

A RADIO PIONEER

WOI - AMES, 1923-1940

BY A. G. WOOLFRIES

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 middle-west 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, later 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 supplemented by commercial telegraph reports. In July, 1926, the United States Department of Agriculture leased wire service was made available.

It is interesting to remember that at this time, all broadcasting stations operated on a wave length of 360 meters—in theory at least. Actually, it was the custom for stations to deviate slightly above or below this channel according to the severity of interference. However, all government reports were transmitted on 485 meters. Thus, when a weather report was to be given, both stations and listeners changed to the longer wave; afterward, scrambling back to 360 meters for the balance of the program.

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.

During this time, WOI had far outgrown its original function as an experiment of the Electrical Engineering Department. The station was reorganized in 1925 as a part of the Iowa State College and operated from funds supplied by the Agricultural Extension Service, Engineering Extension Service, and from general college funds, under the direction of Professor D. C. Faber, Director of Engineering

Extension. In October, 1925, Professor W. I. Griffith was named as Program Director, while Professor F. A. Fish remained in charge of the technical side. Within a year, this set-up was simplified by placing the entire station under the direction of Professor Griffith. The following year, 1926, the important market news service of the station was reorganized and augmented when the United States Department of Agriculture installed a leased wire office to supply a comprehensive service of livestock market information. This service, together with a program of music, dramatics, talks, athletic events, and the like gave the station a distinctive program which appealed to a large group of listeners.

WOI was assigned a frequency of 1110 kilocycles in January of 1925. It soon became apparent 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 Ralph Knouf, an Iowa State College 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 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 KF EQ, 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 KF EQ 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.

WOI has proven to be a stepping stone to professional advancement for the WOI engineers and has maintained the policy of using qualified students as operators to assist the engineer. When Engineer Ralph Knouf, Iowa State College Electrical Engineering 1924, left WOI to join the staff of the Steinite Radio Company in 1928, the position was filled for about a six months period by calling back a former student operator, R. J. Rockwell, Iowa State College Electrical Engineering 1927, to serve as Radio Engineer. Mr. Rockwell has since held prominent positions and is at present Chief Engineer of WLW of Cincinnati, Ohio.

Mr. Phil Knokle, Iowa State College Electrical Engineering B.S. 1927 and M.S. 1930, served jointly as instructor in communications for the Electrical Engineering Department for one-fourth of the time and as Radio Engineer the remaining three-fourths of the time from December 1, 1928 until the Christmas vacation of 1930, when he left to join the staff of the RCA Manufacturing Company of Camden, New Jersey. He is at present time Assistant Engineer at WLW, Cincinnati, Ohio. During the time Mr. Knokle was Engineer, the antenna was changed, a counterpoise grounded system, consisting of a copper net and two wells, was installed and a counter weight suspended under the water tank. This weight was for the purpose of removing the possibility of unusual strain on the chimney, supporting one end of the antenna, due to the formation of ice and sleet on the antenna.

When Engineer Knokle left the WOI staff the work was carried by students of the Electrical Engineering Department who were directed by one of their own number, Paul Huntsinger, until July 1, 1930. Mr. Huntsinger was then appointed Engineer and served in this position until June, 1934, when he left to accept his present position, that

of Chief Engineer of the Iowa Broadcasting System, Des Moines, and in direct charge of station KRNT and KSO. During the time Mr. Huntsinger was Engineer, the efficiency of the station was improved by converting the transmitter to a low level modulation and completely rebuilding the input equipment. This was accomplished without loss of time from the regular operating schedule or inconvenience to listeners.

When Mr. Huntsinger left, the position was filled by the appointment of John Lewis, Iowa State College Electrical Engineering 1931; Mr. Lewis had served as an operator during his undergraduate days and as assistant Engineer for one year during the time Mr. Huntsinger was Engineer. Lewis served as Engineer for the period from July 1, 1934 to December 25, 1934, when he joined the staff of the Iowa Broadcasting System, Des Moines.

Mr. W. E. Stewart joined the staff of WOI January 1, 1935, and continued in this capacity until November 1, 1939, when he left to accept a Civil Service appointment for radio work with the United States Government in the Panama Canal Zone. Mr. Stewart had earned his B.S. and M. S. degrees at the University of Nebraska prior to his work at WOI, and in June, 1939, Iowa State College awarded him the professional degree of Electrical Engineering.

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 plans and specifications were approved by the Regional Public Works Administration office of Omaha, Nebraska, who agreed to pay 45% of the cost of purchase and installation. Bids were advertised for a ten day period and opened October 28, 1938. The contract for the 400 foot triangular Truscon tower was awarded to the J. E. Lovejoy company of Des Moines, and the contract for the construction and installation of the electric lines was awarded to the George Weiler Company of Indianola, Iowa. Work was started shortly after the contracts were awarded and in spite of cold winter weather the work was completed and put in service April 1, 1939. While no complete field intensity survey has been made, it is estimated from partial surveys and correspondence that the signal strength of WOI has been materially strengthened by the change to the modern vertical antenna.

For several years the staff of WOI has been interested in securing a new location for its studios, transmitter and offices. When it became evident that a new building known as the Service Building was to be erected on the Iowa State Campus, Engineer W. E. Stewart, the architect, Mr. Thorvald Thorson of Forest City, employed by the Board of Education for the Service Building, and Prof. A. H. Kimball prepared plans and specifications for the transmitter rooms, studios, offices and lounge that are located on the third floor of the new Service Building. The building and equipment were made possible through a grant of 45% from the Public Works Administration, and the plans were approved by the PWA Regional office at Omaha. Bids were advertised and the contract for the erection of the building awarded to the Harlan Contracting Company of Harlan, Iowa, while 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 than 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 to such a stage as to make the present equipment seem obsolete and antiquated.

When Mr. Stewart left the WOI staff, the position of Engineer was filled by the appointment of Mr. Louie L. Lewis, Iowa State College Electrical Engineering 1931, who had had charge of the State Police Radio Station at Storm Lake for the previous four and one-half years.

—A. G. Woolfries, better known as "Andy" to many thousands of Iowans, was associated with WOI as a student and as an announcer from 1923 to 1941. He is now with the Iowa Broadcasting Company, Des Moines.

Copyright of Annals of Iowa is the property of State of Iowa, by & through the State Historical Society of Iowa and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.