

Fig. 1. This is a photograph of one of the condenser microphones made by the Standard Radio Co. of Chicago

the matter, the following engineers gave added suggestions which may be of interest:

E. K. Oxner, chief engineer, High Frequency Laboratories, Chicago: "I believe that an engineering show should be held in January on the assumption that trade shows will continue to be held in June or possibly May. The location of such a show will, of course, have to be a subject based on the choice of the majority and quite naturally we feel that Chicago would be most beneficial to the majority of set manufacturers. It is very difficult, indeed, to form an opinion as to what branch of the industry should hold such a show, although it would appear to devolve on the parts manufacturers themselves. This subject is a somewhat difficult one and I am not so sure that the idea of

(Continued on page 130)

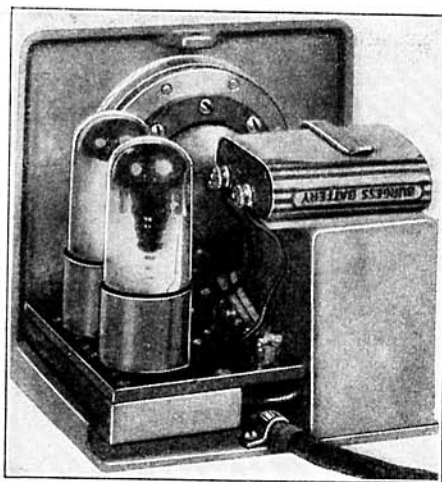


Fig. 2. This is a view of the inside of the condenser microphone illustrated in Figure 1 and is of the direct coupled type, the A and B supply being self contained

among the manufacturers now is practically continuous throughout the year. It is not logical to believe that the manufacturers would withhold development of engineered models until they had the opportunity of seeing component parts or supplies exhibited at an engineering show. I strongly favor parts manufacturers and other suppliers of radio manufacturers to exhibit at the annual trade show of the RMA and at that time show their wares to the radio industry in general."

A. Hauser, chief engineer, Brown & Caine, Chicago, Ill.: "We do not seem to believe that an engineering show is actually possible with the exclusion of a trade show. A trade show is merely an exhibition of engineering developments. Should it be possible that engineers display an exhibit, their developments to one another, it should be held at the engineering societies like A. I. E. E. or I. R. E. similar to the standard meetings held by such societies. The question referring to the auspices under which such a show should be held is rather hard to decide and the writer at this time cannot give you information, as the first paragraph of this letter explains this. He would be very glad to hear from you as to what you are planning to do and upon receipt of more detailed information he will be able to form a better opinion."

E. E. Horine, chief engineer, National Carbon Co., New York City: "We are constantly being informed by parts makers of the merits of their products and of new developments just around the corner. It is doubtful if a show of the kind here proposed would add to this information, or in any way be of benefit to us in engineering new receiver developments."

R. W. Cotton, Samson Electric Co., Canton, Mass.: "I see very little purpose to be served by an engineer's show."

In addition to filling in the regular questionnaire indicating their choices in

Rochester I. R. E. Convention

ONE of the most interesting of the engineer meetings held this year was the Eastern Great Lakes District Convention of the Institute of Radio Engineers at the Sagamore Hotel in Rochester, New York, November 18-19. Attendance at the meeting exceeded the expectations of those in charge and it is understood there were in excess of 200 at this convention.

Credit to Graham

A great deal of the credit for such a successful convention is due to the activity of Virgil M. Graham, executive

chairman at Rochester, who was assisted by L. Grant Hector, vice-chairman, from Buffalo; and A. R. Barfield, secretary and H. J. Klumb, treasurer, both from Rochester.

The publicity committee was headed by R. A. Hackbusch, chairman from Toronto, with K. L. Henderson, vice-chairman of Buffalo, and E. C. Karker, and I. G. Maloff of Rochester, and D. Schregardus from Cleveland.

Other committees operating in conjunction with the executive chairman were:

Finance

H. J. Klumb, Chairman, H. A. Brown, H. E. Gordon, E. A. Hanover, A. T. Haugh, and I. G. Maloff.

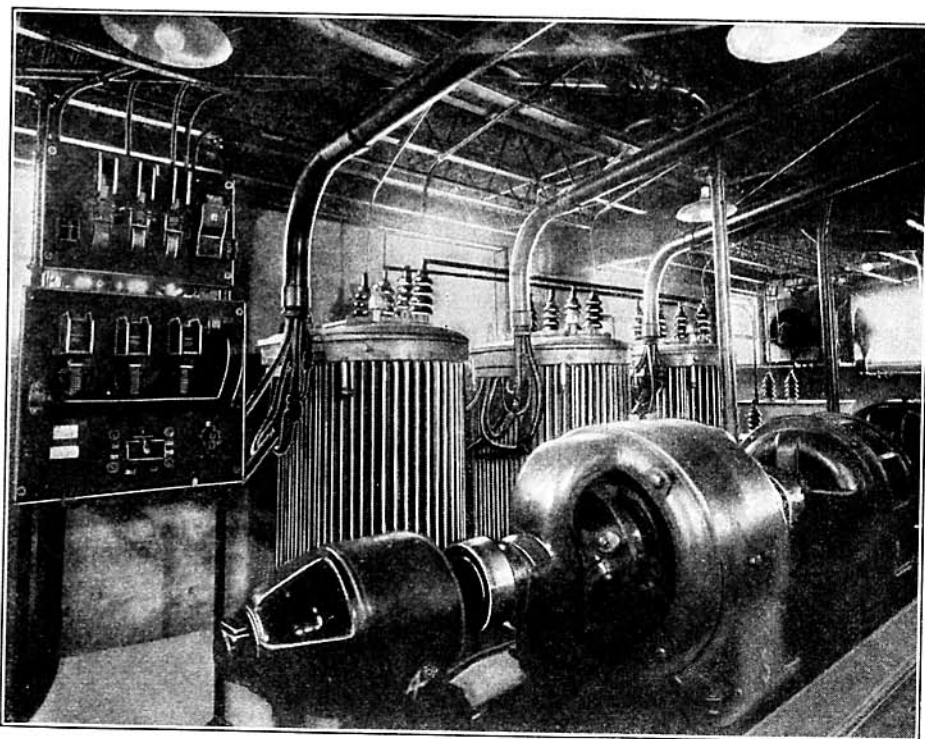


Fig. 3. Transmission engineers may be interested in this photograph of the power plant of Station WOWO at Ft. Wayne, Indiana, which has recently been completed by the owners under the supervision of a Chicago transmission engineer

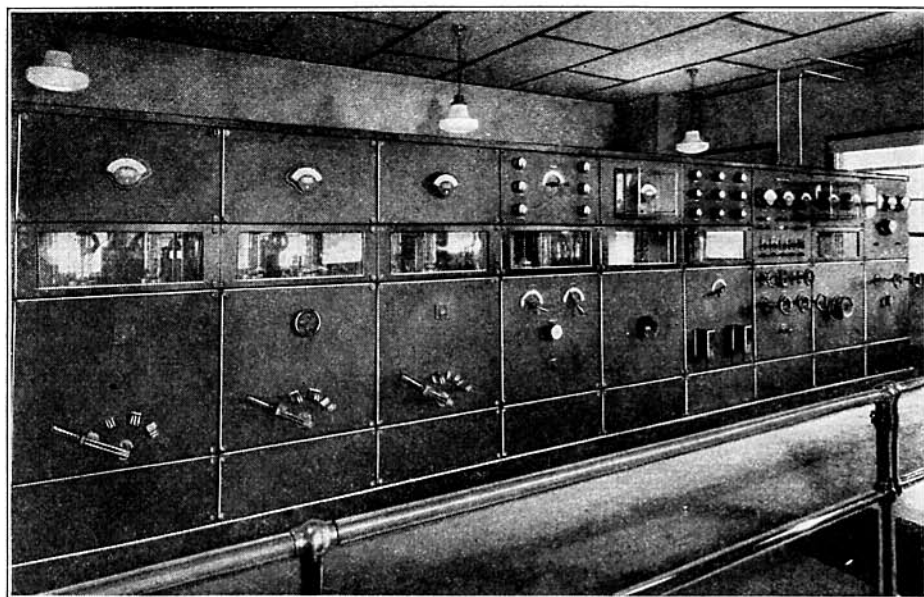


Fig. 4. In this photograph may be seen the complete control panel of Station WOWO at Ft. Wayne, a brief description of which appears elsewhere in this section

Technical Papers

Virgil M. Graham, Rochester.

Transportation and Accommodation

J. Eichman, Chairman, Buffalo; J. M. Leslie, Toronto; J. R. Martin, Cleveland; and A. E. Soderholm, Rochester.

Fellowship

H. E. Gordon, Chairman, Rochester; F. A. Lidbury, Buffalo; and C. L. Richardson, Toronto.

Trips

A. L. Schoen, Chairman, Rochester and A. E. Soderholm, Rochester.

Entertainment and Reception

E. C. Karker, Chairman, Rochester and Howard Brown, Rochester.

Ladies' Entertainment

Mrs. O. L. Angevine, Chairman, Mrs. C. S. Barrows, Mrs. H. A. Brown, Mrs. H. E. Gordon, Mrs. V. M. Graham, Mrs. E. A. Hanover, Mrs. E. C. Karker, Mrs. H. J. Klumb, Miss Marie Maeder, Mrs. R. H. Manson, Mrs. V. M. Palmer, Mrs. A. L. Schoen and Mrs. A. E. Soderholm.

Exhibits

I. G. Maloff, Chairman, Rochester.

Registration

A. E. Soderholm, Chairman, Rochester; O. L. Angevine, Registration Secretary (Executive Secretary of Rochester Engineering Society), E. C. Karker, Rochester; Bruce W. David, Cleveland; L. Grant Hector, Buffalo; V. G. Smith, Toronto; Miss Marie Maeder, Rochester and Miss Viola Hanley, Rochester.

Program

The program for the meeting follows:

MONDAY, November 18

8:00 a.m. Registration at Convention Headquarters, Sagamore Hotel.

10:00 a.m. Opening Technical Session. "Welcome," by Earl C. Karker, Chairman of Rochester Section.

"What Executives Expect of Engineers," by I. G. Maloff, Valley Appliances, Inc.

"Consideration in Screen-Grid Receiver Design," by W. A. MacDonald, Hazeltine Corporation, read by D. E. Hartnett.

12:30 p.m. Adjournment for luncheon.

2:00 p.m. Inspection trip to Kodak Park and Valley Appliances, Inc.

8:00 p.m. Technical Session.

"Ultra High-Frequency Transmission and Reception," by A. Hoyt Taylor, Naval Research Laboratory.

"Television With Cathode Ray Tube for Receiver," by Dr. V. Zworykin, Westinghouse Electric and Manufacturing Co.

TUESDAY, November 19

9:30 a.m. Technical Session.

"A Broadcast Receiver for Use in Automobiles," by Paul O. Farnham, Radio Frequency Laboratories.

"Standardization in the Radio Vacuum-Tube Field," by W. C. White, General Electric Research Laboratory.

"New Developments in Direct Coupled Amplifiers," by E. H. Loftin and S. Y. White, read by S. Y. White.

12:30 p.m. Joint Luncheon with Rochester Engineering Society.

Speaker—W. Roy McCanne, President of Stromberg-Carlson Telephone Manufacturing Company.

2:00 p.m. Inspection Trip to Stromberg-Carlson Plant.

6:30 p.m. Banquet—A. T. Haugh, Toastmaster.

Speaker—H. B. Richmond, President of Radio Manufacturers' Association. Subject—"The Engineer in the Radio Industry."

WOWO Transmitter

TRANSMISSION engineers may be interested in the photographs and a brief description of the 50,000 watt broadcast transmitter built for WOWO at Ft. Wayne which is now operating on 10,000 watts, in accord-

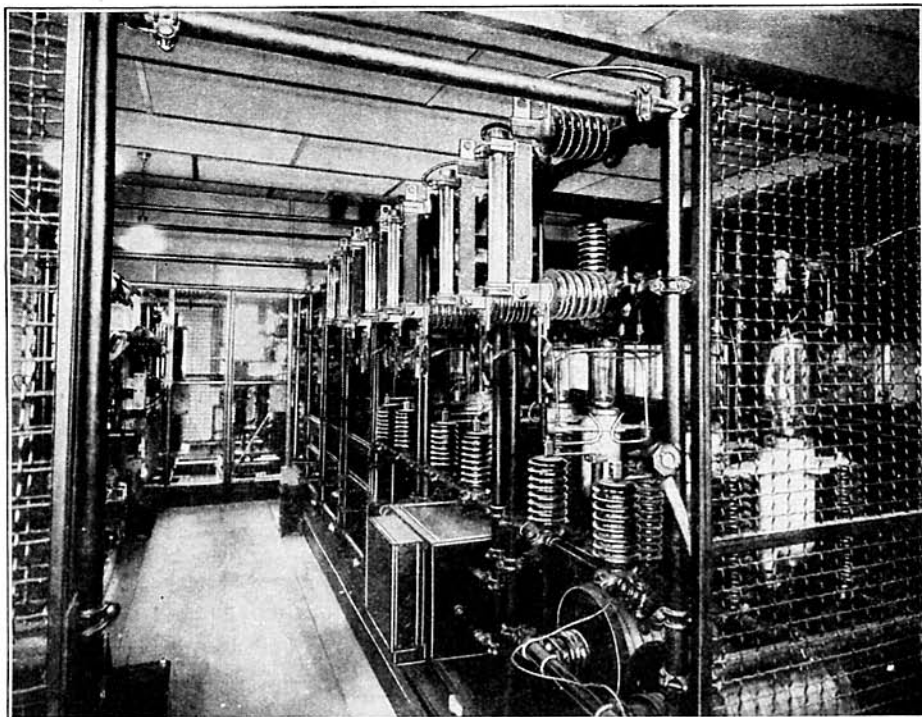


Fig. 5. This photograph shows the rear of the control panel illustrated in Figure 4. A description of the parts is given elsewhere in this article

ance with authorization by the Federal Radio Company.

The transmitter was designed, constructed, installed and supervised by a firm of Chicago radio transmission engineers, E. A. Beane Engineers.

A photograph of the control panel is shown in Figure 4, while Figure 5 shows rear of this set of panels. Figure 3 is an illustration of the power plant for this particular transmitter.

Control Apparatus

In Figure 4 may be seen the nine individual panels which are placed together forming the entire control apparatus. Beginning at the left and reading towards the right, the first, second and third panels are for the first, second and third phases of the rectifier. The fourth control panel is the crystal control, the fifth the modulator, the sixth a 500-watt amplifier, the seventh all primary power control panels, eighth, power amplifier tube rack, and the ninth contains the tank circuit and antenna tuning remote control devices.

In the photograph Figure 5 is illustrated the back of the nine control panels and in this picture reading from right to left are the three rectifier panels, then the crystal control, modulator, 500-watt amplifier, all primary power control, power amplifier tube rack and at the extreme left the tank circuit and antenna tuning remote control system.

Entirely Automatic

The installation is entirely automatic and is controlled by a push button. Every type of relay is employed in this installation for guarding against either overload or unload, excessive water temperature, and all other conditions arising from a change in electrical constants of the transmitter.

In the photograph shown in Figure 3 may be seen the primary power supply for the 200 k. w. rectifiers. At the left are the contactors to start the rectifiers, then the 3 transformers, each weighing about 3 tons apiece and standing 7 feet high. At the left of the generators may be seen the excitor, then one of the high voltage generators, next the motor in the middle and another generator at the right end. At the top and in the extreme right may be seen the fan used for the water cooling system.

Condenser Microphone

Another one of the devices designed by the E. A. Beane Engineers for the Standard Radio Company may be seen in Figure 1 which is a condenser microphone, the interior of which is illustrated in Figure 2. These are designed to take the place of the ordinary carbon microphone without any changes in the

circuit. The output level of the condenser microphone is the same as that of the carbon. It cannot overload and there is no rustle. These microphones are particularly adapted for picking up

organ selections and in use at WJJD, WLS, KMA, WFBM, WSBT. It is small, light and compact, has very few electrical parts and its frequency loss is practically negligible.

Preliminary Analysis of the Loftin-White Circuit

Article on Page 86 Serves as Basis for Laboratory Study; Some Possibilities Revealed

By R. K. PEW

(Technical Editor)

MESSRS. Loftin and White gave a paper on their Cascaded Direct Coupled Tube Systems as operated from alternating current at the Rochester convention of the Institute of Radio Engineers on November 18 and 19, 1929. Incorporated in this paper were detailed the various steps in the development of this amplifier, the theoretical operation of the various types of amplifiers and a statement as to the operation of same as a broadcast re-

tions their measurements were made. (Their article starts on page 86.—Editor.)

The purpose of this preliminary analysis of this type of amplifier was to determine the constants of the circuit and from these fixed values determine the characteristics under different operating conditions, that is, varying input voltages.

Simplest Adaptation

The most simple of the various circuits were selected. This consisted of a single 224 tube and a 250 output tube. A half wave rectifier with a twenty henry choke and three microfarads of condenser for the filter circuit were used. The filter output was 540 volts at .070 amperes.

The schematic circuit of the amplifier is illustrated in Fig. 1, with all circuit constants as used during the measurements.

In Fig. 2 is the schematic circuit of the amplifier as existed during the measurements. In Fig. 3 is illustrated the amplifier and the associated measuring equipment.

Apparatus Calibrated

The apparatus was set up as illustrated in Fig. 2 and calibrated as follows: the input circuit consisting of a

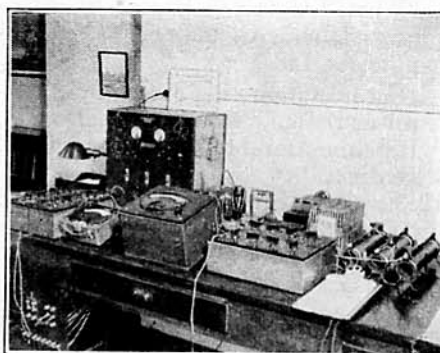


Fig. 3. The amplifier and associated measuring equipment is shown here

ceiver and a few voltage amplification versus frequency curves. They failed to state, however, the majority of circuit constants and under what condi-

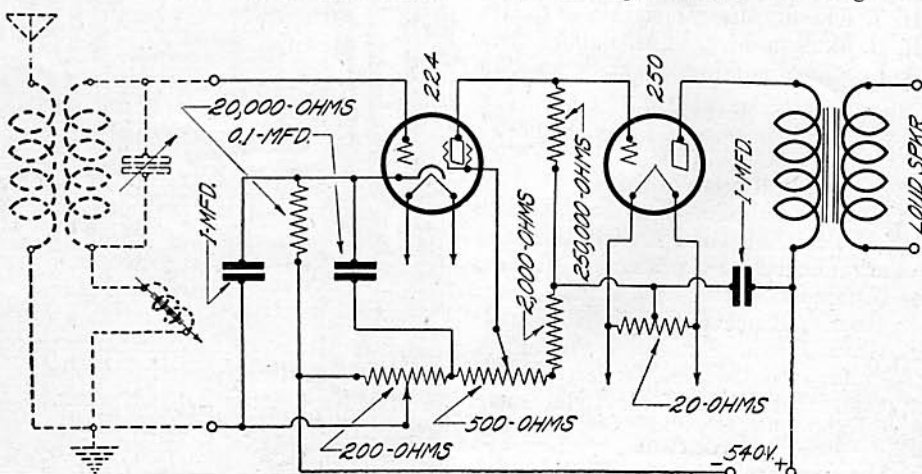


Fig. 1. This is a schematic circuit of the amplifier with all circuit constants as used during the measurements