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GEORGE OWEN SQUIER

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BY

ARTHUR E. KENNELLY

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George Owen Squier was a remarkable combination of American soldier, applied scientist, inventor, and engineer, as well as an army administrator and an outstanding Chief Signal Officer.

He was born at Dryden, Michigan, March 21, 1865. His parents were Almon Justice and Emily Gardner Squier. He entered West Point Military Academy at the age of eighteen, and passed through his four years cadetship training with distinction, graduating in 1887. In after years he used to say that at one time in his West Point career he accidentally fell half an hour behind in the routine of his studies, and that it took all his efforts during the remainder of his course to catch up with the schedule. He held the West Point course in high esteem and regarded the incident as an index of its precision. He often told interesting anecdotes of West Point cadet life, illustrating the *esprit de corps* which the institution develops among United States Army officers.

On graduating from West Point in 1887 Squier was appointed a Second Lieutenant in the 3rd Artillery Corps. His training in that branch of the service showed him the importance of accurate scientific knowledge in ballistics and ordnance engineering. He, therefore, took up the study of those subjects, by entering Johns Hopkins University at Baltimore as a graduate student, specializing in mathematics, physics, and ballistics. He became a fellow of Johns Hopkins in the academic year 1891-1892, and received there his Ph.D. degree in 1893, his graduating thesis being on the subject of chemical effects due to magnetism.

He was then appointed a First Lieutenant in the 3rd Artillery Corps and an ordnance instructor at the United States Artillery School in Fortress Monroe, Virginia. At this school he developed instruments for measuring the recoil of guns in action and the velocities of their projectiles. These researches were embodied in several papers and in a book written jointly with Dr. Albert Cushing Crehore—"The Polarizing Photo-chronograph".

At the outbreak of the War with Spain in 1898 Dr. Squier

sought service in the Signal Officer Volunteers and entered with the grade of Captain. In this service he was sent to the Philippine Archipelago, in 1900, where he commanded the cable ship "*Burnside*," and laid a system of submarine cables between strategic points in the islands. He rightly concluded that the number of infantry men required to maintain effective garrison control over the islands could be greatly reduced by an extensive network of cable and wire communication, terminating in army headquarters. After the war he was appointed to the United States Signal Corps, first as Captain, later as Major, and finally as Chief Signal Officer in the California district.

It was during this period that he took up the study of army cable and radio communication, publishing several papers in this field. Major Squier discovered that a growing tree could serve as a receiving radio antenna if a nail were driven into it fairly high up and a wire brought down from the nail to the receiving instrument on the ground. As a corollary to the proposition that trees and their branches have sufficient conductance to serve as radio antennas, he showed that forests, shrubs, and vegetation generally act as partially absorbent media for radio waves passing over forest land areas.

He also made a study of aviation, then in its early stages of development. In 1908, Major Squier was the first passenger taken up into the air by the aviation pioneer, Orville Wright, in the latter's early form of airplane at Fort Myer. Twenty years later, the two men met in Washington to compare their aviation experiences; the first passenger thus comparing notes with the world's first aviator.

From the earliest days of the Wright brothers' flying machine Squier recognized the immense military importance of the airplane. A large part of his work as Chief Signal Officer was directed toward improving the range, power and effectiveness of this arm of the service as a separate branch of the military art. He succeeded in bringing the American military airplane into the front line of effectiveness during the World War. He foresaw that the bombing airplane would become a mighty engine of destruction in future wars.

In 1911 Squier was granted several United States patents for

transmitting telephone messages over cabled telephone conductors, using high frequency alternating current generation and the modulation of this impressed inaudible tone through the use of a microphone transmitter. This carrier frequency principle has since proved of great service in both wire and wireless telephony. Squier gave to it the name of "*wired-wireless*". This invention added greatly to his fame as a scientist and engineer. General Squier also contributed a number of inventions for military service, notably a "*quick-aid*" kit for Army and Red Cross first-aid work.

From 1912 to 1916, Lieutenant Colonel Squier was a military attaché to the United States Embassy at London, where he made a special study of European military aviation and where the British Army authorities gave him special facilities for investigation. He was a close observer of the British technical radio and aviation activities during the first two years of the World War. He furnished an extensive report to the United States War Department of these activities. The United States Ambassador to Great Britain at that time, Walter H. Page, wrote a glowing account in his memoirs of Colonel Squier's services in London. Recalled to America in May, 1916, Squier was put in charge of the United States Signal Service as Chief Signal Officer. He organized and administered the electrical communication service between the American Expeditionary Force in Europe and its base in America, using for that purpose electrical communication of all types by radio, cable, and wires. This service continued until two years after the war. He was raised to the rank of Brigadier General in 1917, and from May 20, 1916, to May 20, 1918, was in charge of the Army Air Service, later receiving the distinguished service medal (D. S. M.) for his services.

General Squier was technical adviser to the American delegation at the International Conference on Electrical Communications in Washington during 1920. In 1921 he represented the State Department at sessions of the International Conference on Electrical Communications in Paris, and in the same year was an expert assistant to the American delegation at the Conference on Limitation of Armament, held in Washington.

General Squier was notable for his swiftness of judgment, resolute courage, and earnestness of purpose. His wiry, erect bearing and purposeful demeanor marked him at once as a military officer. He was ever punctual and precise in all engagements, while cheerfully putting late arrivals at their ease. He used to say that one of the many gifts of radio to the world was the radio announcer's habit of broadcast punctuality, even to the extent of ruthlessly cutting off a broadcast in the middle of a word. General Squier was a hard worker, facing every task with cheerfulness and courage. He never married, but was a family friend in numerous homes. With the aid of his sister, Mrs. Mary Squier Parker, who survived him, he built a "country club for country people" at his birthplace, Dryden, Michigan, where he succeeded in giving summer country associations to many of his friends and fellow townspeople. The Club has daily drawn hundreds of persons during the summer months, for recreation in games, boating, swimming, and other sports. This Club was one of General Squier's favorite hobbies. After his retirement from the Army in 1924, he frequently spent his winters in Florida and the other seasons in Washington and Dryden. Wherever he went, General Squier brought brightness and enjoyed popularity. His staff was enthusiastic in its praise and esteem for him.

Numerous honors were bestowed on General Squier both in this country and abroad. He was a Commander of the French Legion of Honor, a Knight Commander of St. Michael and St. George in Great Britain, a Commander of the Order of the Crown of Italy, and a member of the Royal Institution of Great Britain. General Squier held membership in the National Academy of Sciences, the American Philosophical Society, and was a fellow of Johns Hopkins University. He also received an honorary degree from Dartmouth College. General Squier was a life member and fellow of the American Institute of Electrical Engineers. He received from the Franklin Institute, the John Scott Medal in 1896, the Elliott Cresson Medal in 1912, and the Franklin Medal in 1919.

He died at Washington, March 24, 1934, at the age of 69.

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