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WHERE EDUCATION ADVANCES OHIO

Which the Cross Word Puzzle Sharks Will Interpret from the Initials to Mean W E A O, our Broadcasting Station

BY CHAS. E. BEARD, E. E. '27, Member A. R. R. L.

IN this day and age of broadcasting stations, and —broadcasting stations (?), it seems altogether fitting and proper that a few words should be written regarding our own broadcasting station here on the campus. Let it be said at the very start that WEAO ranks with the best of college and university broadcasting stations. While there are a choice few that surpass it insofar as equipment is concerned, it is very admirably holds its own with all as to quality of programs and transmission. Much credit for the above conditions is due the operating personnel of the station, who have worked very hard and often under adverse circumstances due to lack of proper equipment and funds to make the station a success.

The station is located in the Agricultural Engineering Laboratory and consists of three rooms as shown in Fig. 1. The waiting room, transmitter room and studio. The conditions surrounding the present location of the station are by no means ideal, but at the present time are the best that can be offered and to all intents and purposes serve reasonably well. The location and arrangement of the apparatus and studio equipment is also shown in the accompanying diagram which requires little or no explanation.

The transmitter is of the loose coupled type using four 250 watt transmitting tubes in a three coil Meissner circuit. Two tubes are used as oscillators and the remaining two tubes as modulators. The input to the set, that is the plate supply, is 1,000 watts supplied by a motor-generator consisting of a motor and two 1,000 watt, 1,000 volt generators in series. The output of this transmitter is rated at 500 watts, with the antenna ammeter reading 10 amperes.

The original set was built by Mr. V. M. Lucas during his junior year at the University. The present transmitter is practically the same one constructed by him with the addition of some new equipment and certain revisions of apparatus made necessary in order that the set work at its maximum efficiency and to keep up with the improvements brought about by research from time to time.

Another transmitter for experimental purposes is now under construction using Western Electric apparatus in a three coil Meissner circuit. It will use the same number of tubes as the old set, namely, four W. E. transmitting tubes, two as oscillators and two as modulators. When completed exhaustive experimental tests will be conducted using this set, and if found to be superior to the old one it will be adapted for use as the permanent transmitting set.

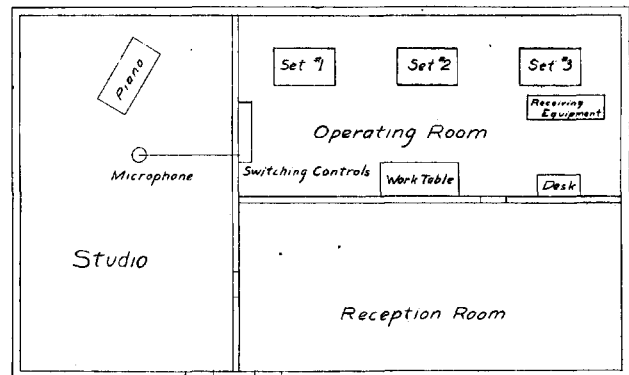
As is probably well known, the voice currents as reproduced by the microphone alone are comparatively weak, and would not be well reproduced in the air if some means were not employed whereby these weak impulses were amplified many times before being fed into the transmitting apparatus. This is accomplished by the use of a speech amplifier, made on much the same principle and at least performs the same function as the amplifiers used on ordinary receiving sets. It employs, however, many more stages of amplification than is usually found in the common receiver. Plate volt-

age is supplied this apparatus by means of Willard storage "B" batteries and filament current is supplied by the usual method, from storage batteries.

There is also located in the transmitter room all control switches for the various apparatus and microphone lines from the studio and various points on the campus, so at a minimum waste of time all changes can be made by the operators.

The receiving apparatus is of the conventional type for such an installation, and consists of a tuner, amplifier and two stages of power amplification for use with a Western Electric loud speaker.

The studio, as is usually the case, is hung with heavy draperies to provide the proper acoustic properties so necessary to the proper transmission of music and speech "picked up" by the microphone. The studio equipment is of the conventional type—a grand piano and accommodations for those taking part on the program. A great amount of effort has been expended upon the testing and selection of a microphone for studio use that



would provide the best quality of transmission, and at present a Kellogg, stretched diaphragm, double button microphone is being used which gives very good results. A new microphone system is also under contemplation, that when put into use should materially add to the efficiency of this part of the station equipment.

A very interesting part of the microphone system of this station are the microphone lines running to the Stadium, the auditorium in University Hall and to the chimes tower in Orton Hall. The Stadium line is used for the broadcasting of football games. A special booth containing the control apparatus has been constructed in the press box at the Stadium and all the "pick-up" microphone lines from the cheering sections terminate in this booth, at the proper controls. The operators in charge are thus enabled to select the microphone which at their discretion seems best suited to the broadcasting of the songs and yells. From here the reports of the progress of the game are transmitted over a line running direct to the transmitting room of the station where the microphones in the Stadium are connected directly to the transmitter through the proper channels, enabling the games to be broadcast first-hand from the side-lines.

The microphone in the auditorium of University Hall is used for the broadcasting of lectures and any event

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taking place there deemed of sufficient importance to be put on the air.

The chimes line is used to broadcast music played on the chimes in Orton Hall tower. The chimes are played by Prof. MacManigal of the Department of Engineering Drawing, and to judge by the flood of complimentary letters and cards flowing into the station from all parts of the country, praising this feature of the programs, they are very ably played and reproduced. Especially do such communications come from people in Canada, who say that it is the best chimes music they have heard since coming to this country from England.

Having elucidated at length on the internal workings of WEAO, a few words about the antenna and counterpoise system would not seem out of order.

The antenna is a flat-top composed of six wires, with an overall length of 215 feet. The lead-in is a small cage 50 feet in length and runs directly to a large ground switch. No insulators are used in the individual wires of the antenna, the insulation being provided for by a large Ohio Brass Co. strain insulator at each end of flat top. One end of the antenna is moored to the top of the stack on Robinson Laboratory and is about 165 feet high. It then slopes to a height of about 60 feet at the station end, where it is supported by a large telephone pole set for this purpose.

The counterpoise is suspended directly beneath the antenna and is also composed of six wires with a caged lead-in. It is in the form of a fan about 140 feet long, with each wire insulated at the far end by an 18-inch insulator and at the station end by the same type insulator as used on the antenna flat-top.

Programs are broadcast regularly every Thursday evening from this station and occasionally on other nights when it is possible to obtain a good program. Every effort is made to make these programs first class in every respect so that the people who listen to the programs broadcast from WEAO can, for the most part, rest assured of a delightful and entertaining evening. The programs are varied from time to time, and include instructive lectures by members of the faculty, classical music, instrumental and vocal selections and popular music.

Another feature of this station is the daily broadcasting of the live stock and produce market reports, which

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should be of especial interest to the farmers within the range of the station's transmitter.

At the time of writing this article, WEAO is broadcasting on a wavelength of 294 meters, 1020 kilocycles, and operating under a class B license. This means that WEAO is in the same class with a great many of the best broadcasting stations in the country, and is hailed as a big step toward making the station one of those whom people eagerly look forward to receiving broadcast programs from.

The operating personnel of WEAO consists of the following persons: Mrs. Charles, program manager and announcer; Mr. A. M. Rose, assistant announcer; Mr. M. F. McDowell and Mr. Robert C. Higgy, operators. Too much cannot be said in complimenting these people for their untiring efforts in keeping WEAO on the map.
