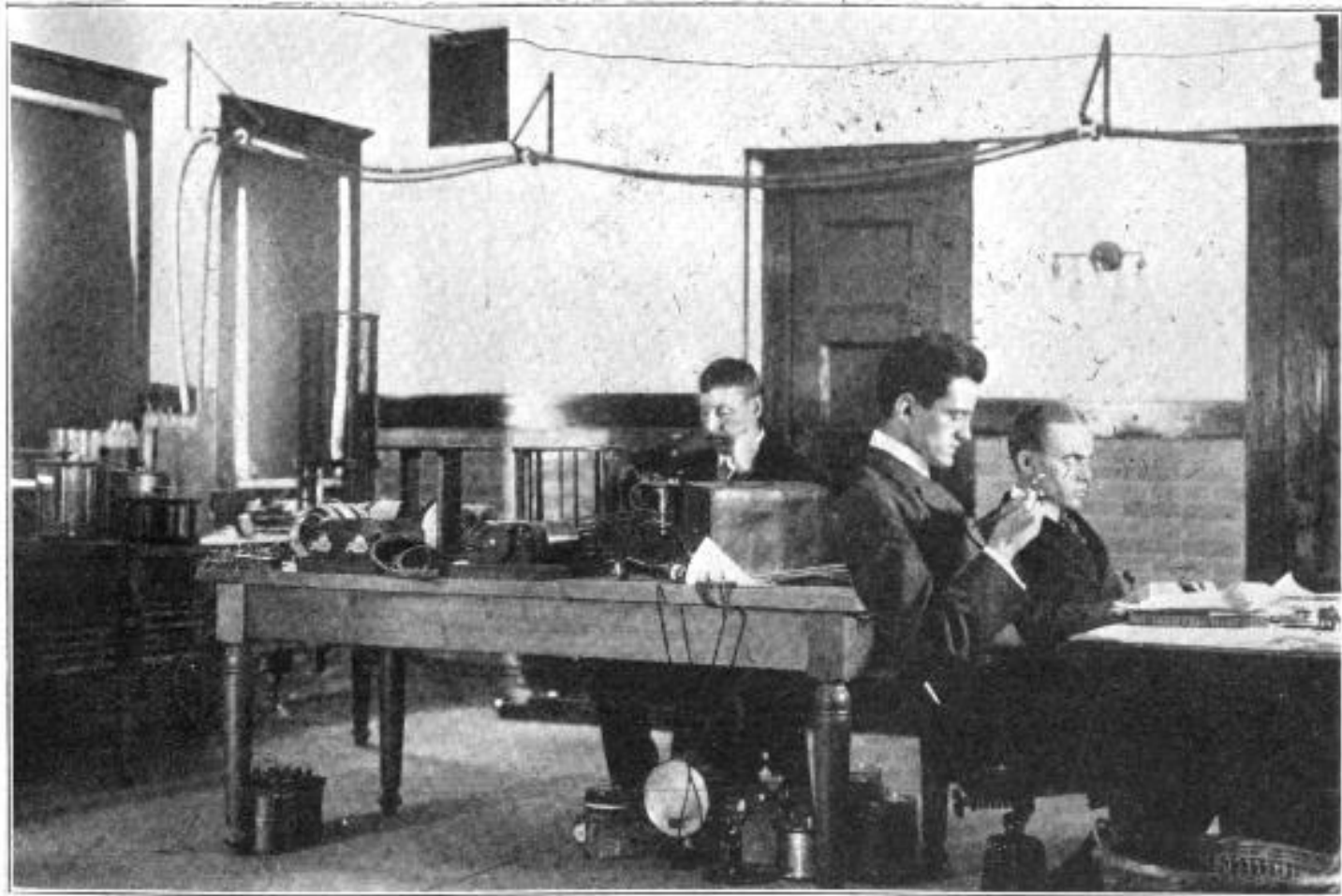


RB 802

Wilbur Wright (in Straw hat) timing a flight,
George Squier at extreme left. Ft. Myer trials
successful until Lt. Selfridge's death



Squier returned to communications research and in 1910 patented carrier multiplexing, the invention that led to the great expansion of AT&T's commercial telephone service



WHERE THE EXPERIMENTS WITH THE MULTIPLEX TELEPHONE WERE CONDUCTED.
Signal Office Research Laboratory at the Bureau of Standards, Washington.

In 1912, to his and everyone's surprise, Lt. Col. Squier appointed American military attaché in London.



George O. Squier
Lieut. Col. U.S.A. Military Attache
State Opening of Parliament
London February 10, 1914

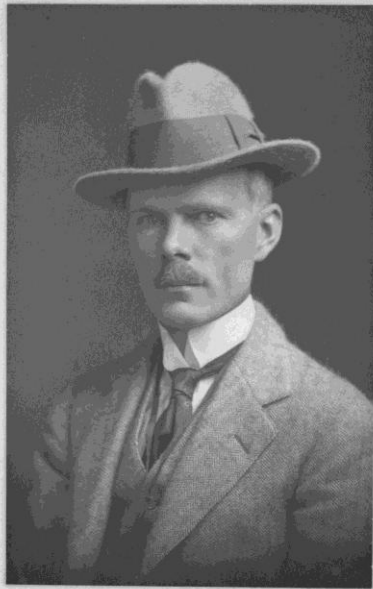
- General Leonard Wood, Army Chief of Staff, wanted to send an officer who understood the complexities of modern warfare
- American ambassador Walter Hines Page specifically requested such an individual on the eve of an anticipated European War

George Squier with Captain Le Maitre, Aviation Corps, French Army



- Lord Kitchener, the Secretary of State for War, arranged for him to make a secret trip to the Western Front when no other attaché could
- Squier visited the front three times, more than any other attaché was allowed to visit, even those representing British allies

George Squier in Manchester England 1915



*Manchester, England
Sept. 8th 1915. J.S.*

- Asked to testify before Parliament in its investigation of the Marconi scandal
- Attempted to interest British companies in his telegraphy inventions
- Worked closely with the leading British scientists to conduct experiments on radio phenomena

Brigadier General George O. Squier in 1917



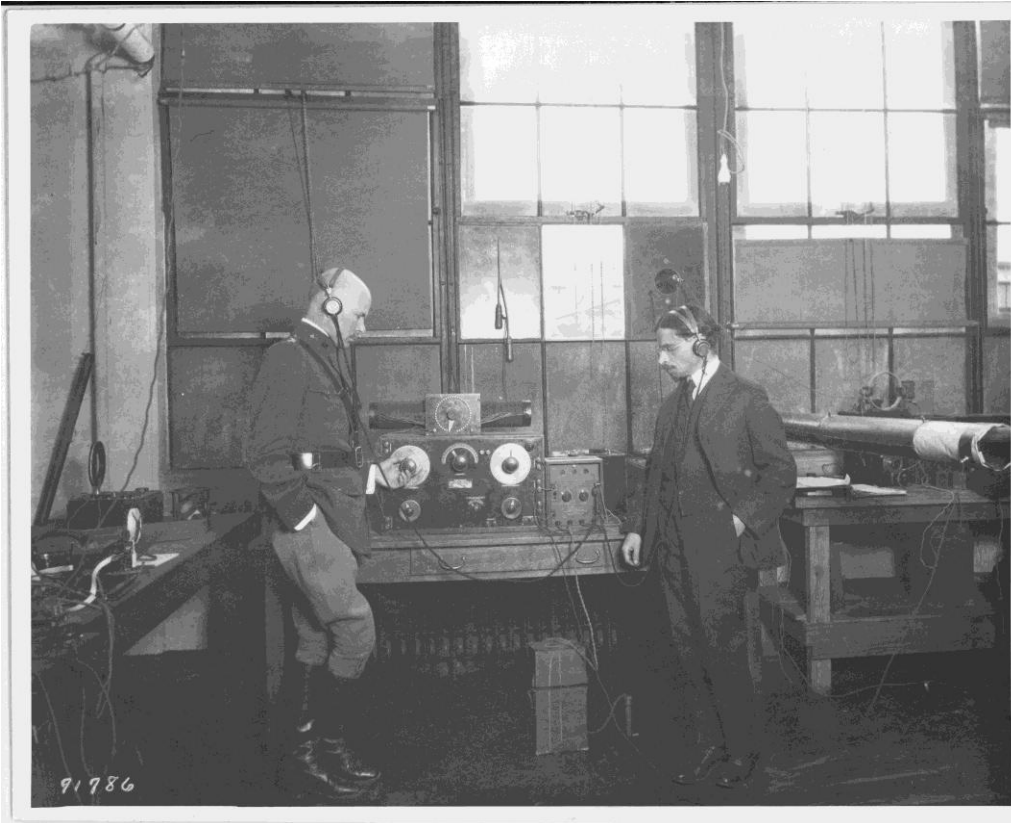
Brigadier General George O. Squier 1917

- In May 1916, Squier returned to Washington, to take charge of the army's troubled aviation program
- In February 1917, promoted from Lieutenant Colonel to Brigadier General and appointed Chief Signal Officer of the Army, a position, which he would hold until 1924

Main floor of General Squier's office, 14th Street and Park Road, Washington DC c. 1918



Major General George O. Squier C.S.O. and Dr. Louis Cohen, radio engineer, at Fort Monmouth



- American Radiotelephony experiments began in 1910
- Vision of voice command of aircraft formations advanced by Squier and other technical officers
- Squier uniquely had the authority, technical background and access to resources to succeed in the project

Squier at Fort Monmouth NJ

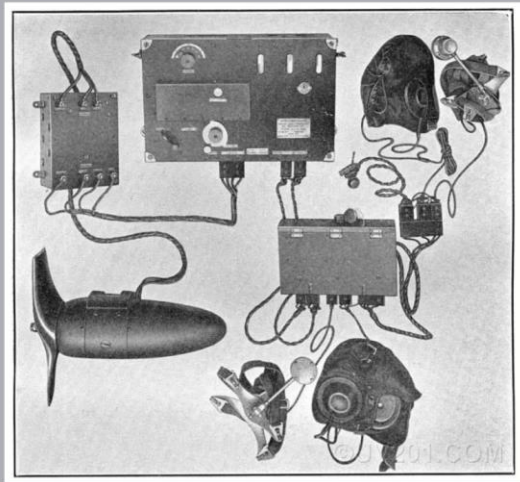


Con. George O. Squier at Army Signal Corps
Ft, Monmouth N.J.

CSO 1919 Report “The development of radio apparatus for telephonic communication from plane to plane and from plane to ground was a challenging problem whose solution led to the development of a whole family of Signal Corps radio equipment”

Breadth of Squier's Achievement

SCR-68 System 1917-1920



- Technology of airborne radiotelephone applicable to ground warfare
- Developed tactical radios for infantry, artillery and tank combat arms
- Saw need to produce a million vacuum tubes a year
- Insisted on ruggedness, light weight and parts standardization (for ease of repair and replacement)

PRES. WILSON TALKING TO AEROPLANE
PILOT OVER WIRELESS TELEPHONE



U.S. SIGNAL CORPS PHOTO REPRODUCED BY
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Major Edwin H. Armstrong, Signal Corps, Paris France, 1918



- One of many prominent engineers recruited by Squier
- Worked in Signal Corps Paris laboratory, evaluating radiotelephone equipment
- Had invented and patented the oscillator, modulator and regenerative amplifier in 1912
- Invented superheterodyne receiver in 1918 and FM in the 1930's

Francis C. Jenkins, television pioneer, David Sarnoff, George O. Squier, Secretary of Commerce Herbert Hoover, Oct. 7, 1924

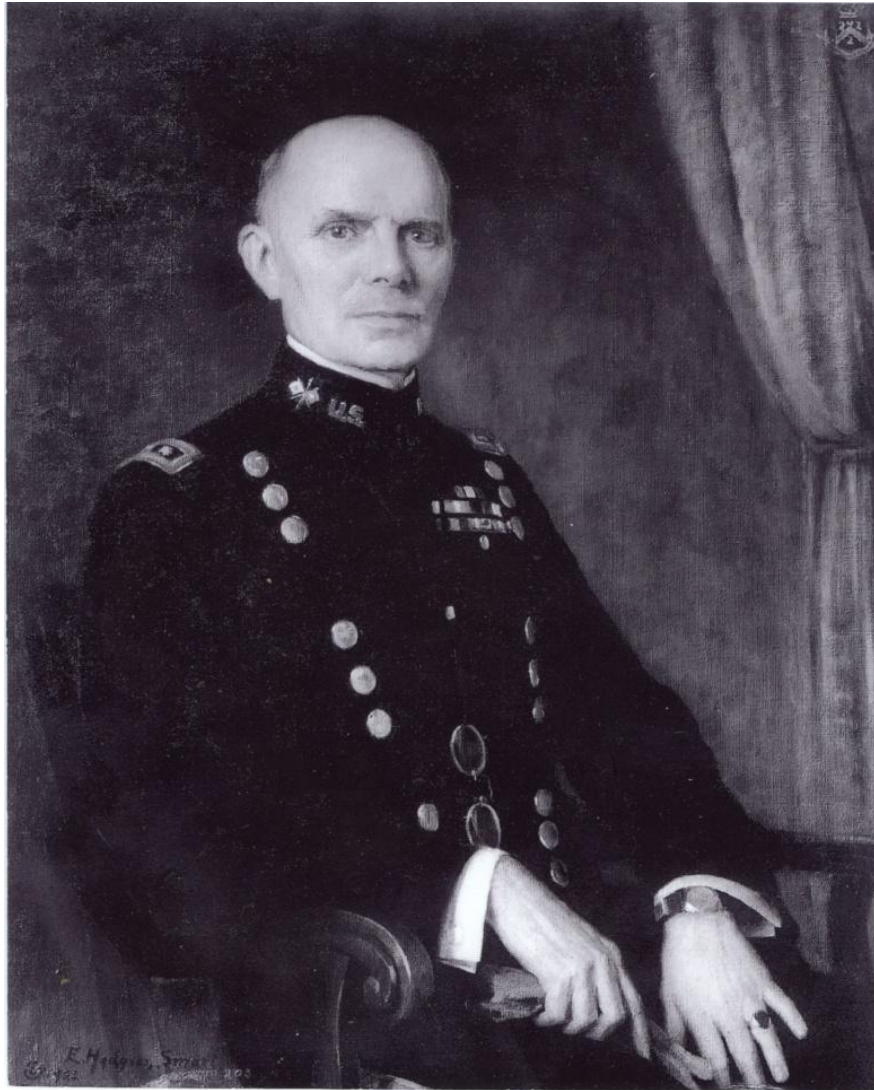


As a boy with his sister Mary and, 50 years later,
at the White House with Mary and her husband,
Dr. E.H. Parker



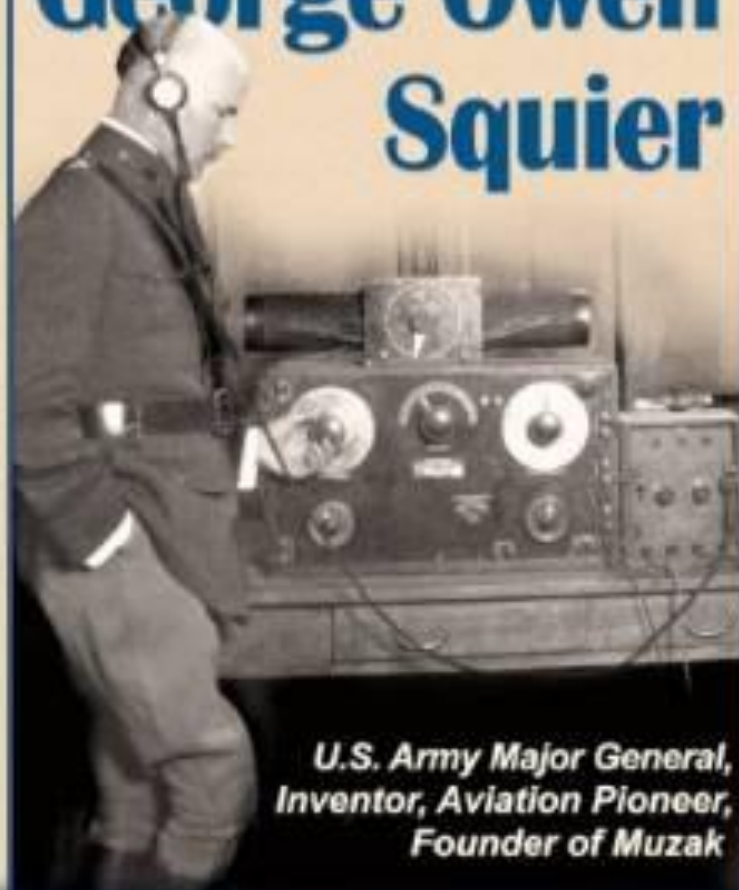
Major General George O. Squier, Sister Mrs. Mary Parker and Dr. Ira E. Parker of Dryden Mich. calling on President Harding at the White House, Washington D.C. Feb 1923

Major General George O. Squier, USA ret., formal portrait 1932



Photograph of Portrate made by National Museum at
Washington D.C. June 1932.
George O.Squier Maj. Gen. Retired
Artist E.Hodson Smart of London England

George Owen Squier



*U.S. Army Major General,
Inventor, Aviation Pioneer,
Founder of Muzak*

Paul W. Clark and Laurence A. Lyons