SOME FURTHER FACTS ABOUT THE BELFAST RADIO RELAY STATION

Belfast radioists frequently hear above the programs of music, addresses and current events, the voice of S. W. Dean, the engineer in charge of the Congress street plant of the Radio Corporation of America.

One evening recently an excellent program was enjoyed here by home radioists through Mr. Dean at work at the Congress street plant.

Through the New York publicity office of the R. C. A. the following facts have been released:

A Relay Station

An automatic radio relay station—this is the function of the plant of Belfast—to relay mesages from European stations to the main receiving station of the Radio Corporation of America at Riverhead, Long Island, where constant communication is maintained, in competition with trans-oceanic cables, with England, France, Germany, Sweden, Norway, Poland and Italy, as well as to South America, Honolulu and Japan.

The reason that the station was instituted at Belfast, instead of any other place on the coast is, as above stated, because of thundershowers. Riverhead has twice as many of these disturbances per year as Belfast, according to a survey conducted during the past ten years by the United States Weather Bureau. In addition there also is a so-called bad "Thunderstorm center" in the New England states, between Belfast and Riverhead, which affects the latter's reception of signals from the East.

Signals Much Louder

Another point that bears on the local station is the fact that it lies almost directly on the great circle route from Riverhead to Europe, in spite of the fact that it is practically directly North of Riverhead. Thus Belfast is some 300 miles nearer Europe than the Long Island station, an advantage that is observed in 30 per cent louder signals at this point.

The effect of less static and stronger signals thus makes Belfast a much more satisfactory receiving station than the main station at Riverhead hence the establishing of the relay unit at the Maine location.

A land station erected in 1920 by the International Radio Telegraph Company for working with the trans-Atlantic liners was the basis of the present plant of the Radio Corporation of America. Work was started in May, 1923 and by September of that year the station was in operation.

Antenna 10 Miles Long

One of the most remarkable features of the station to a casual observer is the antenna, or antennae. There are two of these, each ten miles long, the invention of a Main man, H. H. Beverage, of North Haven. One of these, located eight miles from the station and connected by a special transmission line, has the peculiar property of receiving very well from the direction of Europe but of receiving practically nothing from any other direction. For European signals, this antenna is reported to give the effect of an antenna nearly a thousand feet high, or twenty times as high as the average aerial used for receiving and broadcasting, yet is actually twenty feet high. Antennae types such as these, according to the engineer in charge, S. W. Dean, are now being used at all of the trans-oceanic stations of the RCA. The aerial used by the relay transmitter is in the form of a triangle 500 feet on a side, with a steel mast 150 feet high, at each corner, and another one in the center. A lead-in is brought down to a big outdoor tuning coil at each corner of the triangle. These three lead-ins form what is called a multiple tuned antenna, and gives the effect of three antennas connected in parallel.

The Apparatus

The receiver used at Belfast is the standard high power receiver, comprising a wave trap and two tuned circuits in front of a three stage radio frequency amplifier, detector, and two stage audio frequency amplifier. A telephone transmitter relays the received signals, working on 1610 meters and putting 6000 watts into the antenna. This is said to be 12 times the power used by WJZ or WJY.

The so-called side band of transmission is used, in which there is no carrier frequency transmitted as in the usual broadcasting station. This method requires only one-half as much room in the ether as the usual type of telephone transmitter, a method of relaying that faithfully reproduces the original message so that even the static as received at Riverhead sounds the same as it does at Belfast.

Amplified Two Million Times

This transmitter is really an enormous super-heterodyne receiver which puts the signal out onto the air again instead of into headphones or a loud speaker. The frequency is changed and then put through four stages of amplification. The first two stages are regular 50 watt tubes, the third uses two glass tubes rated at one kilowatt each and the fourth stage uses two big water-cooled tubes, the latter being the largest made. The power given out to the antenna by this transmitter is two million times that received.

A small transmitting set, called a service set, is used to talk from Belfast to Riverhead and to send instructions about relaying or office matters. Three of the one kilowatt tubes are used and the wave length is 1750 meters.

Last Summer the Belfast station was called upon to relay almost continuously and worked with almost perfect satisfaction, hundreds of messages being received nearly every day through the relay that could not have been received without it. During all the static of last Summer, there was only once, according to the engineers, when it was impossible for Riverhead to hear the Belfast relay, on that day there being bad thunderstorms, both at Riverhead and at Belfast.

This station played an important role in the opening of the 1924 Radio Show at the Grand Central Palace in New York City. Senators Guglielmo Marconi pressed a button in London which actuated a 200 kilowatt transmitter at Carnarvon, Wales. This signal was received at Belfast, relayed by radio to Riverhead, and sent from there to New York to light a big American flag and open the show.

From archives of Belfast Republican Journal March 19, 1925