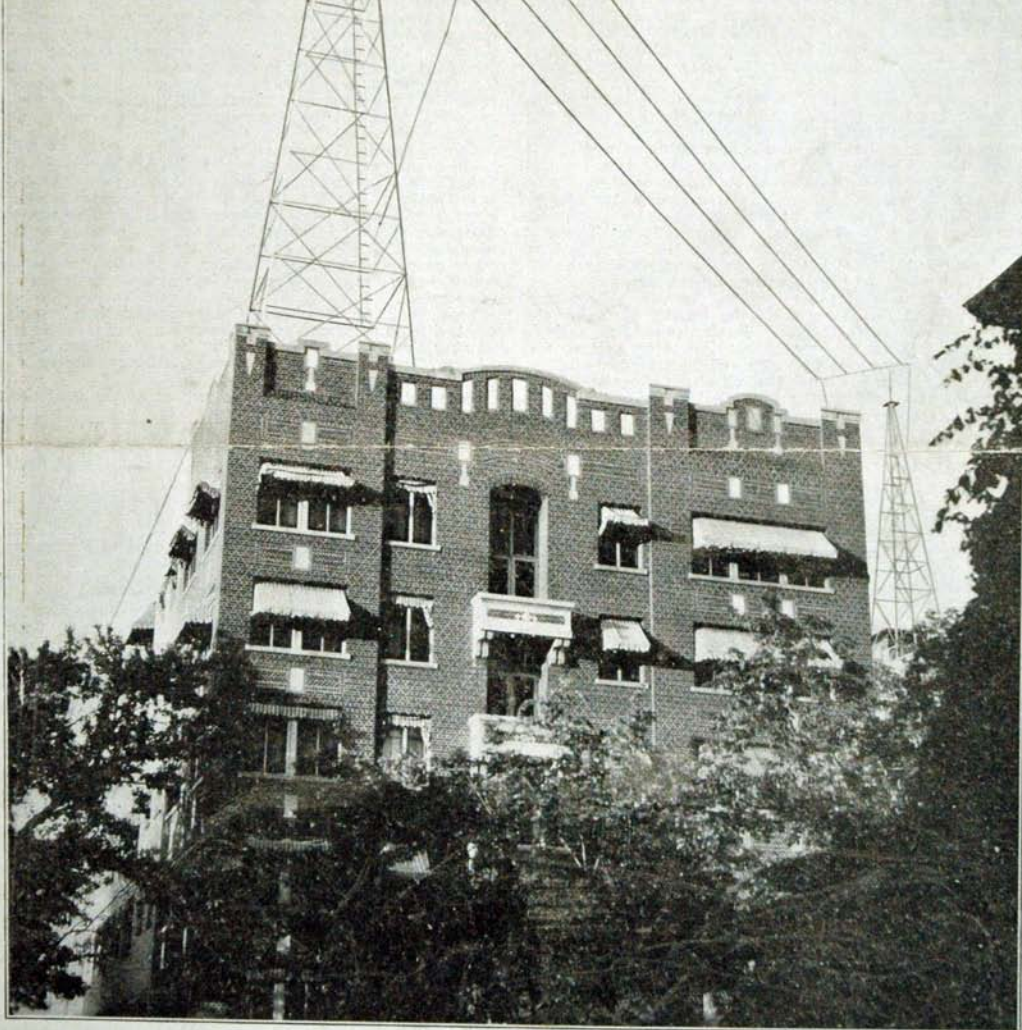


Grain Quotations by Radio



Minneapolis Grain Prices Now Being Broadcasted by Wireless

The Oak Grove Hotel, Minneapolis, Minn., showing the towers and antenna of the Oak Grove Radio Station, known as W-L-A-G, or "Call of the North," operated by the Cutting & Washington Radio Corporation, and from which the prices being paid for cash grain and grain for future delivery in the Exchange Room of the Chamber of Commerce of Minneapolis are being broadcasted over the northwest.

Grain Quotations by Radio—Minneapolis Grain Prices Now Being Broadcasted by Wireless

The prices being paid for cash grain as well as for grain for future delivery, in the Exchange Room of the Chamber of Commerce of Minneapolis, are now being broadcasted throughout the Northwest by radio. Minneapolis possesses one of the most powerful radio broadcasting stations in the United States. This station is known as WLAG, or "The Call of the North"—and is operated by the Cutting & Washington Radio Corporation. This station is located at the Oak Grove Hotel, Minneapolis, Minnesota, and is maintained by the following Minneapolis business concerns, the subscribers: Northwestern National Bank, Minnesota Loan & Trust Company, L. S. Donaldson Company, E. E. Atkinson & Company, Findley Electric Company, Northwest Farmstead, Powers Mercantile Company, Sterling Electric Company.

The Minneapolis Chamber of Commerce quotations are being broadcasted through the courtesy of the Northwestern National Bank, one of the subscribers above mentioned. The time schedule of these quotations is as follows: At 9:40 A. M. the "opening" prices of grain and flax for "future delivery." At 10:30 and at 11:30 A. M. the "going" prices of grain and flax for "future delivery." At 1:30 P. M. the "official closing prices" of cash grain and flax, also grain and flax for future delivery. This schedule applies to every business day, including Saturday.

A Western Union "ticker" or type recording telegraph instrument has been placed in the transmitting room of the Oak Grove station by the Chamber of Commerce Quotations Committee. This instrument is connected directly with the so-called piano grain ticker transmitter located in the Exchange Room of the Chamber of Commerce of Minneapolis. The operator of this piano grain ticker transmitter delivers to the Oak Grove station the grain prices above mentioned, and these prices appear in type upon the "tape" which is constantly issuing from the ticker in the Oak Grove station. The operator at the Oak Grove station immediately broadcasts these prices over the Northwest by radiophone.

Many thousands of radio receiving sets have been purchased and installed throughout the Northwest during the last year by farmers, farmers' elevator companies, individual grain dealers, country bankers, country millers and others. The Quotations Committee of the Chamber of Commerce of Minneapolis desires that all of the above mentioned owners of radio receiving sets shall be supplied with the grain prices above mentioned to assist them in the marketing of their grain, or in the transaction of their business.

On another page of this pamphlet you will find a map showing the territory which the Quotations Committee are

aiming to serve by radiophone. The dots on this map indicate a few of the stations which are receiving the grain prices mentioned regularly and reliably. The Quotations Committee desire that this service shall be perfected and extended in such a manner as to be of the greatest possible advantage to the Northwestern grain producers, country millers and others throughout the Northwest. The Committee will greatly appreciate being advised by all those who receive, either regularly or occasionally, the grain prices above mentioned by radio. Any individual receiving these grain prices either directly or indirectly is requested to advise the Quotations Committee of the Chamber of Commerce of Minneapolis, Minn., with as much information as possible regarding the character of the radio receiving set used.

On other pages of this pamphlet are shown pictures of the Exchange Room of the Chamber of Commerce of Minneapolis, in which the purchases and sales of grain are made at prices being broadcasted as above mentioned. Another picture shows the piano grain ticker transmitter in the Exchange Room which is the instrument by which the grain prices are transmitted to the Oak Grove Radio station. Another picture shows the Western Union "ticker" or type recording telegraph instrument located in the Transmitting Room of the Oak Grove station, and from which the operator of the radio station secures the prices. Another picture shows the radio operating room and the transmitting and other instruments described elsewhere by Mr. Sweet, the radio engineer in charge of the Oak Grove station.

The front page of this pamphlet shows a picture of the Oak Grove Hotel with the towers and antenna of the Oak Grove station. Another picture illustrates the room in which concerts of various kinds are broadcasted. Another picture illustrates General Pershing broadcasting a message to the people of the Northwest at the Oak Grove station. Still another picture shows the generator room with the motors which supply the electric current by which the radio station is operated.

Those receiving Chamber of Commerce quotations by radio are invited to make any suggestions which may result in improving the service and increasing its value to grain producers, farmers' elevator companies, country millers and others throughout the Northwest.

Prepared and published at the request of the Quotations Committee by the—

PUBLICITY COMMITTEE,
CHAMBER OF COMMERCE.
Minneapolis, Minn.

"The Minneapolis Station W-L-A-G"

"This is the Minneapolis Station, WLAG, the Call of the North." No doubt there are many who have heard these words many times and the concerts broadcasted from the station, who will be interested in knowing what "WLAG" looks like and something of how it is operated.

First we enter the reception room where those who are to take part in the program can await the call to the concert room. We pass from the reception room into the office of the program director. Directly ahead of us is a door leading into the concert room. Above the door a red light is burning and this is the signal that the transmitter is in operation. We cannot enter as any sound made will be broadcasted by radio.

The light goes out and we enter the concert room which is shown on page 5. First of all it will be noticed that the voice has a very strange quality. This is due to the fact that the walls and ceiling have been treated so as to prevent any reflection of sound waves. Under the thick carpet are two layers of felt to insure that the concert room will be reverberation proof.

In the far corner on the pedestal is the very sensitive microphone which is designed to insure faithful reproduction of every gradation of tone of speech or music which is to be transmitted. On page six General Pershing is shown delivering an address. This microphone is unbelievably delicate in picking up the sound waves which, no matter how feeble, are translated, so to speak, into electrical pulsations of absolutely identical character. These travel an electric circuit out into the transmitting room which is shown at the bottom of page four. Here they go into the "speech input" panel shown at the left of the room where they are amplified hundreds of thousands of times but without altering the relative form of the vibrations. There are controls on the speech amplifier for different classes and volumes of sound. In the far corner of the room may be seen a loud speaker which is connected with an amplifier into the circuit leading from the speech amplifier to the transmitter.

Through the use of this apparatus the operator knows exactly the perfection or defects of tone qualities before reaching the transmitter panel and any imperfection can be immediately corrected.

At this point the speech current is used to change the form of the continuous electrical oscillations in the radio transmitter so that very powerful pulsations are sent into the aerial and sent out therefrom in all directions with the speed of light (186,000 miles a second) but still in such form as to faithfully reproduce speech, music or other sounds conveyed to the little microphone. The transmitter panel containing a 50 watt amplifier tube, four 250 watt modulator and oscillator tubes with tuning circuits, filters, relays, etc., is shown at the extreme right of the photograph on page 4.

The generator room is shown at the bottom of page 6. In this room the motor generator, a three unit design, is mounted on heavy spiral springs to absorb the vibration. One generator develops 1,600 volts for the plate circuit in the 250 watt power tubes. The other generator develops 16 volts for the filament circuit in the tubes. The lead-in from the antenna and series condensers is shown in the upper part of the generator room.

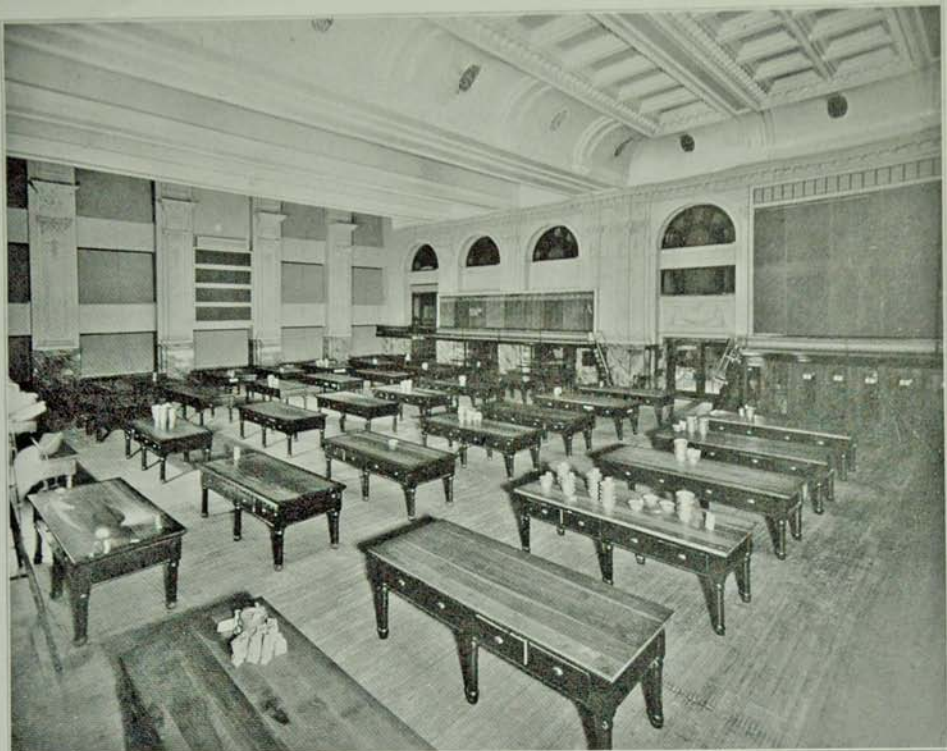
The antenna is suspended between two towers 75 feet in height on top of the Oak Grove Hotel as shown on page one. The total height above ground is 150 feet. The antenna and series condensers are shown in the upper part of the generator room.

At the bottom of page 3 is shown the "ticker" over which grain opening, "going" and closing prices are received and read from the tape into the microphone.

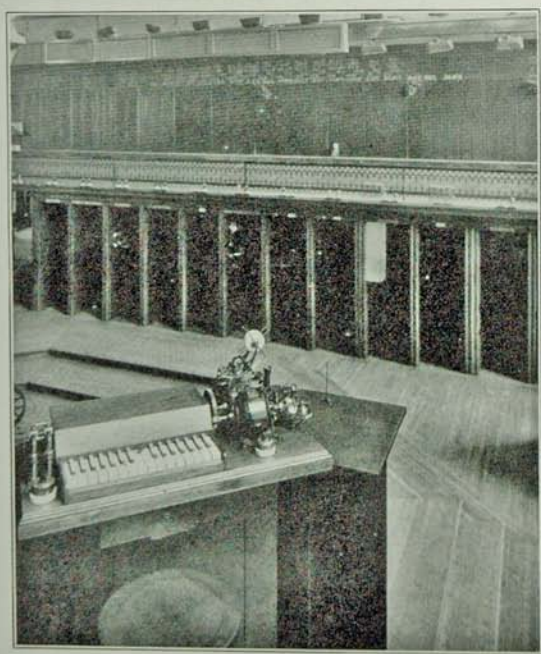
In order to receive broadcast signals from WLAG a good standard make set, consisting of a detector tube and two stages of amplification should be used for distances above 100 miles. Up to 100 miles a one tube set will probably be sufficient. Be sure to get a set of a reliable make which is guaranteed to give satisfaction.

Grain prices, weather reports and bond and stock quotations are broadcasted on a wave length of 485 meters. Concerts and lectures are broadcasted on a 400 meter wave length.

Respectfully,
R. R. SWEET,
Chief Radio Engineer,
Oak Grove Radio Station "WLAG"
Minneapolis, Minn.



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 The Exchange or Trading Room of the Chamber of Commerce of Minneapolis showing the cash grain tables, the blackboard, telephone booths, telegraph counters etc. This is one of the largest and most modern exchange rooms in the United States.
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The "Piano Grain Ticker Transmitter" located in the Exchange Room of the Chamber of Commerce of Minneapolis, and by means of which the grain prices are instantly delivered to the "ticker" at the Oak Grove radio station.



A Minneapolis grain ticker located at the Oak Grove radio station, from which the operator of the radio station secures the prices of cash grain and grain for future delivery from the Exchange Room of the Chamber of Commerce of Minneapolis.

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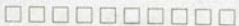


The Transmitting Room of the Oak Grove Radio Station showing on extreme right the transmitting instrument—on the extreme left is a loud speaking radio receiving set. On the desk is a microphone used in transmitting messages throughout the northwest.



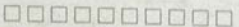
On the Left

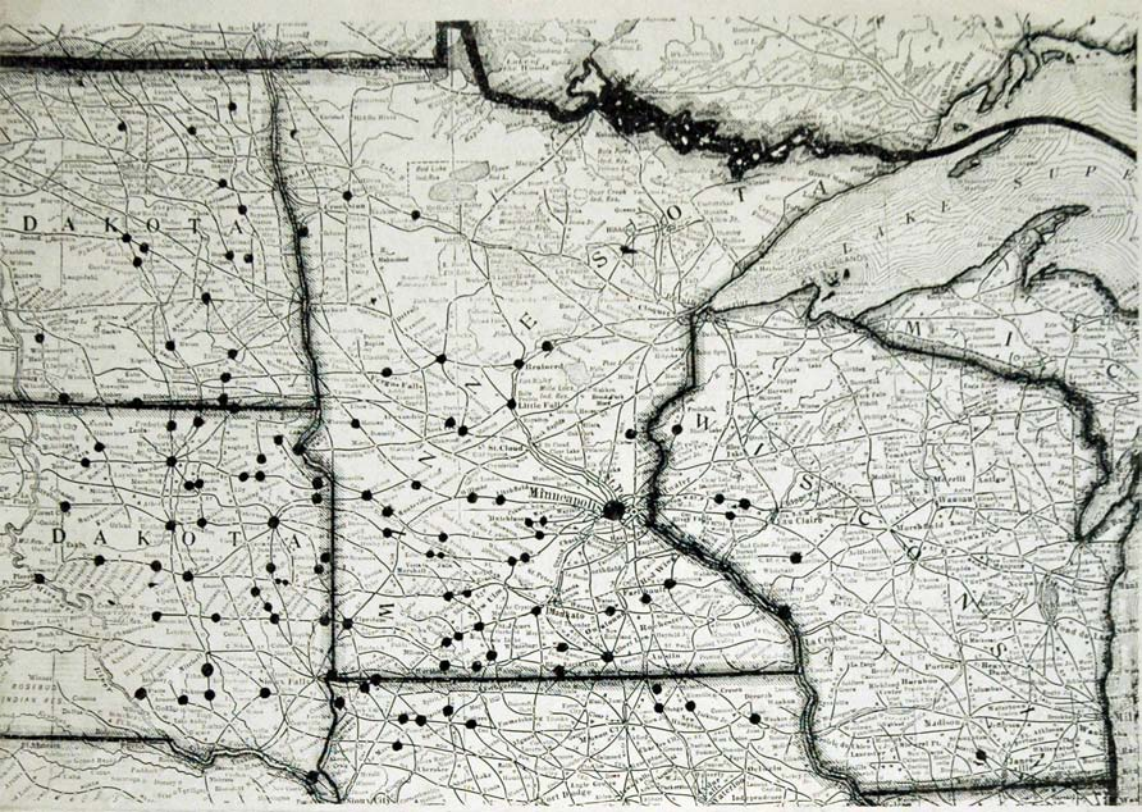
A corner in the Generator Room, showing the electric motors which supply the necessary electric current used by the Oak Grove Station in broadcasting concerts, lectures, etc.



On the Right

General Pershing broadcasting a message to the people of the northwest at the Oak Grove Radio Station. Immediately in front of General Pershing is the "Microphone"—the instrument which receives the message and delivers it to the radio transmitting instrument which broadcasts it over the northwest.





Map of the northwest, showing
the territory which the
Quotations Committee of the
Chamber of Commerce
of Minneapolis is endeavoring
to serve with the Minneapolis
quotations. The dots
represent some of the stations
now receiving the
Chamber of Commerce
quotations regularly and reliably
by radiophone receiving
sets.