

**The ARRL Board of Directors Historical Committee**

**The ARRL Heritage Museum Presents The Historian's View**

*Chapter 11, 07/01/2019*

**Atlantic Wireless Crisscross  
(Call Letters/CC: A Chronicle of the  
Initial US Transatlantic Station)**

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This is a sequel to detail one aspect of the saga of introducing wireless to America. The radio station of which we will speak no longer exists and very little evidence remains of its prowess. However, considerable memory exists of this facility which participated in the most significant wireless event of the early 20th century and convinced the world of the value of wireless.

As the 20th century dawned, The Marconi Radio Company of America (known as American Marconi) proceeded with the next major step in the creation of the transatlantic leg of the company, a global wireless network. The small initial stations in the United States were to be augmented by a transoceanic station on the east coast. It would complete a triangle with the existing station at Poldhu, England and another new installation at Glace Bay, Cape Breton Island, Nova Scotia.

The Cape Cod peninsular in the State of Massachusetts was an excellent site for the location of this new complex. The ocean bluffs near the town of South Wellfleet offered an unobstructed oceanic sweep to the east — a direct path to Europe and the mariners on the Atlantic and its fringes.

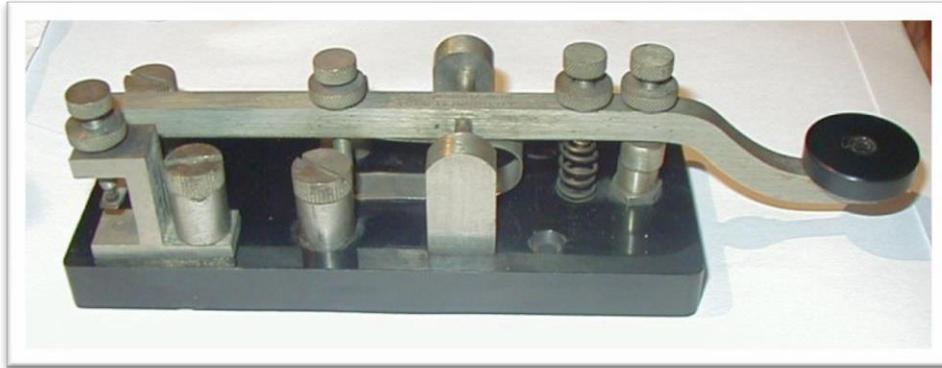


## Site

The north-south elbow of the hook-shaped Cape was comprised of sand cliffs of varying heights running for about 40 miles. Mid-way, a path from town that was to be known as Wireless Road, cleaved the dunes giving way to a flat plateau about 200 feet from the cliff edge and 40 feet above the sea. Eight acres of the plateau could be purchased for \$240. It was here, that the station buildings and antennas were located.

## Access

Materials for the construction of the station arrived at the docks or railroad station in Wellfleet. Transport to the site was achieved by town roads connecting with a sand trail between the dunes. The loads were borne by horse drawn wagons. Horses were also used to power construction lifting devices and tools.



Marconi Spark-Gap Key — Big Contacts

## **Apparatus**

The essence of the station was contained in three buildings: the power house, the transmitter house, and the headquarters. Foundations for these buildings and the individual heavy apparatus within were poured with concrete. As technology extended beyond 1902, the apparatus content of the two former buildings changed only modestly.

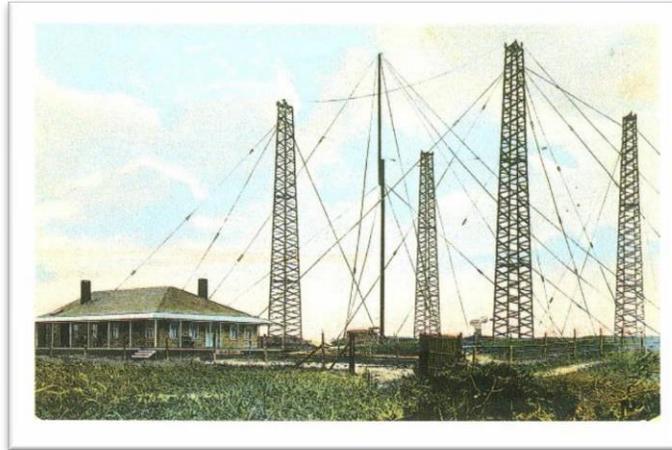
Initially, the apparatus was elementary so it remained. Power was generated by a 100 HP kerosene-fueled engine belted to a 50 kW 60-cycle generator, whose energy created a 50 kW, non-synchronous spark. As technology sped to the vacuum tube and transmission of continuous waves (CW) signals CC/MCC (and the first WCC) kept the airwaves alive with the unique buzz of its spark signals at 200 kc or 1500 meters.

## **Antennas**

The initial installation was spectacular. Masts supported an array of wire shaped as an inverted cone terminating at the top of the transmitter building. The 20, 200-foot masts were situated in a 200-foot circle. Each mast consisted of three sections spliced together at the intersections in military-style and was set in concrete and guyed to the ground and to one another, creating an enormous maze.



The world was experiencing the transition from sail to power marine propulsion. The station constructors had the good fortune to find local sailors who were adept at the intricacies of sailing ship rigging to string this elaborate arrangement. However, there arose a difference of opinion between the riggers and the designers. The engineers specified that the masts be guyed to one another; the sailors recommended that the masts each be guyed independently. The engineers prevailed and the entire structure collapsed in an early gale before the station was operational. The designing of a replacement antenna support system delayed the project but resulted in a superior, enduring system duplicated at other installations. (Ironically, an identical mast arrangement at Poldhu was also leveled by a gale several weeks earlier.)



Four towers were set at each corner of a 200-foot square backing on the cliff edge. Each was composed of wooden components bolted together to form a square 210-feet high, tapering 20 feet at the base and 8 feet at the top. The towers were embedded in concrete and the mariner riggers ran a system of steel guy wires featuring new concept isolation sections and strain insulators. Obviously of no great concern to the engineers, at the time, the base of the farthest tower was a mere 165 feet from the cliff edge.

The towers afforded the opportunity to experiment with various antenna configurations. Radiomen were becoming aware of the characteristics of wave polarization — horizontal versus vertical and directivity. The final set up at CC was a “Z” design which was omni-directional. This was consistent with the evolved principal mission of the station-wide range broadcaster of press.

## **Operations**

From inception in 1902 the station was heard well in the Atlantic and in Europe. In February of 1903, the US Marconi Company announced the occurrence of a momentous event — likely the most significant of the decade. Messages had been exchanged between CC and the sister station at Poldhu! This mistakenly became known as Marconi’s first wireless crossing of the Atlantic.

Although also engaged in handling ship-to-shore traffic, the station emerged primarily as a press broadcaster. Each day the content was received by direct telegraph from the *New York Times* in New York City and punched into transmission tape. The news was then broadcast, on schedule, at the same time every evening to those listeners utilizing receivers leased from the Marconi Company. Schedules were maintained for the reception of the press of *The Times* in London, coming west. The station was in service for more than 15 years.

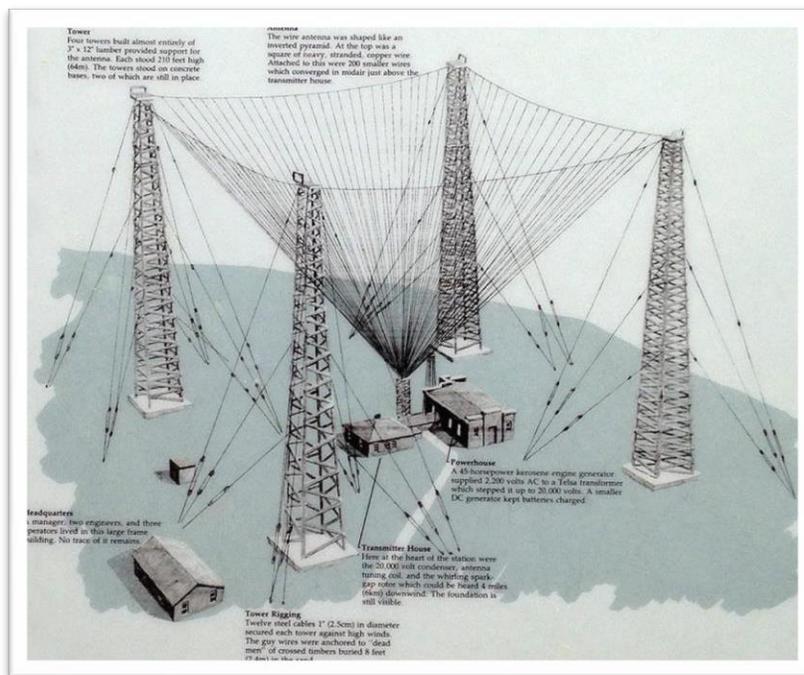
### **The Conclusion**

Time was not favorable to CC. Time measured the relentless waves eroding the cliffs, technology was moving rapidly, and a war was imminent. For over more than a century the supporting sand cliff which bore the station gradually eroded, exposing the station components to the relentless ocean waves. Where ocean waves still reign, radio waves once emanated.

The characteristic tone of WCC faded from the airwaves in April 1917 when the US Navy assumed control of all foreign wireless broadcasters and commandeered their stations. The buildings were stripped, and the towers toppled. The site was abandoned except for short stretches of military training utilization. That is, until 1961 when the entire 40-mile stretch of beach was designated as the Cape Cod National Seashore. Marconi Beach is a developed section of this park; however, little remains of this facility that surprised the world. The National Park Service erected interpretative signage and had built a pavilion to house a glass-enclosed scale model of the facility as it was. However, cliff erosion forced the dismantling of the pavilion recently.



Model under the pavilion at cliff edge.



National Park Service rendition of site.

US nationalism prevailed. After the war in 1919, coerced by the US Navy who had been controlling their operation from before the US entry into the war, the American Marconi interests were absorbed into the newly formed and patriotically named Radio Corporation of America (RCA).

Essentially, RCA was created by the amalgamation of the General Electric Company and

the Marconi Wireless Telegraph Company of America. The transaction was affected by an intricate exchange of preferred stocks and cross licensing agreements. All nine of the Marconi radio installations in the US — Massachusetts, New Jersey, California, and Hawaii — reverted to RCA. The pioneering achievements that America Marconi had made in the US were thus inherited by RCA and its succeeding communications entities, while the Marconi World Telegraph and Company of London went on to gird the world with wireless networks fulfilling the ambition of its namesake.

