



The twelve page paper, "The Alexanderson 200 KW High Frequency Alternator Transmitters," published in Ports-O-Call, Vol.3 mid 1975, covered the design, installation, operation and final disposition of 16 of the 20 transmitters built by General Electric 1918-1921, and installed world wide by RCA 1918-1924.

At that time operating details of 6 of the units were not known. Since then this material has been obtained and is given here to complete the history of these famous early transmitters.

HAIKU VALLEY, HAWAII SETS.

Early in WW-II the U.S.Navy found that existing VLF tube transmitters located on the Hawaiian Islands didnot have the capacity to handle the traffic to our surface vessels in the Pacific and that communication with our submarines was not as dependable as when the Alexanderson transmitters were used.

Captain Hedley Morris, an RCA engineer who had years of experience with VLF equipment was assigned to the Navy for the duration. There was not time for building new transmitters or erecting the mile long antenna needed for VLF operation so Hedley was sent to Hawaii to find a suitable location for a station. He chose the Haiku Valley, 2 miles east of Kaneohe on the island of Oahu, that had cliffs on three sides that were 2500 feet high.

Four copper-clad steel cables approximately 4000 feet long were stretched across the valley for the antenna and a bomb proof concrete station house was built in the center of the valley to house two Alexanderson 200 KW transmitters.

As the sets installed in 1920 and 1921 in the Kahuku station had been scrapped, one set was shipped in from Marion, Mass. and one from Bolinas, Calif.

Haiku handled most of the Pacific Naval traffic during the war, the single transmitters at Marion and Bolinas contacted our submarines and ships in other areas.

The Commanding Officer of the USCG Omega Station Hawaii sent me the following information in a letter July 15, 1976.

" The sets in Hawaii were operated until 1946 and then turned off. However they were returned to operation within a year and were used actively until 1957 when the Naval facility at Haiku was secured. The Alexanderson sets were then mothballed in the same building until 1969 when they were sold for salvage and destroyed. Apparently, the decision to sell the sets for salvage was made because an Alexanderson set given to the Smithsonian

Institute was salvaged. At any rate, sets #1 and #2 didnot survive 1969.

The main building that housed the Alexanderson sets is still here and is now the administration and transmitter building for the U.S. Coast Guard Omega station Hawaii. There are eight Omega stations world wide which send out VLF navigational signals on a phase difference principle."

WARSAW POLAND STATION.

During 1923 RCA installed a complete radio station near Warsaw Poland that is described in Wireless Age March 1923. Cost was approximately two million dollars.

Power plant included 1-750 HP diesel generator and a 750 HP General Electric steam turbine generator. The antenna consisted of two wings each supported on 5 towers 400 feet high with 150 foot long cross arms on top which supported the 12 wire antennas, each over a mile in length.

Two Alexanderson transmitters were located in the station.

Receiving equipment was located at Grodzisco 20 miles south of Warsaw and included a wave type antenna 9 miles long, recently developed by Dr. Harold Beverage.

RCA guaranteed the equipment would operate at a speed of 80 words per minute.

After several requests for information on the operation and fate of the station, I received thefollowing memorandum from the Director Ministere Des Postes et Communications dated April 1980.

" in 1922 the Polish Ministry of Posts and Telecommunications Bought from RCA a very modern, at that time, duplex radiocommunication transmitting and receiving system for overseas service.

The transmitting part of the system consisted of two Alexanderson alternators, operating plus standby, 200 KW each. The transmitters were coupled to a special double antenna system, supported by ten 416 foot towers. The antenna of said station was totally about 2.2 miles long.

This system enabled:-

- 1.--Operation of one 200 KW transmitter,
- 2.--Operation of two 200 KW transmitters in parallel, at the same frequency,
- 3.--Operation of two 200 KW transmitters at two different frequencies.

Because of very good results obtained when using one transmitter only, it wasnt necessary to use steadily the second unit in parallel, it was operated in special circumstances only. This transmitting station ensured very good and stable 24 hours per day communication between Poland and the United States of America.

The call sign of said station was SPL. Its operating frequencies were

14.29 and 16.42 KHz usually, but it was also possible to use other pairs of frequencies.

The station was put into operation on October 4, 1923. It was operated successfully by the Polish Ministry of Posts and Telecommunications until the beginning of World War II, September 1939. During the war the station was operated by the German army for communication with its fleet, mainly with its submarines in Atlantic Ocean region. In January 1945 the transmitters and all antenna towers were blown up by the retreating German army."

VARBERG SWEDEN STATION.

The last two sets were installed in Grimeton, near Varberg, Sweden in 1924. The station is described in Wireless Age for October 1922. Altho operation began late in 1924, the official opening was, in July 1925. Dr. Alexanderson, who was born in Sweden, attended the celebration.

My letters to the Swedish Director of Telecommunication, requesting information on operation of the station were not answered but the Norwegian Director of Telecommunications advised that he had heard that the Varberg station operated thru WW-II then was made a radio museum.

A friend, Mr. Kaye Weedon of Oslo, Norway sent a copy of the Alexanderson alternator paper to the Varberg station and was advised that if he would visit the station they would demonstrate its operation.

While enroute to the US in November, 19~~60~~⁷⁹ he visited Varberg and obtained the following information.

Both transmitters handled commercial traffic thru 1946 using call letters SAQ on a wavelength of 17,740 meters or 17.20 KHz.

One set was scrapped in 1960 but the other with all accessories including the massive antennas is kept in operating condition by a station manager and his assistant, who had operated the sets for many years. The transmitter is started up and put on the air for a brief test period each month.

So ends the history of the transmitter that was responsible for the formation of Radio Corporation of America, and the twenty sets that carried most of RCA's world wide traffic 1920 thru 1935.

T.L.Mayes,
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