The New England Wireless & Steam Museum

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New England Wireless and Steam Museum
East Greenwich, RI, 02818

Some Background

Sixty years ago the late William Slater Allen, W1LU, the late Selwyn N. Blake, K1CPW, Richard B. Hanson, Nancy A. Merriam, and Robert W. Merriam, W1NTE started this museum with two goals: first, to save radio history, second to save some of the rural character of East Greenwich, RI. Today the value of our collections is priceless - much of it to be found nowhere else. The museum has gained National Register status, and the neighborhood has been zoned an historic district.

From the first we planned no dependence on the taxpayer beyond our tax exempt status as an educational institution, 501 (c)(3). Our income comes from admission fees, rental fees, private and business gifts. As frugal Yankees we have been fortunate never to have suffered a deficit. One of the keys to this solvency is that volunteers run this place. We cater primarily to scheduled groups: clubs, schools, colleges, and professional societies. Annual events: like Yankee Steam-Up take place here. The museum's facilities can be rented for special purposes, club meetings, lectures etc. Weddings are popular in our 189 year old classic New England Meeting Hall. Reference: http://www.newsm.org/

The Museum presently comprises 5-buildings, see the panoramic picture below:

What the **Panorama Picture** calls the Radio Science Hall is what we call the Wireless Building. It is a little over 65 feet long. It is partially obscured by the open sided shelter over Marconi's de la Vergne oil engine, the mate of which powered MCC before commercial electricity came to Wellfleet. The Wireless building still extends farther to the right or west beyond the Massie Station, PJ, so that it is longer than it appears. The reproduction doesn't do justice to the color. It is actually barn red not brown. There are no mock ups in the original PJ station room on the second floor. It is all working real McCoy. Down stairs is what was originally a bed room are many rare artifacts such as a 2906 Vreeland push pull electronic oscillator which runs up into the tens of the kilohertz range using a double anode mercury arc tube, and a Swedish quenched spark gap transmitter licensed long after WW2.

Wireless Museum

In early days John H. Chafee was Governor of RI. He shared an interest in history and was one of the first officials to do something about urban sprawl when he enacted his "***Green Acres***" bill. John was with us on Oct. 3, 1964 to cut the blue ribbon opening the museum's first building, an adaptive reuse of Lucius Eldredge's 1924 cow barn. Dick Hanson VP, an engineer with the local power company, with maximum economy and skill had converted this barn into handsome display areas showing historic radio and pioneer wireless equipment. Dick arranged the central hall, formerly the feeding end of the cow stalls, into fifteen plate glass protected display cases which show such subjects as early telegraph equipment, early crystal and other receivers, later crystal receivers, Vance Phillip's detector collection, vacuum tubes from Fleming's valves and deForest audions up to the first commercial transistor, earphones, telegraph keys, Geisler tubes, Crookes tubes, pieces of Cyrus Field's Atlantic cable as well as the English and French Atlantic cables and antique electric measuring devices. There are also individual display cases devoted to such distinguished people such as Edwin Howard Armstrong, Hugo Gernsback, Reginald A. Fessenden, Thomas A. Edison, G. Marconi, Karl Ferdinand Braun, and Amos Emerson Dolbear.

Figure 1 Fall River steam boat Line radio room

Also in the wireless building is an alcove showing a mock up the wireless cabin of a Fall River Line steamer with authentic one KW Navy standard Kilburn and Clark quenched gap spark transmitter (a gift of the Harvard University WW I officer's wireless school), a Wireless Specialty Apparatus Co. IP 501A receiver, and all the other necessary station appurtenances a wireless cabin needed as required by law such as the ship's clock with the two three minute silent sectors marked in red at quarter of and quarter past the hour when transmission is forbidden and intense listening is required for weak distress signals, an antenna grounding switch with hanging handles in case of lightning to protect the cat whisker crystal detector's sensitive spot, a Pyrex bowl antenna feed through insulator, a wireless operator's cap which formerly belonged to the son of Amos Emerson Dolbear. High on the bulkhead is a bronze rimmed portlight. To the left is a 200 watt emergency quenched gap spark transmitter.

Beyond that is a Fessenden 100 fathom "Fathometer". Fessenden, while echo searching for icebergs on the Navy's ship Aylwyn, accidentaly heard and detected the bottom and coined the name Fathometer combining Greek and Latin roots which was a favorite way with him.

Figure 2 Reginald Aubrey Fessenden 100 Fathometer – Sonar (iceberg and water depth sounder).

Figure 3 Very Early/Early Electrical Apparatus before 1900.

In the north room of the Wireless Building a 60 foot counter shows a chronological display starting with early electrostatic apparatus some three hundred years old, such as a plunge battery and Benjamin Franklin's bells and continuing in time to about 1940. On the opposite wall there is an alphabetical display of broadcast receivers of the early twenties starting with Atwater Kent and running to Zenith.

At the east end there is a display of several TV scanning disks, one by National Co., and a complete scanning drum three stage TRF TV receiver made by the Short Wave and Television Co. of Boston.

At the west end of the central hall there is a working Morse line connected with four stations – two in the Wireless building and two in the Massie Wireless Station, the next building a few steps to its north.

Figure 4 John Belrose, hand on the key of an

original Massie Wireless Telegraph System.

The Massie Wireless Telegraph Station call letters: “PJ” is on the National Register of Historic Places. It was formerly on the exposed beach at Point Judith, R.I. And, although it had survived several hurricanes, being ruggedly built, the state wanted to tear it down as it did with other hurricane threatened buildings near it. This museum mounted a campaign to save it and with much enthusiastic volunteer help we moved it to its present site in 1993. It is the oldest surviving wireless station in the world, and it is complete with its original straight gap, 400 watt battery operated (Edison LaLande glass jar batteries) and its Massie Resonaphone receiver. Even the operating table is original. When the Massie Co. closed down in 1910 all of the original equipment had luckily been saved in the loft of a barn in Wrentham, MA. by the Massie family. These descendents of Walter Massie donated this priceless equipment to the museum and it has now been reinstalled to complete the exhibit.

The two rooms on the ground floor of the Massie Station were originally used as a kitchen and a bedroom. Now the former kitchen is a working amateur radio station largely assembled by Colin Leath, K1IXU. This includes classic amateur equipment from the 1920s onward – most of it is fully operational. It also includes a functioning set of Benjamin Franklin's electrostatic bells.

Figure 5 Bob Meriam, W1NTE, operating the museum’s modern amateur radio station.

The other ground floor room is named for former Museum Director Arthur Goodnow, W1DM. This room displays pre - 1920 wireless equipment including a 2 Kw Navy standard quenched gap spark transmitter, an extremely rare Vreeland vacuum tube sine wave oscillator made eight years before the Armstrong/Deforest squabble and capable of 10 or more kHz output, a WW1 French army gasoline engine electric generator for military wireless, an exact mock up of the steamer REPUBLIC'S wireless cabin in the winter of 1908 with its Leyden jars, dual coherer receivers and paper ink recorder. This station was assembled largely using authentic equipment from the museum's inventory by PBS for their program “Wireless at Sea” much of which was filmed here.

The left bulkhead of the REPUBLIC'S wireless cabin was stove in by the bow of the Florida. With heroic effort Marconi operator, Jack Binns, patched his equipment together and succeeded in getting help which saved the lives of hundreds of people, about as many as were lost on the TITANIC in 1912 (see Appendix).

The third Wireless Building here is twenty feet to the east of the Massie Building. It houses a working de la Vergne 1895 single cylinder oil engine of the exact type Marconi used to power his Wellfleet wireless station, MCC.

Wireless Library

To the northwest of the museum's wireless buildings is the museum's extensive wireless library in the newer, climate controlled basement of the museum's 1822 neo classic Meeting Hall. This building looks eastward over an open field. The wireless library holds more than 4000 volumes of private collections such as the Lloyd Espenshied's, Arthur Goodnow's, Thorn Mayes', R. W. and Nancy A. Merriam's, and many others.

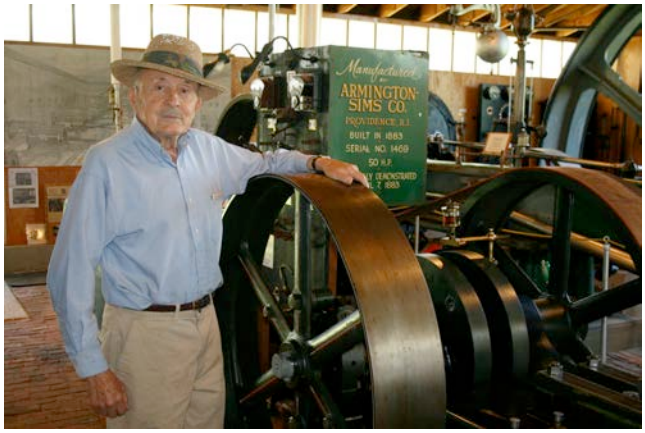

Figure 6 Bob (top) and bottom (Armington Sims Co., Providence, RI, steam engine, built in 1883) in the Steam Engine Heritage room.

Steam Museum

Governor John H. Chafee came here again in 1972 to cut another blue ribbon opening the newly built Steam Building which volunteers had built to house Rhode Island's world class but fast disappearing stationary steam engines. Rhode Island was once the stationary steam engine capital of the world, and The George H. Corliss Co. was the world's largest and most famous. The steam building is filled with rare large and small steam engines, and all are piped in an insulated pipe underground to a large boiler outside. Also all engines have been skilfully restored to run automatically at reduced governor controlled speed. Included is the city of Hartford, Ct.'s first power plant with its Providence made 1882 Armington & Sims engine and its Thomson Houston (the predecessor of General Electric) generator. After all these years it still lights the steam buildings lights. This Museum has been designated by the American Society of Mechanical Engineers as their Fourth International Heritage Landmark Collection. It wears a bronze plaque outside saying this.

This hardly begins to tell the story of the high adventure of volunteers who traveled to far places extracting, moving, and re-erecting thirty thousand pound machines of Rhode Island's steam genius and manufacture.

The Mayes Building

A sixth building was needed for a museum office, a kitchenette, a mechanical engineering library to hold more than 2,800 volumes, and also the huge collection of original engine drawings of Rhode Island steam engine manufacturers. The late Thorn and Lygia Mayes left a bequest making this possible. Rightly this new building is called the Mayes Building. Thorn's book, a classic on the history of early United States wireless Companies, is available here for $49.95.

A grant from the Rhode Island Champlin Foundations has made possible a new work shop building with machine tools, air compressor, automatic oil fired boiler, etc.

Today the New England Wireless and Steam Museum is a crown jewel of this town and state. Its importance is recognized internationally. Its collections include historic items found nowhere else, many of which probably would have been eternally lost without this museum's vision and effort.

Appendix

The most dramatic event of early wireless history at sea was the loss of the *Titanic*. She struck an iceberg on 14th April 1912 (100 years ago in 2012), when on a northern great circle route to beat the record of a transatlantic crossing during her maiden voyage. The New England Museum of Wireless and Steam remembered this event “Sparks – Titanic an Safety’’ in their Bulletin, dated Spring 2012. The *Carpathia*, one of the rescue ships, heard the wireless operator, Jack Phillips, of *Titanic,* calling CQD and SOS at 11:20 PM. The ship’s operator answered immediately, but it was not before daybreak that the *Carpathia* could reach the scene of the disaster. The last communications from the *Titanic* was at 01:25 AM on 15th April: ”we are firing rockets”, but there was no sign of a response after that brief terse message, The *Carpathia* was able to save 750 survivors, 1500 souls went down with the ship.

There were some bitter lessons to be learned from the disaster. Several ships within radio reach did not know of the disaster, because they had no wireless. More distressing still was the story of the *California*, a small passenger vessel, also westbound, and in the evening hours of the 14th was only 31 km away. The Captain of the California had encountered the ice field, and her wireless operator sought to notify the *Titanic*, but the operator on the luxury ship was at the time exchanging messages with Cape Cod (a Marconi station, and the *Titanic* was using Marconi equipment). He told the operator of the *California* to “shut up”, and keep out of the conversation.

The California was hove-to on the evening of the

14th of April, because of the danger of floating ice. But the Captain of the *Titanic* held his ship at full speed, 22 knots, because icebergs or no icebergs, his ship was unsinkable. The operator of the California, shortly after this brief unpleasant exchange, went to bed, after all he had been on duty for 16 hours, and the nearby presence of the Titanic with her powerful ship's wireless, made it impossible for him to use his wireless equipment. It was not before 4 AM, when he resumed duty that he learned of the awful disaster.
John S. Belrose. Technical Editor, The Proceedings of the Radio Club of America (Reference History of Wireless, editors Tapan K. Sarkar, et. al., John Wiley & Sons, 2006, p 406).