

FESSENDEN'S 1906 CHRISTMAS EVE BROADCAST

It does not matter what three US radio historians have said

There is no controversy the broadcast was made

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December this year 2006 is the 100th anniversary of the first wireless broadcast, Reginald Aubrey Fessenden's 1906 Christmas Eve broadcast from Brant Rock, MA, to ships on the North and South Atlantic Ocean. 1906 was also the year of Fessenden's most significant wireless communications accomplishments. His Christmas Eve broadcast certainly should be remembered, and it was, world wide, by the BBC, by US Broadcast stations (particularly by WATD-FM, Marshfield, MA), and by radio amateur groups, particularly two groups of amateurs, on the west side at Brant Rock, MA, and on the east side at Machrihanish, Scotland.

However there are apparently (even today) historians who wonder whether the Christmas Eve broadcast was made. Halper and Sterling [A] and O'Neal [B] have recently written (in the centennial year) papers that question whether the broadcast was in fact made (on Christmas Eve). In my view there is no doubt that it was made. Edward Perry [C] has the right view on this event --- viz. that Fessenden never pursued the concept of broadcasting. The tenor of the time was point-to-point communications. He certainly never realized until much later that there would be a broadcasting industry. The concept of instantaneous broadcasting simply did not exist then.

Fessenden himself never said he did what he did until 29th January 1932, his letter written to Sam Kintner (see a copy of that letter below) --- excepting for a personal letter he is said to have written immediately after the broadcast, to Minden Cole, the company secretary of the Fessenden Wireless Telegraph Company of Canada, on St. James Street, Montreal, QC [D]. Why did Fessenden take so long to tell us the story? He never got around to it. He was satisfied at the time that his show-and-tell demonstration on 21 December, 1906, had been adequately observed and reported. He never got around to telling us about his Christmas and New Year's Eve broadcasts until much much later. When, prompted by Kintner's letter of 9th January 1932, he realized (perhaps earlier) what he had done.

Was the Broadcast Made??

The first published reference (according to reference [A]) to the Christmas Eve 1906 broadcast was given in a lecture presented at Harvard in 1928, by H.P. Davis, Vice President of Westinghouse: *"Attempts have been made, and some successful results have been accomplished prior to the World War, in adapting telephonic principles to radio communications. Fessenden, probably the first to attempt this, broadcast a program on Christmas Eve 1906"*.

Davis obviously became aware of this fact at a final litigation hearing. On 31 March 1928 Fessenden won an out of court settlement (of half a million dollars or more) from the Radio Corporation of America. RCA had long since acquired Fessenden's patents. Sam Kintner, who was one of Davis's management colleagues at Westinghouse, certainly learned about the broadcast at that time. Kintner (belatedly) wrote a letter (dated 9 January 1932) to Fessenden, querying detail about the broadcast(s) he made, and fortunately Kintner did. Fessenden's reply to this letter dated 29th January 1932, finally said in detail what he did.

There are (apparently) concerns about that letter, expressed by the three US historians:

- 1) that Fessenden was old when the letter was written (Fessenden died on 22 July, 1932) --- O'Neil has even told us that he was on his death-bed (!!!); and
- 2) that it was not published, it was a personal letter, and, apparently, Christopher Sterling [**private communications, 2006**] is concerned that all we have is a "copy"(??). But the content of that letter re the Christmas Eve Broadcast was published (see below).

Concerning the comment that Fessenden was old when the letter was written (implying perhaps a fault in memory or an invention in later years) is a discredit of Fessenden and his family. The letter is very clearly written (the letter is copied below), and it gives in detail what he did. It was probably typed by Helen who had witnessed the broadcast, and she clearly had very detailed notes in her diary. And, while Ken their son, who also witnessed the broadcast, was young at the time, he certainly knew what his father did. While Ken may not have seen the letter at the time it was written, he certainly helped his mother Helen write her book [E], in which with reference to the broadcast says what Fessenden himself said he did.

What Fessenden wrote in this letter was published by Sam Kintner. On receiving Fessenden's 29th January 1932 letter, Sam accepted the fact that the broadcast was made, and included this information in a talk he gave on 7th April 1932, at a joint IRE and AIEE Meeting in Pittsburgh, entitled *"Pittsburgh's Contribution to Radio"*; and his paper was abstracted and published in QST, July 1932, pp. 31-33, p. 90. There were many pioneers alive then who could have said that the broadcast was not made, if anyone thought it was not, but no such letter was written. On the other hand no one said that it was made --- the broadcast just became an accepted fact.

Who might have heard the Broadcasts?

In O'Neil's article a great deal of weight is given to the fact that an avid radio listener, Francis Hart, who resided at Sayville, NY, 257 kilometers distant, did not log hearing the broadcast --- but we wonder about the sensitivity of his equipment, since Brant Rock to Sayville is an over-land path. And it should be noted that there were enthusiastic wireless listeners in the Marshfield, Brant Rock, Plymouth area who claim (but not in writing) to have heard the broadcast [**Dave Riley, AA1A, private communications, 2006**].

There are relatives of Adam Stein (one of Fessenden's staff at the time, who spoke during the New Year's Eve, 1906 broadcast) still living in the district. His son Adam IIIrd, now deceased, was a friend of Dave Riley, and his recollections of his father's work was in agreement with Helen's 1940 book --- which is almost identical with the words written about that broadcast in Fessenden's 1932 letter. While we have no written proof for this fact, it should be noted that a Marshfield newspaper report, written by Alice Cox, entitled "*Ham radio enthusiasts honor a pioneer*", published on the day of the 75th Anniversary of the 1906 Christmas Eve Broadcast, noted that Adam Stein IIIrd was one member of the amateur radio group remembering the anniversary of the broadcast. Adam Stein's granddaughter Lucy Cushman lives in the area, and his grandson George Stein lives in Virginia.

And, Dave Riley's old friend Harold Mansfield from Plymouth, who was a boy in 1906, continually 'haunted' the transmitter site. Harold vouched for the 'broadcast' and was a tireless radio history collector and radio 'junk' dealer. And, Arthur Donovan, W1HM, claimed, according to Riley (private conversations in the early 50s) to have copied the 'broadcast' and other traffic from station BO. But Harold and Arthur are no longer with us.

Dana Blackburn, N1EWA, lives in the house Fessenden used for an office. Dana is the son of Brad Blackburn who according to Dave Riley had (in 1967) records and clippings of the 'broadcast'. It was Brad's father who leased the land to Fessenden where the tower base sits (rebuilt today).

Dave Riley who is an enthusiastic Fessenden supporter, like me, lives in Marshfield, and has met and spoken with people, as I have said above, who were in Marshfield at the time, see his On-Line WEB Site: <http://radiocom.net/Fessenden/>

On the View that the Broadcasts were Made

Robert (Bob) Merriam, W1NTE, Director New England Wireless and Steam Museum, East Greenwich, RI, recalls [**private communications, 2006**] that on November 4th, 1966 he got a letter from the Marshfield Historical Commission inviting him



to the dedication of the bronze marker to be done on November 19th. This letter said that the plaque was presented by the Broadcast Pioneers and the Massachusetts Broadcast Association. Joseph M. Glynn, Secretary, said they would be honored if he would attend and say a few words. He recalls he spoke about the Station BO, and (naturally) the Christmas Eve broadcast. Mrs. Adam Stein (the wife of Adam Stein) was in the audience near the front, and she thanked him for his remarks. He had a short pleasant conversation with her. She took no issue with anything he said. He remembers her distinctly, because she was a very distinguished lady in a full length mink coat.

Bob Merriam is quite possibly the only person alive today who had more contact with people related to or associated with Fessenden himself than any other living person. In Bermuda he knew William (Will) Zuill (see reference [F] and discussion below). Bob and his wife Nancy visited Will in 1954. Bob recalls that among other things they spoke about the broadcast. There was not a trace of doubt in Will's conversation that the broadcast was made. Bob and Nancy stayed in Frascati House where Fessenden lived while teaching at the Whitney Institute. They had tea in Fessenden's house in Flatts Inlet, as guests of Helen Fessenden's sister. They were shown Fessenden's workshop, and Bob was given his personal soldering iron as well as the room telegraph used to summon the maid. They saw the carpet on which Fessenden stretched himself out flat on his back with his cat. Helen had said he did his best thinking this way.

There are no directly related members of the Reginald Aubrey Fessenden family living today. The closest connection we can come to (with respect to a paper giving detail on the broadcast) is that written by William S. Zuill [F]. This writer's grandfather married Eliza Trott, Fessenden's wife Helen's elder sister. Zuill wrote about the broadcast in his overview paper. He wrote, as we have noted above, "that no one saw the broadcast as a paying proposition at the time. The demonstration was merely intended to publicize NESCO's capabilities. Selling point-to-point communications remained the company's goal (at least Fessenden's interests). Unfortunately, an economic panic the next year (1907) hurt its prospects and conflicts between Fessenden and his backers continued ----."

Note added in latest revision of this article: The Bermuda *Royal Gazette Ltd.*, on 23 December 2006, published a report that relatives of Reginald Fessenden (Trott side of family) had gathered at the grave of Fessenden on 22 December, to remember the 100th anniversary of the broadcast. A photograph of the group at the gravesite was published. The title of the newspaper article by Ruth O'Kelly-Lynch was "*A sound idea that echoes today*". Ester Trott participated in the remembrance ceremony, and she said that "she (had) spent time with (her uncle) Reginald when she was a young girl. She said he was a very interesting man. Even when retired he continued to do experiments ----."

In Conclusion

This reviewer has never questioned that the broadcasts were made. Most historians accept R. Frankin Smith's view [G] that Fessenden's 1906 hour long program was the first. And Elliot Sivowitch [H], in his monograph on *The Pre-History of Broadcasting*, 10 years later, clearly states that this broadcast was a first. When Sivowitch's Monograph was published (1970-71) Elliot was working for the Smithsonian Institution, Washington, DC, and his monograph gave us the Clark Radioana Collection reference number for the Fessenden 1932 letter.

Finally, repeating, we have to believe that the broadcasts were made on Christmas and New Year's Eve --- the wireless pioneer who made the broadcasts told us they were made. Why did Fessenden take so long to tell us the story? He never got around to it. He was satisfied at the time that his demonstrations of the capabilities of his system had been adequately observed and reported (his 21st December 1906 show-and-tell). He never got around to telling us about his Christmas and New Year's Eve broadcasts until much much later. When, prompted by Kintner's letter, he realized (I think he realized much earlier but did not tell us) what he had done. And, recall that after c1911 he did not do any wireless research. And, during this time period, the hassles between Fessenden and his financial backers, his struggles to sell his technology and his equipments, and his fights (litigation) to realize the respect of his patents took all of his time.

We have to remember the view of the press at that time (in 1906/1907), and have an appreciation of Fessenden the man. He would have been laughed at by the press if he had said he had transmitted a Christmas Eve program of voice, music and singing, to ships at sea --- another "*fishy-fish-story*". In late November 1906 Fessenden had equipped a small fishing boat with wireless telephony equipment. On one occasion the Captain called Brant Rock, questioning the price of fish. The operator at Brant Rock phoned Boston, and relayed to the Captain the price of fish. Rather than reporting this as a remarkable achievement, and a first commercial application of the use of wireless telephony, the press reported it to be another fishy-fish story.

Notwithstanding Fessenden should have reported his Christmas Eve broadcast. But that was a characteristic of Fessenden. He was at home in his laboratory, but out of his element when dealing with the business and political aspects of inventing. The press at the time paid no attention to what Fessenden was doing or if it did it ridiculed him. The media did not understand his technology --- nor did his colleagues at the time --- continuous waves and **wireless telephony**. Marconi's spark technology and telegraphy had the attention of the world. With reference to Fessenden's 2-way transatlantic wireless telegraphic communications achievements during the spring and fall of 1906, the press wrote that his claimed "achievements" were unproven and of no value --- since he was not providing a service --- which Marconi was still trying to do. Cartoons in newspapers at the time showed Marconi dot-and-dash ikons leaping gleefully across the ocean (which they

weren't) --- whereas for Fessenden (poor Fessenden), his dot-and-dash ikons were shown struggling to climb to the top of his 420 foot tower, then falling off the top of the tower and plunging into the ocean in front!!!

The 21 December 1906 demonstration is certainly is an important event to remember. It was another first. Not because it was a "broadcast", which it was not, it was a point-to-point transmission of voice, music and singing (live and recorded, played on an Edison phonograph). It was a first, why? It was a telephone-to-wireless transmission, and back again, wireless-to-telephone, so the listener could compare the quality of outgoing and incoming sounds. Fessenden was interested in competing with, as well as complementing Alexander Graham Bell's wired telephone system.

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Fessenden's 29th January 1932 letter:

COPY

Mr. S.M. Kintner, Vice President,
Westinghouse Electric & Mfg. Co.,
East Pittsburg, Pa.

Bermuda.
January 29, 1932

Dear Kintner:

Yours of January 9, 1932 received.

You will find the history of the invention of wireless telephony given in my article in the Transactions of the American Institute of Electrical Engineers for July 1908.

You will note that the continuously active receiver and the continuous wave producer were invented and patented by me in 1901 (see U.S. Patents 706,735, 796,742, and 706,741) and also that the hot wire barretter and liquid barretter were invented a little bit later. It was on these two elements, i.e., the continuous wave receptive receiver and the producer of continuous oscillations, that wireless telephony was based.

You will find in the report written by Prof. Austin in the Journal of the Bureau of Standards, some time about 1905 that he points out that my compressed air spark gap gives perfect continuous sine waves even down as low as about forty metres, and in fact we got them much lower.

By broadcasting I suppose that you do not mean the transmission of speech, music and singing to other stations of the same firm which is sending but to receiving stations operated by other firms than the sending station, and also programs advertised or notified in advance.

If you mean by broadcasting the transmission of speech, music and singing to other stations of the same ownership as the transmitter, then the program given to Dr. Kennelly, Prof. Elihu Thompson the engineers of the Western Electric and A.T.&T, and other companies, and the editors of several New York News papers at the exhibition (on 21 December 1906)

which you will find described in the American Telephone Journal, Jan 26th and February 7th, 1907, would be a broadcast, as indeed would be the exhibitions of wireless telephony between Washington and Annapolis in 1903, and 1905.

If however you do not call this a broadcast, then the program sent out on Christmas Eve and New Year's Eve, 1906 would be the first broadcast. This broadcast was advertised and notified three days in advance of Christmas, this being telegraphed to ships of the U.S Navy and the United Fruit Co., which were equipped with our apparatus that we intended broadcasting speech, music and singing on Christmas Eve and New Year's Eve.

The program on Christmas Eve was as follows: first a short speech by me saying what we were going to do, then some phonograph music. You will find a photograph showing the phonograph used in the article in the Transactions of the American Institute above referenced to and also in the American Telephone Journal, and the music on the phonograph being Handel's "Largo". Then came a violin solo by me, being a composition by Gounod called "O, Holy Night", and ending up with the words "Adore and be still" which I sang one verse of, in addition to playing the violin, though the singing, of course, was not very good. Then came the Bible text, "Glory to God in the highest and on earth peace to men of good will", and finally we wound up by wishing them a Merry Christmas and saying that we proposed to broadcast again New Year's Eve.

The New Year's Eve broadcast was the same as before, except that the music was changed and I got someone else to sing. I had not picked myself to do the singing, but on Christmas Eve I could not get any of the other to talk, sing or play and consequently had to do it all myself. On New Year's Eve one man – I think it was Stein – agreed to sing and he did sing, but some of the others either sang or talked.

We got word of reception of the Christmas Eve Program as far down as Norfolk, Va, and on the New Year's Eve program we got word from some places in the West Indies. There should be some record of this broadcast in the logs of the U.S. Navy war vessels and United Fruit vessels for Christmas and New Year's Eve, and New Year's Day, 1907.

Hoping this will give you the information you desire, I am, with best wishes.

Yours sincerely,

(signed)

REGINALD A. FESSENDEN

CWC 135-246A