IT'S A 5-DX FOR WOI

Iowa State College Picks 5 KW Unit

By PROFESSOR W. I. GRIFFITH

IOWA State College was actively engaged in the radio field for many years before the advent of broadcasting. The Electrical Engineering Department, under Professor F. A. Fish, maintained a highly efficient amateur station operating under the call letters 9YI. This station was in operation prior to 1914. The 240 cycle note of the synchronous spark transmitter was well known throughout the middlewest before the beginning of voice transmission.

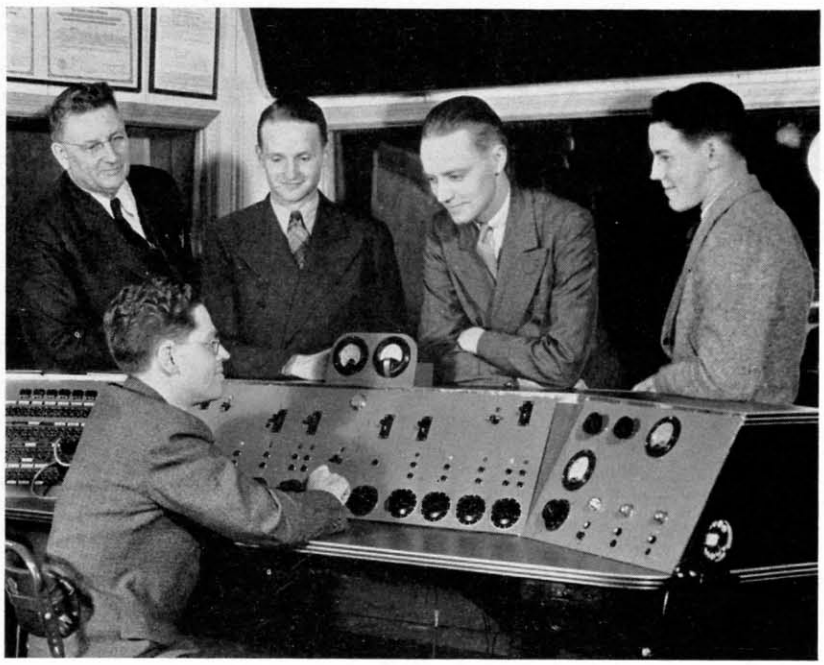
When the first regular broadcasts from KDKA had demonstrated the possibilities of this means of communication, the Electrical Engineering Department determined to construct a broadcasting station. Mr. Harmon B. Deal, a graduate of Massachusetts Institute of Technology, was chosen to supervise the project. He was assisted by one of the engineering students, A. G. Woolfries, now Chief Announcer of the station. Early in October of 1921 work was begun on a fifty watt set—a "super-power" outfit for the time. Plans were later changed to increase this output to 100 watts. With this power, the transmitter first went on the air the evening of November 21, 1921, using a wave length of 375 meters and the call letters 9YI. The following April (1922) the call WOI was assigned by the Radio Division of the Department of Commerce.

Almost immediately upon its inception, the station inaugurated a schedule of service reports consisting largely of weather forecasts and livestock market news. The forecasts were sent by commercial wire from the United States Weather Bureau. The market reports were copied from a long wave code broadcast by NAJ, the government station at the Naval Training School, near Chicago. This service from NAJ was continued for nearly three years, after which it was supplanted by commercial telegraph reports. In July, 1926, the United States Department of Agriculture leased wire service was made available.

The 100 watt transmitter proved inadequate to cover the state, so plans were made for a more powerful set. In December, 1923, WOI put into service a 500 watt transmitter—again the "last word" in equipment and power; This outfit gave a fair coverage of the central portion of the state, and was heard in all parts of Iowa under favorable conditions. A small studio was secured—the "new" double button microphones were installed—the schedule was expanded — WOI rapidly forged to the front in midwest radio circles.

Constant expansion within the station soon brought a demand for additional room for studio and transmitter. As a result, a large laboratory adjoining the original quarters was made available. In 1924, this was partitioned into a suite of rooms and the studio moved to its present location. Late the same year, a new 500 watt transmitter was put into service. Provision was made for increasing this power to 750 watts when the necessary permission had been obtained. This permission was forthcoming in August, 1925.

WOI was assigned a frequency of 1110 kilocycles in January of 1925. It soon became aparent that the effective coverage area of the station had been materially reduced. To offset this, a 5000 watt transmitter was designed and built by the station staff headed by Mr. Ralph Knouf, an I. S. C. graduate who had been employed by the General Electric Company. The new transmitter went into operation in January 1927. Again WOI boasted one of the most powerful and up-to-date sets in



Engineer L. L. Lewis, seated at the control panel. Standing back of the control console from left to right: Prof. W. I. Griffith, Director of WOI; Clyde Hoyt; John Miller and Clement Arnold.

Large Studio—Broadcasting Station WOI.

the country. Automatic crystal control of the frequency was one feature which then was used by only eight other stations. In June, 1927, another change in frequency put WOI on the 1130 k.c. channel. This high frequency was made still more undesirable by severe interference from nearby stations on adjacent channels.

The general re-assignment which took place in November, 1928, brought a welcome change to WOI. The station was placed on the 560 k.c. channel to share daylight time with KFEQ, St. Joseph, Missouri. Although the power was reduced to 3500 watts, the resultant coverage was vastly superior to that obtained on the higher frequency. Relations with KFEQ were most friendly, but that station, of commercial necessity, sought a full time license. The latest change, made in November, 1929, licensed the station to operate with 5000 watts power on the 640 k.c. channel. This is the frequency assigned to KFI, Los Angeles, and to WHKC, Columbus, Ohio. WOI operates, as a result, only during daylight hours. While a certain amount of night time would be acceptable, it is felt that the present assignment is generally satisfactory and every effort is being made to utilize these facilities to the utmost.

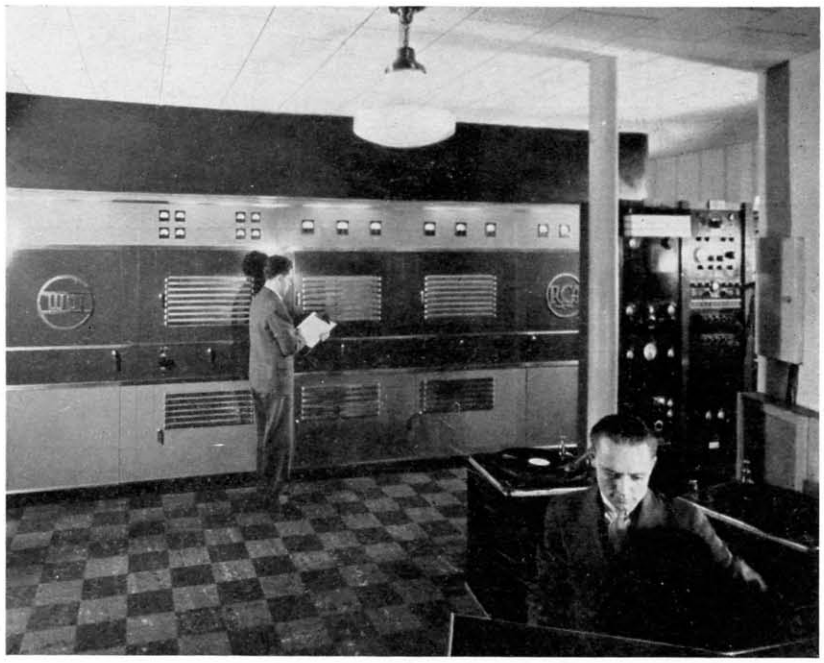
For some time it had been evident that WOI was not making the most efficient use of its assigned frequency. This was partly for the reason that the flat top antenna suspended between the water tank and the chimney, located near the buildings of the Mechanical Engineering Department, was not as efficient as necessary to comply with the regulations of the Federal Communications Commission in radiating the signals of WOI.

Plans and specifications were prepared by Radio Engineer W. E. Stewart with the assistance of other college staff members for a 400 foot vertical antenna and a 2000 foot coaxial cable leading from the WOI transmitter in Engineering Annex to the site of the antenna north of the Agricultural Engineering Building.

The contract for the 5 kilowatt transmitter was awarded to the RCA Manufacturing Company of Camden, New Jersey. A construction permit was filed with the Federal Communications Commission and permission granted to proceed with the installation.

The new transmitter was installed, tested and put in service September 23, 1939. It has proven to be much more reliable, economical and efficient that the old composite transmitter. Because the use of the new transmitter did not depend on the old transmitter at all, it was possible to change from one to the other without loss of time in the service to listeners.

The new studios and offices were occupied October 23, 1939 and again WOI feels that it is well equipped as mechanical facilities are concerned, until such time as the art of broadcasting shall have developed further than at present.



Engineer L. L. Lewis, standing near the RCA 5-DX. Senior operator John Miller seated at control panel.