

Wireless Age  
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# KDKA

## How the Nation's First Regular Broadcasting Programs Were Started in East Pittsburgh by the Westinghouse Elec. & Mfg. Co.—A Word Trip Through the Studio

ON October 1, 1920, a meeting of four persons was quietly held at the East Pittsburgh plant of the Westinghouse Electric and Mfg. Company. Neither trumpets nor the beating of drums heralded the little gathering, which time was destined to cause to make radio history.

At the meeting were Harry P. Davis, vice-president; Frank Conrad, an engineer, M. C. Rypinski, sales department, and J. C. McQuiston, manager publicity department.

The story goes that it was Mr. Conrad who called the meeting. He suggested to the other men that the experimental radio telegraph station at the plant be utilized to transmit telephone messages, so he could undertake advanced experimental work on the apparatus of his home station.

Mr. Conrad remarked, it is said, that should such a station be opened to transmit the voice, it would be easier to make home experiments and that the cooperation of all radio amateurs would be secured.

It was Mr. Davis who hazarded the opinion that possibly the general public would be interested in the idea, and he asked what Mr. McQuiston thought. That individual painted the picture of the farmer alone on his farm, far from the theatres, one or two days away from the current newspapers, and he wound up by declaring his belief that the results of broadcasting such as suggested would have an effect of which those at the meeting had little conception.

"But," he warned, "it must be kept up every day in the week, and the program sent out must be continually improved."

Mr. Davis, so the story goes, looked around the meeting with some little satisfaction, and said:

"We seem to be of one opinion regarding the feasibility of starting a station, and so we'll do it."

Those words brought the now famous KDKA station into being, but it was little thought then that the transmission of residential diversion returns from this station, which was then known as RZZ, would result in the widespread interest in radio that is now present throughout the country. The persons who were in close touch with the station, however, were quick to realize the tremendous possibilities of

such benefits; from points where national news develops to lonely, inaccessible places; from educational institutions to isolated communities without the advantages of higher education; from the largest churches of the city to the farm and ranch miles away from the nearest place of worship.

All these possibilities and many more were foreseen and means were taken so as to develop the broadcasting from station KDKA that these many benefits might be obtained. For this reason a history of the development of the programs and the equipment of this, the first broadcasting station to give nightly concerts, is a history of the development of radio broadcasting itself. This statement is more significant when it is known that KDKA was operating for over ten months before another station was installed to give an entertainment every night.

When this broadcasting station was formally opened on the night of December 21, 1920, a handful of records were taken to the "studio," at that time a room which would hardly accommodate more than three persons. It was announced that station KDKA would give a concert, and then the records were played. No announcement was made of the names of the selections, such as is the custom at the present time, and it was left to the operator at the receiving end to rack his brain to recognize the number. This lack was soon recognized, however, and the name of each number was announced.

An evidence of what radio broadcasting could do for the already established sources of entertainment was immediately brought out when the music stores in the district were swamped with requests for records that had been played by radio.

Thus, a direct benefit was obtained by the record makers and the music stores. The reason for this was seen in the fact that most of the records brought to the attention of the public in the past were only the popular ones and that the best records played by the leading musicians of the time rested on the store shelves. Their sales were slow, in comparison with the latest popular music, demand for which was stimulated by being played in every cabaret and theatre. KDKA gave the public the best class of music, even if this did not meet with immediate popular demand.

During the first few months of broadcasting from KDKA phonograph records were used exclusively, and when picked with care were very satisfactory. However, it was thought that the radio enthusiasts would like to hear the local artists, and also some of the internationally prominent musicians who gave concerts in Pittsburgh. Many of the artists of Pittsburgh requested to be allowed to visit the radio station and perform by the new and novel radio method. Of course, the station was at first without facilities to take care of the artists in person, but a piano was obtained and crowded into the radio station. The first concerts were so popular that a temporary studio was built and arrangements were made to establish a permanent studio near the radio outfit. This was the first studio ever built for the exclusive purpose of broadcasting radio entertainments.

It was a room twenty by thirty feet, entirely covered by tarpaulin in order to overcome the possibility of any echo.

It is now often wondered how it was possible, only ten days after the station opened, to broadcast by radio the services from the Calvary Episcopal Church in their entirety. This was accomplished on January 2, 1921, and was the first service ever sent out broadcast by radio from a church.

Transmitters were installed in the choir loft and for the preacher in the pulpit, these transmitters being con-

nected by telephone lines to the radio station KDKA, which is some ten miles distant. The transmitters picked up the clear tones of the organ, the blending voices of the choir of sixty men and boys, and the resounding voice of the preacher as he delivered his usual sermon.

Of course, the radio operators had to strain their ears in order to hear every word of the minister, Rev. Edwin J. Van Etten, Rector of the Calvary Church of Pittsburgh, but the idea of receiving a church service in the home was so distinctly novel that their enthusiasm could not be expressed in words.

For the next Sunday's service, a different arrangement of transmitters was tried, and all during the week experiments were made to better the service. The organist and the choir, as well as the minister, gave rehearsals several times during the week, so enthusiastic were they.

After the second service, equalling the success of the first, which brought forth many laudatory letters and comments from the radio listeners, the engineers decided that they could still improve the service. From that day until this, the KDKA radio engineers have been working continually on the subject of transmission of church services, and although the ultimate perfection has not been reached, one can well imagine oneself in church, hearing the service direct, so realistic is the transmission.

In order to comply with the requests from so many churches to have services broadcast by radio, KDKA Radio Chapel was established on Sunday afternoon December 11, 1921. The minister and the church choir visit the radio station on Sunday afternoon and conduct the regular service for the benefit of the radio enthusiasts. In this way, each denomination has its turn, and now it can be said that practically every church of the major denominations has had its opportunity of conducting a radio chapel.

Shortly after the radio station started, arrangements were made with the United Press Association to obtain the latest headlines of the day's news. These headlines are broadcast each evening, and are an added feature to the program. In addition, arrangements were made early with the United States Bureau of Markets, Department of Agriculture, to broadcast the grain, fruit and vegetable and live stock market reports. A review of the New York Stock Exchange was later added to this news report. The value of this service to the city man and the rural resident was early realized, and additions to the broadcasting news service are made from time to time.

And then the children were considered. Special bedtime stories and music were provided, and these are broadcast every weekday night.

The technical equipment at the station is, of course, the most complete. The antenna at KDKA consists of 6 wires, 190 feet in length on 20 foot spreaders. The antenna is supported 210 feet above the ground by a brick smoke stack at one end and by a 100-foot pipe mast on the 9-story building at the other end. The operating room and studio are located on the 9th floor of this building.

A counterpoise, which is a duplicate of the antenna in construction, is placed 110 feet beneath the antenna. This brings the counterpoise about 15 feet below the transmitting set. The down lead from the antenna and the counterpoise lead are made up of 8 strands of No. 14 copper wire equally spaced around 1 1/2 in. diameter wooden spacers. The natural period of this aerial system is approximately 412

meters. A series condenser of .0005 mid. capacity is used in series with antenna and sufficient loading inductance added to obtain the desired wave length of 300 meters.

A series condenser is shunted by the radio frequency choke coils of 10 millihenries inductance in series with a megohm resistance, to drain off any static charge that might accumulate on the antenna when insulated from the ground by the series condenser. The high frequency resistance of the antenna system at 300 meters wave length is approximately 12 ohms, a large percentage of which is radiation resistance. The antenna current at 500 watts is 6.5 amperes and at 1 kw. 9 amperes.

The power equipment used at KDKA consists of two 2 kw. motor generator sets with 250 volts D. C. motors. The generators are of special design for 2100 volts D. C. employing two armature windings and two commutators permanently connected in series.

### Radio Helps Sell House

WHEN he found that a house in Dallas, Tex., while in good condition, was not modern enough to attract good bids, a real estate operator there installed a radio receiving set and advertised that it would go with the house. Advertisements in the papers brought many replies, and he sold the house at a profit.

**A VIRGIN RADIO TERRITORY!**

*The Peninsula of Plenty*  
Southern Delaware and the Eastern Shores of Maryland and Virginia

This wealthy area receives its only primary radio service from WSAL.

Because of its central location on the radio-isolated Eastern Shore, WSAL is practically without interference and competition—it reaches most Eastern Shore people at a much lower cost than can be reached through any other medium. It is typically an Eastern Shore station for Eastern Shore people, and they have shown themselves to be unusually consistent radio listeners as evidenced by the results received by WSAL advertisers. Write for Rates, Coverage and Market Data, and time available.



250 WATTS  
1200 Cycles

**Eastern Shore's Own Station**  
**WSAL**  
SALISBURY, MARYLAND

WWWL

NEW ORLEANS

LOUISIANA'S  
Most Powerful  
Station

\* 10,000 WATTS  
850 KC. \*  
\* Affiliated CBS \*  
\* C85 \*

**July 1, 1938**  
**50,000 WATTS**  
*Authorized by the F.C.C.*



KDKA has had the distinction of being heard in far-off Chile, a distance of more than four thousand miles.

radio broadcasting and immediate steps were taken to develop fully this service.

Permission was obtained from the Government to broadcast each night, something not heretofore thought of by radio operators anywhere.

A keen foresight was at work. Radio broadcasting was seen as a means of disseminating entertainment, information and education for thousands of miles; from the big centers of music and art to the outlying districts lacking