

FEDERAL COMMUNICATIONS COMMISSION
Washington 25, D. C.

70848
ADVANCE RELEASE FOR
Wednesday, December 12, 1951

50 YEARS OF RADIO

It was just 50 years ago -- on December 12, 1901 -- that Marconi flashed the first radio signal across the Atlantic.

With a receiver installed at St. Johns, Newfoundland, the Italian inventor heard an assistant at Poláhu, England, transmit the pioneer trans-oceanic radio signal. According to one account:

"In a moment, faintly yet distinctly, there came the three little clicks or dots spelling out in Morse code the letter 'S', which had been sent out a fraction of a second before from the sending station in England . . . It was thus that history was made, for on that day the principle of wireless communication over great distances was established, constituting one of the greatest wonders of modern science."

Radio Today

The subsequent half-century of radio development is reflected in the world-wide use of this space-and-time-saving medium for many communication purposes.

Today, 82 foreign countries and our own territorial possessions are served by United States radio telegraph carriers. Connections with foreign carriers make telegraph communication possible with most points in the world.

Radio telephone now links us with 88 foreign countries and our territories. Thus, it is possible to connect the more than 43,000,000 telephones in the United States with 25,000,000 other telephones throughout the globe.

In our country, there are 60 different kinds of radio services. These do not include military and other Government radio use.

By major classes, domestic radio operation is broken down into 33,000 marine stations, 32,000 aeronautical stations, 11,000 industrial stations, 10,000 public safety stations, 5,200 land transportation stations, 4,700 broadcast stations, over 800 common carrier stations, nearly 450 experimental stations, and almost 100,000 amateur stations. These figures do not indicate the total number of transmitters involved, since one station may have more than one associated portable or mobile transmitter. These movable transmitters alone exceed 300,000.

Radio activity in the United States is further indicated in the more than 700,000 authorizations to individuals to operate transmitting equipment.

(OVER)



RECEIVED

DEC 26 1951

In consequence, the number of active radio authorizations on the books of the Federal Communications Commission now approaches 900,000.

Milestones in Radio Progress

Radio telegraph.--The advent of radio was a natural result of advances made in the fields of electricity and magnetism. It paved the way for the development of radio communication, first by telegraph and then by telephone.

In the 1860's Maxwell predicted the existence of radio waves and Hertz later demonstrated that rapid variations of electric current could be projected into space in the form of radio waves similar to those of light and heat.

There was much early experimentation -- in fact, a United States patent on a wireless system was issued in 1872 -- but it remained for Marconi to give practical demonstration of the feasibility of "wireless", as it was then known. He sent and received his first radio signal locally in Italy in 1895. Four years later he transmitted a radio signal over the English channel. In addition to the initial transatlantic signal of 1901, Marconi also sent the first eastward radio telegraph message across the Atlantic -- in 1902.

These activities aroused world interest. The result was that the first general application of the speedy new communication method was for marine telegraphy. Sea disasters proved radio to be an effective aid in rescue work, as well as for communicating between ships and between ships and shore points.

The first radio distress call from an American vessel has been traced to 1905. But Jack Binns made world news in 1909 when he remained at his post as radio operator on the stricken steamship "Republic" to summon aid with the then British radio distress call "CQD". Later that same year the S.S. "Arapahoe" brought help with "SOS", which was adopted as an international radio telegraph distress call in 1906. ("Mayday" was adopted in 1927 as the international distress call for radio telephony.)

In 1901 radio telegraph service was inaugurated between five Hawaiian Islands; in 1903 a Marconi station at Wellfleet, Mass., exchanged greetings between President Theodore Roosevelt and King Edward VII; in 1905 the naval battle of Port Arthur in the Russo-Japanese war was reported by wireless; in 1909 Robert E. Peary, polar explorer, radio telegraphed: "I found the Pole"; in 1910 Marconi opened regular America-Europe radio telegraph service which, several months later, enabled an escaping British murderer to be apprehended on the high seas; and in 1912 the first transpacific radio telegraph service was established, linking San Francisco with Hawaii.

Overseas radio telegraph service developed slowly, due primarily to the initial use of spark and arc sets which were unstable in operation and caused much interference. The Alexanderson high-frequency alternator and the De Forest tube were the answer to many of these early technical problems.

During the first World War, governments began using radio telegraph to keep abreast of events and to direct the movement of troops and supplies.

Following World War II a telegraph modernization program resulted, among other things, in establishing a microwave relay link between New York and Philadelphia in 1945, which was expanded into a circuit to also connect Baltimore, Washington, and Pittsburgh.

Radio telephone.--The first time the human voice was sent by radio is a subject for debate. Claims to that distinction range from "Hello Rainey" spoken by Stubblefield to a partner in a localized test near Murray, Ky., in 1882, to an experimental program of talk and music sent by Fessenden from Brant Rock, Mass., in 1906, which was heard by radio equipped ships within a radius of several hundred miles.

In 1915 speech was successfully transmitted across the continent -- New York City to San Francisco; also across the Atlantic ocean -- from the Naval radio station NAA at Arlington, Va., to the Eiffel tower in Paris. There was some experimental military radio telephony in World War I, between ground and aircraft.

The first ship to shore two-way radio conversation occurred in 1922, between Deal Beach, N. J., and the S. S. "America", 400 miles at sea. However, it was not until 1929 that high seas public radio telephone service was inaugurated. At that time telephone contact could be made only with ships within 1,500 miles of shore. Today it is possible to telephone nearly every large passenger liner wherever it may be on the globe.

Commercial radio telephony linking America and Europe was opened in 1927, and with South America three years later. In 1935 the first telephone call was made around the world, using both wire and radio circuits.

Microwave telephone transmission was sent across the English Channel in 1930. The first microwave system in this country for telephone service, between Boston and New York, was placed in operation in 1947. A trans-continental microwave link was made available for telephone and television relay service in 1951.

Broadcast.--Radio broadcast as we know it today was largely made possible by development of the vacuum tube by Fleming in 1904, and its improvement by De Forest in 1906. However, it was not until after World War I that regular broadcasting began. As a result of considerable experimental operation, the first commercial standard (AM) broadcast stations were licensed in 1920.

(OVER)

Though the principle of frequency modulation (FM) had long been known, FM broadcasting did not develop until shortly before World War II. Largely as a result of developments by Armstrong, commercial FM operation began in 1941.

Visual broadcast experimentation dates back to the 19th century, but it was not until 1941 that commercial black-and-white television (TV) operation started. In 1948 the Commission stopped authorizing new TV stations while it studied problems of interference, obtaining and assigning additional channels, reserving some for educational use, considering color operation, etc. In 1950 it adopted the field sequential system for color. Limited color broadcasts began in 1951 but stopped when the National Production Authority subsequently banned manufacture of color receivers and converters because of the materials shortage. The Commission is now in the final phase of the general TV proceeding looking toward resolving the remaining problems which will permit removal of the "freeze" and blueprint operation of a nation-wide TV service for years to come.

DUPLICATED AND DISTRIBUTED BY RCA FREQUENCY BUREAU,
RCA LABORATORIES DIVISION, 60 BROAD STREET, N. Y. C.