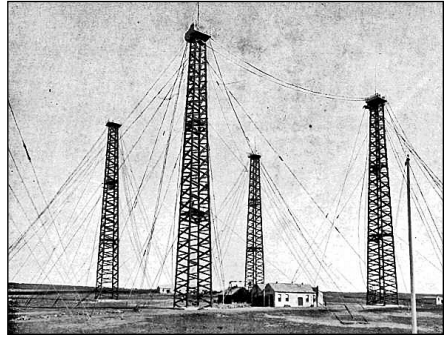


BY MICHAEL W. MARINARO, WN1M

ORIGINATION — WIRELESS COMES TO AMERICA

Signor Guglielmo Marconi (1874-1937) achieved many “firsts” during his career as physicist and world-esteemed inventor. The conduct of the *first* two-way wireless message exchange between the U.S. and Europe was accomplished from the major Marconi station, CC, erected at South Wellfleet, Massachusetts. This particular achievement in early 1903 received great notoriety. But, contrary to common belief, this station at Cape Cod was not the very *first* Marconi wireless installation in the United States or on the North American continent.

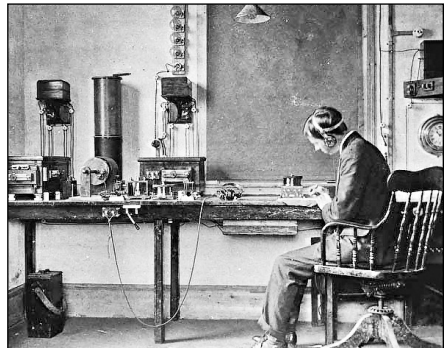
In 1895 Marconi began to engage in serious experimentation to perfect his discoveries to generate and detect electromagnetic waves. Efforts to interest the Italian Government were not successful and Marconi brought his concepts and models to Britain. A favorable reception led to the formation of The Wireless Telegraph and Signal Company, Limited, in 1897. This organization supported both Marconi’s continuing experimentation and the initial objective of communication with ships at sea. The latter endeavor was eminently successful as wireless signals reached farther and farther around the British Isles and to France with excellent reliability. The enterprise was commercially successful as well, with the number of coastal shore and shipboard stations increasing and revenues growing. By the end of 1904, the Company had sixty-nine land and twenty-four ship stations in operation. The value of wireless communication was widely accepted in Britain and the



Poldhu Towers.



Poldhu Towers, station and hotel.



Poldhu operating position.

AUTHOR’S EMAIL: WN1M@MSN.COM



The kite in the wind—Marconi second from right.



Cabot Tower.

scope of activity widened.

With domestic acceptance ever-increasing, Marconi's attention was drawn to bridging the Atlantic, and, significantly, to communicating with the ships that sailed thereon. His evolving goal was transatlantic communications. A number of events, some occurring simultaneously, were to contribute to the achievement of this aim and to the introduction of wireless to the North American continent. The western sites selected were in Canada at Glace Bay, Cape Breton Island, Nova Scotia; and in the United States on the shores of Long Island, New York and the state of Massachusetts. But, first it would be necessary to establish a base station in Britain to anchor the eastern end of the endeavor.

Britain

The site for the world's *first* permanent great wireless station was selected for its westernmost location and nearness to the New World. The headlands overlooking Poldhu Cove in south-western Cornwall were ideal and in 1900 work began there and at a complementary monitoring and domestic coastal service station six miles distant at The Lizard. Initially Poldhu was configured with a 25 kilowatt spark gap transmitter and an aerial consisting of 60 wires strung fan-wise between two 170-foot masts—unique and extraordinary for the time!

Canada

S (...) was the Morse code letter that Marconi used to preface and identify his experimentally transmitted signals. It was this letter, repeatedly sent from Poldhu, that Marconi monitored at Signal Hill, St. John's Newfoundland in 1901, even as the Poldhu works neared completion. Anxious to prove his theories, Marconi had sailed to St. John's with his team, receiving gear and a long antenna wire which was to be lifted aloft by helium balloons or kites. He awed the world with the news that he had heard the signals, on a kite-supported 600-foot aerial, from a distance of 2,200 miles over the Atlantic.

Marconi set out to prove that two-way commercial service could reliably span the Atlantic. Steps were taken to establish a permanent installation in Canada, and a site was selected with the cooperation and support of the Canadian government. Not unlike



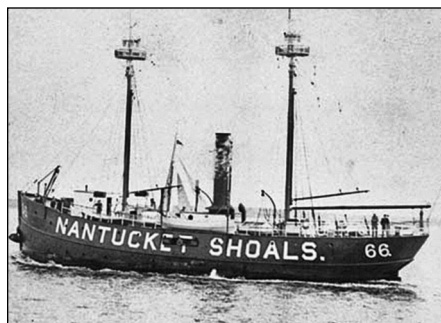
Transatlantic wireless station at Table Head, in Glace Bay, Nova Scotia.

Poldhu, the site was atop a cliff-hung headland, Table Head, on Cape Breton Island, in the province of Nova Scotia. Similar in layout to Poldhu, the new station was more powerful and utilized a unique vertically polarized antenna with four hundred wires forming a cone. The station became operational on December 14, 1902 when messages began to be exchanged with Poldhu. This inaugurated the *first* regular transatlantic wireless service. In 1905 this facility was dismantled and moved to a larger site, five miles to the southwest. Known today as the “Marconi Towers,” the giant station utilized an enormous horizontally polarized antenna with highly directional radiation characteristics.

United States

While the foregoing events were evolving, Marconi and his teams were concurrently establishing wireless on the U.S. east coast. Their first effort afforded sea-to-land communication. The *New York Herald* newspaper contracted with the Marconi entity to furnish news of shipping transiting the sea lanes off Nantucket Island. Two stations were equipped with current design two-way equipment and antennas—one in the town of Sconset (Siasconset) at the east end of the island and the other aboard the *Nantucket Shoals* lightship, at sea 42 miles southeast of the island. Service began in mid-1901. Reports received at the island station, call letters MSC, were relayed via telegraph undersea cable and the land pole telegraph system to the newspaper’s offices in New York. Approximately 250 vessels transited these sea lanes daily and the knowledge of passing vessels was of both commercial and social value. As passing vessels became equipped with on-board stations, they were able to directly engage in two-way communication with the island station.

But, neither Nantucket nor Long Is-



The Nantucket Shoals lightship.



Contestants in 1899 Americas's Cup Race—Yachts Columbia and Shamrock.

land was the absolute *first* U.S. location of Marconi wireless activity. Both locations could be termed temporary stations as they were shortly superseded by major transatlantic stations—Glance Bay and Cape Cod. Another temporary station was the actual *first* instance of wireless being generated in North America.

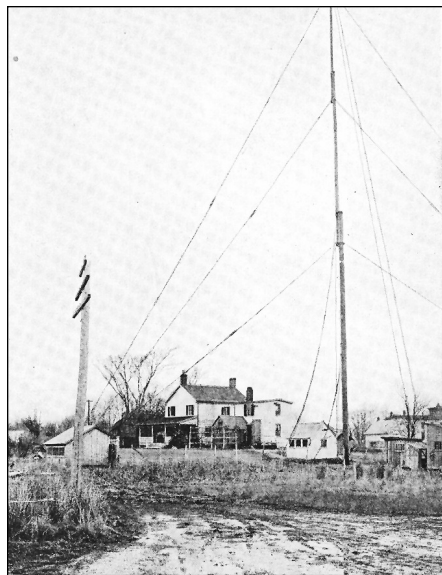
As mentioned previously, at the close of the 19th Century, Marconi’s short range demonstration transmissions in Europe had begun to dispel skepticism. However, his “space telegraph” was still considered a novelty and was not well recognized in North America. In the late summer of 1899 Marconi set out to gain publicity for his invention. He sailed to New York City and established a syndicate with the major newspapers there. He was to report the conduct of the America’s

Cup yacht race, to be held in September in lower New York harbor off New Jersey's Sandy Hook. His receiving station, with linkages to telegraph and telephone lines, was situated in a signal tower on the shore. The yacht *PONCE* was fitted out with appropriate antennas as the transmitting station. From this vessel Marconi, with yachtsman-like precision, personally keyed in 1200 messages describing the sailing duel between the *Columbia* and *Shamrock*, moment by moment. The reporting of the event was flawless and created a sensation. Wireless had come to the North American Continent and was received most positively. The Marconi Wireless Telegraph Company of America, popularly known as American Marconi, was incorporated in New Jersey on November 8, 1899 as a subsidiary of the British company. The Marconi Company immediately began to scout for temporary and permanent station locations along northeastern U.S. beaches. The non-permanent stations were to serve as local, limited distance, shore-to-sea messaging facilities with integral, operator training schools. Two such posts were in operation by 1902 at the towns of Sagaponack and Babylon on the south shore of Long Island, New York.

While the two lesser Long Island locations were coming on the air a permanent U.S. transatlantic class station was sited on the desolate bluffs of Cape Cod, near the town of South Wellfleet, Massachusetts. Larger in design and scale, Cape Cod was to complete the *first* transatlantic circuit linking with her sister stations at Poldhu and Glace Bay. Consequently, this was the station from which the *first* two-way wireless communication was accomplished between the U.S. and Europe. This event was so broadly publicized that it became popularly known as the very *first* actual wireless activity within the U.S.



Signage at Babylon, Long Island, on site of station.



Babylon, Long Island station—with radio shack at base of 210 foot mast.

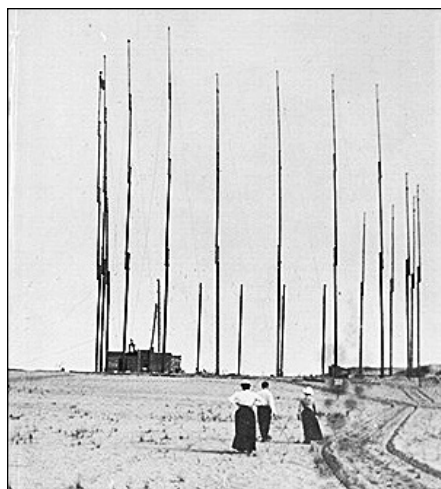


Sagaponack, Long Island station.

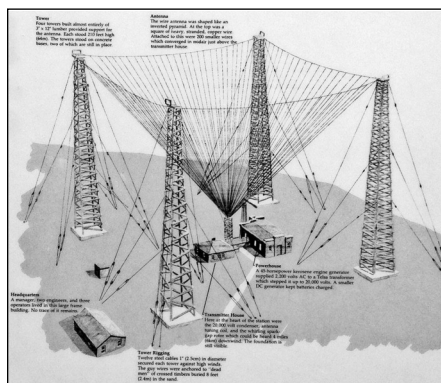
The detailed drawing prepared by the U.S. National Park Service (right, bottom photo) illustrates the station arrangement upon completion in February, 1902. The major components are the three buildings and the four 210-foot wooden towers. The original pole antenna arrangement shown in the earlier image was destroyed in a storm before the station came on the air. Poldhu had suffered a similar antenna loss about the same time. It is worthy of note that the towers were set on square concrete slabs—the bases of the most easterly two towers set about 165 feet from the edge of the bluff.

The station began transmitting on 1500 meters using the call letters CC. A spark of 20,000 volts was created—a spark so powerful that it could be heard in the neighboring village. The station was linked directly by telegraph line to the local main land line telegraph station in the town of South Wellfleet and beyond that to the *New York Times* newspaper office in New York City. Messages to be sent by radio transmission were received in this manner and likewise messages received by radio were so dispatched for delivery. Additionally, daily news stories, primarily from Boston and New York, were accumulated and condensed into a newspaper format, punched into a paper tape, and transmitted to ships at sea three times each night on 1500 meters. Ocean liners such as the Cunard Lines RMS *Lusitania* and RMS *Mauretania*, subscribing to the service, presented their passengers with a ship-published newspaper the following morning. This news service was a main activity of the station throughout its existence.

Shortly after the station was in full operation a momentous exchange of messages took place from the station. On January 18, 1903 a message was successfully sent by CC from President Theodore Roosevelt addressed to King Edward VII. The message was received



CC Under construction—first antenna mast arrangement.

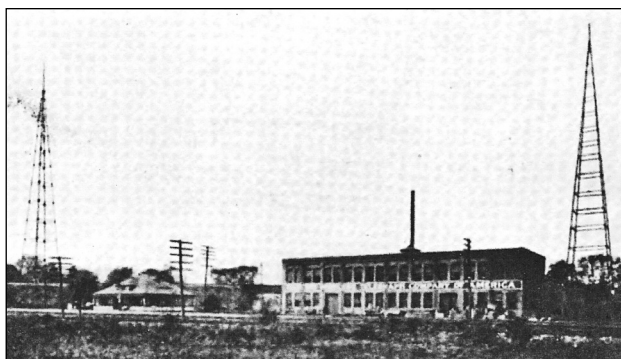


U.S. National Park Service waymarker exhibit—original layout of Marconi station.

by ZZ at Poldhu and a response from the King, then residing at Sandringham House, was received in turn at the Cape Cod station. It is purported that Marconi, who was in attendance at the station, actually keyed in the message. This was the *first* instance of a two way U.S. transatlantic communication and the first wireless telegram exchange between the U.S. and Europe.

Subsequent technological advances lead to the use of short wavelengths and the demise of spark gap transmit-

ters. These developments, combined with the forces of nature evident in the rapidly eroding cliffs, doomed the long-term existence of the South Wellfleet station. In 1908 the call letters were changed to MCC “Marconi Cape Cod” and in late 1912 or early 1913 the call letters were changed to the final WCC.



New Brunswick station—early.

By 1910 operations had begun from two new Cape locations. A receiving site was situated at sheltered Chatham, Massachusetts at the “elbow” of Cape Cod, 34 miles south of Wellfleet. To reduce overloading of the then poorly selective receivers and to permit simultaneous receiving and transmitting, the transmitters were sited separately at a location forty miles west in Marion, Massachusetts. The two sites were linked by telephone and telegraph.

American Marconi established two additional major stations in the U.S. in 1913 and 1914. Both deployed in pairs to operate in duplex fashion. One was constructed on Cape Reyes, California with the transmitting station KPH at Bolinas and the receiving site at the town of Marshall. The second, an enormous state-of-the-art facility, was situated in New Jersey, with the transmitting site in the town of New

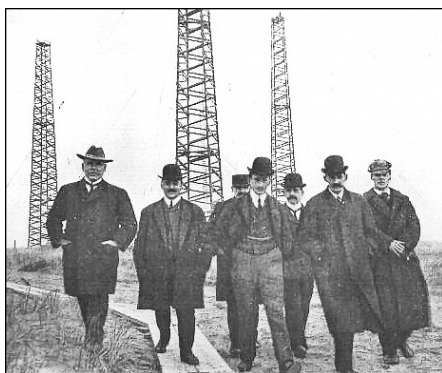


Boys in downed South Wellfleet tower after 1920 abandonment.



Above: Following abandonment, erosion claimed the tower bases. Right: Tower base remnants in 2009; nothing remains today.





Marconi and his associates leaving the wireless telegraph station at South Wellfleet, Massachusetts.

Brunswick, and the receiving location at Belmar.

The last of the great facilities, New Brunswick, was the most technologically advanced. By 1918, after four years of experimentation and progressive improvements it included a mile long receiving antenna, a 5000-foot long transmitting array supported by eight 400-foot masts and by midyear an Alexanderson alternator transmitter with an output power of 200 kilowatts at 17 kHz (17,500 meters).

The United States entered the World War on April 7, 1917. After a partial failure of transatlantic telegraph cables, the New Brunswick facility, which was the best foreign commercial installation on the U.S. mainland, was appropriated by the Navy in January, 1918 to provide vital transatlantic communications. New Brunswick Naval Radio Station became the principal wartime communication link between the United States and Europe, using the call sign NFF.

American Marconi disappeared as an entity when the U.S. Government, at the urging of the Navy and citing national security concerns, legislated that all commercial wireless operations be conducted by domestic firms. After the war, in November, 1919, Marconi sold its American radio as-

sets. Ownership of the New Brunswick station, along with American Marconi's other U.S. stations, was transferred from the Navy to General Electric Corporation's newly formed Radio Corporation of America. On November 20, 1919, American Marconi effectively became the Radio Corporation of America. Edward J. Nally, American Marconi's former vice-president and general manager, became RCA's first president.

The South Wellfleet facility had ceased operation in 1917, was dismantled in 1920, and then abandoned.

Over a period of eighteen years Marconi, together with his associates and colleagues, had built phenomenal transoceanic stations on both U.S. coasts and in Hawaii. These stations maintained regular communications with Europe, Hawaii and Japan and

Marconi Wireless Telegraph Company of America



World Wide Wireless Spanning the Atlantic and Pacific

Public message service is
now in successful operation

**AT GREATLY REDUCED RATES BETWEEN
AMERICA, GREAT BRITAIN
JAPAN, HAWAII, ALASKA**

**Universal communication with ships at sea
Commercial office—42 Broad St., New York**

**Builders of every type of Wireless Apparatus
Works at Aldene, New Jersey**

**School of Instruction for Operators—
25 Elm St., New York**

**John W. Griggs, President
Edward J. Nally, Vice-President & General Manager
George S. DeSousa, Traffic Manager**

**Executive offices
WOOLWORTH BUILDING, NEW YORK**

1917 American Marconi Wireless advertisement.

were the initial links in the wireless chain which was envisioned to gird the globe.

A world circling chain was indeed subsequently created by the British parent firm Marconi Wireless and Telegraph Company. Promoted by the British

"But, I too am but an amateur."



government, the system, completed by 1928, became known as the *Imperial Wireless Chain*—linking the countries of the British Empire. RCA, in competition, concurrently created its own worldwide network. Marconi had brought the marvel of wireless to America and a grateful enhanced world.



CLASSIFIED ADS

Old-time ads are free to members collecting and restoring equipment for personal use. The AWA Journal classified ads are also available for browsing in the "AWA Journal Online Edition" on our Internet website (www.antiquewireless.org). Please observe the following:

*(1) include as SASE if acknowledgement is desired; (2) material must be more than 25 years old and related to electronic communications; (3) give your full name, address and zip code; (4) repeats require another notice (we are not organized to repeat automatically); (5) the AWA is not responsible for any transaction; and (6) we retain the right to reduce an ad's size if over seven lines. **Email all ads to: David D. Kaiser, Editor at: ddk375@frontiernet.net or send mail to David D. Kaiser at 375 Yarmouth Road, Rochester, NY 14610.***

FOR SALE — GENERAL

Capacitors — paper in oil (PIO) and very high voltage ceramic. Some new, most are used, none leaking. PIO caps .5, 1, and 2 uF @ 330VAC/400VDC or 600VDC \$1.00 each; 2, 3, 4, 6, 8, or 10 uF @ 600/1000 VDC \$2.50; .001 - 15 uF (1500V+) quoted on request. Shipping extra. Email or call me with your needs. Bill Tomkiewicz, Tel. 585-889-1208 or email at inter1@rochester.rr.com.

TEKTRONIX 453 dual trace oscilloscope. \$150 or best offer plus shipping. Terry Turner, 320 Dakota Dunes Blvd., Apt. 208, North Sioux City, SD 57049. email: turner185@outlook.com.

COLLINS 75S1 receiver, ser. # 2555, winged emblem. Works well. Modified w/documentation to sub 6AQ5 AF output for 6BF5, easily reversible. \$325 firm. Collins 312B-4 station control, ser. # 71525, round emblem. \$125 firm. Cash or MO, pick up only. Gil Gianetti N1FEB, P.O. Box 1023, New London, NH 03257. email: owls@tds.net.

SHURE BROS. Model 520-SL controlled-reluctance desk mike w/push-to-talk & PL-68

connector. Used w/Collins sets. Well used, working condition. \$40 firm, cash or MO only. Gil Gianetti N1FEB, P.O. Box 1023, New London, NH 03257. email: owls@tds.net.

DRAKE TR-22 portable transceiver. Complete w/Drake accessories, working, but needs restoration. Free to a serious restorer. Barry Keyes / W1GSO, Tel. 860-379-2505 evenings.

WANTED — GENERAL

Hickok 435 Power Supply information/schematic. May be listed as either Hickok Teaching Systems or Stark Teaching Systems. Marvin Moss, Tel. 770-429-0314, email: mmoss@mindspring.com.

Sargent radio model 51MK schematic, manual or any other information. Built by E. M. Sargent, Oakland CA around 1938-39. Tom Harris, 3989 Bodega Ave., Petaluma, CA 94952. Tel. 797-364-5222, Fax 706-763-3353, e-mail: Pearsrepairs@hotmail.com.

Wanted: Radar hardware and information from the early days (1920-1945) including proximity fuze technology. Dean Faklis, NW2K@arrl.net, P.O. Box 74, Springwater, NY 14560.