

National Register of Historic Places

## **MASSIE WIRELESS STATION**

2001

Massie Station (1907) is significant as an unusually early and complete example of an early 20\*-century radio station. The station was built by Walter Wentworth Massie, a pioneer in the development of radio both as a technological innovation and as a commercial enterprise. Constructed on the beach at Point Judith, Massie Station was one of a series of coastal radio stations designed to create a comprehensive system of ship-to-shore communication, one of the earliest successful attempts to make commercial use of radio. Though moved and now located on the grounds of the New England Wireless and Steam Museum, the building is remarkably well preserved. Further, it contains the full complement of Massie's radio equipment in its original locations and configuration, on its original table. This may be the oldest working wireless station extant. It is an extraordinary assemblage and an irreplaceable document for the history of communications.

Walter Wentworth Massie began experimenting with radio before the turn of the century during the decades that produced a burst of creativity in engineering for transportation and communication, a period when the development of radio was dominated by individuals who were both technological innovators and also entrepreneurs.

Massie (1874-1941) was a native of Providence, RI, the son of a banker. His experiments began in 1895. The existence of wireless effects had been known since 1877 when Thomas Edison discovered "etheric force."

Edison's wireless work was widely reported, as was the work of other pioneers such as Dolbear, Lodge, Hertz, Tesla, Popoff, and (after 1896) Marconi. Massie attended Mowry and Goff's School in Providence and studied engineering at Brown University and Tufts University.

In 1896, Massie joined the Providence City Engineer's office. At his house on Public Street, he continued to carry out experiments with wireless communication. His interest and competence in wireless were locally known, and he often gave lectures and demonstrations. It was a lecture in 1903 that led to Massie's move into radio as an entrepreneur. In March, Massie held a public demonstration of radio communication—he received messages in a lecture hall from a wireless set installed in an automobile outside the hall. His partners in the demonstration were employees of Lee deForest of New York. On the basis of the demonstration, de Forest was engaged by the management of the *Providence Journal* to provide radio communication between mainland Rhode Island and Block Island, so that a summer edition of their newspaper could be printed with up-to-the-minute news and the latest shipping observations. DeForest set up stations at Point Judith (in an existing house) and on Block Island (near South East Lighthouse), and in the summer of 1903 the *Providence Journal* published 49 issues of the *Block Island Wireless*, a small paper whose news was supplied via deForest's connection across Rhode Island Sound.

After a single season, however, the *Journal* was unhappy with deForest and abandoned the *Block Island Wireless*. Seeking to recover some of its investment, the *Journal* offered the management of the two stations to Massie. In the fall of 1903, Massie resigned from the City Engineer's office and began his career as full-time "wireless man." Operating the

Massie Wireless Company as a sole proprietor, he was now matched against other competing groups of stations, known as "systems," each headed by an entrepreneur who was often, like Massie, also an inventor and innovator, adapting and altering the stock of equipment necessary to send and receive messages. During the years between 1904 and 1912, Massie was a significant competitor.

Massie intended the two Journal stations to be the first of a network of stations that would provide ship-to-shore communications for coastal vessels. By early 1904, he had signed up the Fall River Steamship Line as his first client—he equipped their steamship *Plymouth* with wireless in March 1904. His installation on the *Plymouth* was located in a specially insulated stateroom, the sending and receiving apparatus arranged along a double shelf on two sides of the room, and including a recently patented oscillaphone detector. Establishing a pattern which he followed for the life of his company, Massie leased (rather than sold) the ship-board installations and hired the wireless operators who operated the radios.

As the *Plymouth* plied its daily passage between Fall River, MA, and New York, it passed well within the range of the Point Judith station, now identified by its call letters as "PJ," and operated by the Massie Wireless Company. The other shore stations within the *Plymouth's* reach were the U.S. Navy's Telefunken station on Goat Island, near Newport, RI, and the Stone Wireless Company's station ("PT") at the Brooklyn Navy Yard.

The *Plymouth* was not allowed to communicate with Massie's strongest competition, the coastal stations operated by Marconi, as this competitor maintained exclusivity, communicating only with ships with which he

had contracts (a policy that was later abandoned.) In 1903, Marconi had purchased Edison's patent for wireless communication and had added additional patented innovations. But Massie was also making innovations to the standard equipment.

Following the success of the *Plymouth* installation, the Fall River Line contracted with Massie in 1904 to equip all of the line's ships with wireless, the first steamship line to radio- equip every one of its vessels. With Massie's initial success, other contracts followed, including the Enterprise Line and the New England Steamship Company (whose *Pilgrim* was the first radio-equipped vessel to steam from Providence.)

The first Massie shore stations were the Block Island and Point Judith stations installed by deForest for the Providence Journal. The next to open in June 1904 was "WN," at Wilson's Point, South Norwalk, CT. Originally housed in a railroad signal shanty, "WN" was rebuilt in 1907. It was substantially more powerful than the first two stations and could communicate with the U.S. Navy's station in Key West. Massie installed station "HG" in Providence, on the roof of the Narragansett Hotel. Eventually Massie owned and operated several land stations (located, for the most part, near the busy northeast shipping lanes) and dozens of ship-board installations.

In 1907 Massie upgraded "PJ." To replace the house in which the station had originally been installed, he constructed the small building which is here nominated. Ruggedly built, it provided for living quarters for an operator and a radio room with views to the ocean on three sides. Its antenna tower was constructed of wood lattice, four feet square and 300 feet high; the original scale model of the antenna is still housed at "PJ." As there was no commercial electricity available at Point Judith, the

station was powered by a bank of Edison LaLande primary cells of 600 ampere hour capacity; in 1909, the station was run by a gasoline engine, and its power was listed as 2KW.

The first Massie station on the west coast, "IAA," was installed in 1908. The Massie Company had been contracted to install wireless on the Pacific Steamship Company's *President* as it was constructed in Philadelphia. Arthur A. Isbell conducted the installation, then served as operator when the *President* made its way around Cape Horn to San Francisco, to become the first Pacific coast commercial vessel outfitted with radio. On arrival, Isbell built Massie's first western station.

Apart from the operation of its own system of stations, the Massie Wireless Company made radio equipment and entire stations for contract clients, including the military. In 1905, Massie supplied eight sets of radio equipment to the U.S. Navy which installed them in stations on both the east and west coasts. In 1906, Massie had contracts with the U.S. Army Signal Corps, the Coastal and Geodetic Survey, and the U.S. Navy. He outfitted a number of stations in Alaska for the Signal Corps.

The company's manufacturing and management facilities were both located at 4 Market Square in Providence. Massie was an accomplished machinist, but the company's machine work was performed by German-bom Rudolf Demler. He worked at a four-sided bench, using an Ames lathe, a Burke drill press, and a Burke milling machine, all flat belt driven from a common AC motor. Cabinet work was made by a man named Goddard.

Massie made a number of innovations in radio technology; he was granted 20 patents between 1904 and 1909. Among the notable

inventions was his Resonophone receiver, which incorporates a butterfly condenser and two variable taps on the inductor. One of his most influential innovations was a patent combining a variable inductor and a variable capacitor, both activated with a single control. The arrangement produced an exceptionally wide tuning range. (In an apparent oversight, the U.S. Patent Office reissued a patent using this concept to Allen B. Dumont in the 1940s; in the same decade General Radio of Cambridge, MA—now Genrad—used the concept in a series of UHF wavemeters.)

In his methods of operation, Massie contributed to the development of operating standards in his fledgling industry. He published several articles on his special interest—the necessity for accuracy in measurement, especially in the determination of wavelength. In 1908, he co-authored (with Charles R. Underbill) *Wireless Telegraphy and Telephony*. He was one of the founding members of several professional organizations, including the Society of Wireless Telegraph Engineers and the Institute of Radio Engineers (now the Institute of Electric and Electronic Engineers).

In addition to the development of professional standards for the radio industry, Massie was a strong proponent of conservative and legitimate business practices. The early years of the industry were characterized, at least in part, by intense competition and get-rich-quick schemes featuring watered stock and decoy stations designed to attract capital and sell stock. Always conservative in his business, Massie incorporated his company in 1905; capitalized at \$100,000 (later raised to \$300,000), the company's stock was closely held.

By comparison, Massie's strongest competition, the United Wireless Company was capitalized at \$15,000,000, and issued stock freely.

Purchasing small wireless companies. United bought up a number of small companies and cut prices ruthlessly. In 1910 United went into receivership; new management sold off the unproductive stations and raised rates, but the industry as a whole had been damaged by the entire episode. Several of the company's officers were jailed for federal mail fraud, and the company's assets were purchased in 1912 for a mere \$700,000.

But while it operated, United posed a serious threat to small conservative companies such as Massie's. In 1909, Massie merged his company with three other small radio systems to form the Continental Wireless Company; he was named vice-president and chief engineer. But Continental operated only briefly before it too became the focus of a federal investigation. Massie was cleared and held blameless, but at least one of his new partners went to prison. He finally closed operations in 1912 and allowed his company to be absorbed by the American Marconi Company, which had just won a series of critical patent cases. Massie was apparently offered a position by Marconi, but declined and accepted an unknown amount for the assets of the Massie Wireless Telegraph Company.

With his business now gone, Massie became a noted yachtsman; he sailed a Rhode Island-built cruiser named *Maurence*, served as commodore of the Rhode Island Yacht Club, and as admiral of all Narragansett Bay yacht clubs in 1913. During World War I he was commissioned as a U.S. Navy officer, organized and commanded the Navy's radio school on Goat Island off Newport, and prepared the texts used at the school. Following the war, Massie became city engineer for

Cranston and did consulting as a radio engineer. He eventually retired to his son's farm in Massachusetts and died in 1941.

Massie's "PJ" station at Point Judith ceased wireless operations before the first World War. The building was purchased by a Mrs. Cunningham who used it as a Western Union land line telegraph station, handling market information for the nearby fishing village of Galilee until just before the second World War. The building was sold and used for several decades as a summer house. In 1982 it was given to the New England Wireless and Steam Museum, which moved it from the beach at Point Judith (where coastal zone regulations now prohibited structures) to its present location. The museum has installed Massie's equipment (the gift of his daughter-in-law and grandson) and table in the locations documented by early photographs and by physical evidence at the station.

The move of Massie Station was accomplished with minimal impact on the building itself. The building was re-oriented—its observation tower originally faced south to Rhode Island Sound; it now faces north. Chief engineer for the project Richard B. Hanson oversaw the move, which was performed by museum volunteers. Although the setting and orientation has been changed, Massie Station remains an important document in the history of wireless communication. Its unique circumstance allows original wireless equipment to be seen in the context in which it was created. This may well be the oldest operating set of radio equipment extant and is a remarkable testament of the earliest days of the telecommunications industry.



