

CONTENTS

2	A WORD FROM THE DEAN	BY HUNTER ROUSE
5	THE HAPPENING	BY DARYL SLAVIERO
10	ENGINEERING ETHICS	BY DAVID MEER
12	IOWA'S HOMECOMING ACTIVITIES	
19	FIFTY YEARS OF BROADCASTING . .	BY CARL MENZER
26	FACULTY PROFILE	BY BRIAN WILLIAMS
28	SURVEY GIRL	BY RICHARD DENNIS
30	NEWS FROM THE ALUMNI	EDITED BY T. FARRELL

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1

Fifty Years of Broadcasting



by Carl Menzer

In discussing broadcasting at The University of Iowa, I would first like to give you some rather significant dates.

In 1917, when I came to the University as a freshman in electrical engineering, we broadcast, by wireless code from the basement of the Physics Building, a program of weather reports, time, news, and sports, and even a course in the theory of radio.

In 1918 all radio activity was closed down because of World War I. In 1919 when broadcasting was permitted again, we built our first voice and music transmitter. This activity was operated under the call letters 9YA with an experimental license, as broadcasting stations were not licensed as such in those days.

In 1923 we installed our first commercially built transmitter in the attic of the Engineering Building. This transmitter was a 500-watt Western Electric unit and bore the serial number 102. AT&T, forerunner of the National Broadcasting Corporation, used a transmitter with serial number 101, which may now be seen in the Smithsonian Institute in Washington. For our station, the call letters WSUI, signifying the State University of Iowa, were requested, but the call letters WHAA were assigned as the WSUI call letters were being used by a ship installation. This ship was later decommissioned and the call WSUI was assigned to us.

In the late 1920's we constructed and operated the first television transmitter in the old Electrical Engineering Building. This used the old mechanical scanning system which has now been replaced by electronic scanning. It had a disc with lenses set in a spiral, and its rate of revolution had to be matched to that of a similar disc in the receiver. The range of this television station was roughly twenty to thirty miles, and we conducted a regular schedule of programming, although the number of receivers was certainly limited. It was operated as an experimentally licensed station and was discontinued after several years.

In 1940 our present transmitter, a five-kilowatt RCA, was erected with a three-tower directional array about two miles

west of the campus. At the same time, the present radio building was constructed and our studios were moved from the Iowa Memorial Union to the new building. A part of the cost of construction and installation was covered by federal PWA funds. The cost of construction for the building in 1940 was \$3.50 per square foot, as contrasted to present construction costs of \$20 to \$30 per square foot. That equipment is still in use today, and although it is 28 years old, it is kept in reasonably good condition by some loyal and hardworking engineers.

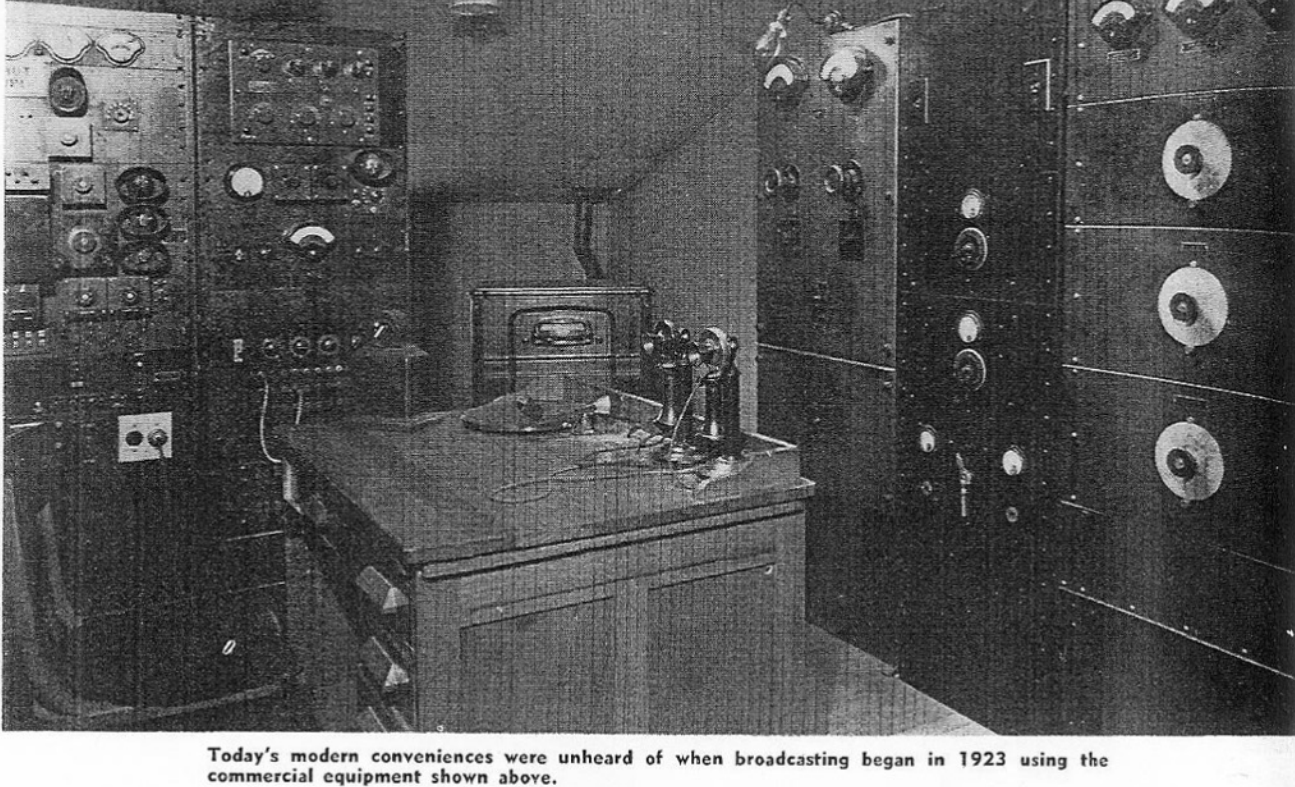
In 1948, when frequency modulation was developed, we installed our FM station with the call letters KSUI. Then, in 1963 stereo frequency-modulation equipment was installed to keep abreast of developments, and stereo broadcasting was started.

By virtue of our early start in broadcasting, I believe we were one of the first radio stations to operate in the nation or the world. The University of Wisconsin also claims to have the first station in the nation, as their starting year was the same as ours. We certainly must be the first station west of the Mississippi River.

There are a number of firsts for which I think we qualify: we were the first station to transmit play-by-play broadcasts of sports events from outside the studio; the first to broadcast "remotes"—or events outside the studio; the first to broadcast directly from the classroom; and the first to broadcast University courses for credit. In this connection there is an interesting first. A student had finished all but a few credit hours of his academic work for a degree at the University when he was called into the military service during World War I. In that conflict he received injuries which later prevented his leaving his home in southeast Iowa, so he registered for credit courses which were being broadcast. When he had completed the necessary work, his degree was conferred in *absentia* by radio by the President of the University—the first time this was ever done.

There have been many such firsts, which would almost

19



Today's modern conveniences were unheard of when broadcasting began in 1923 using the commercial equipment shown above.

fill a book, and all of which certainly date me. For what it's worth, I must have been in educational broadcasting for longer than any individual in the nation, or the world for that matter.

Today we have very sophisticated equipment and all broadcasting is both licensed by the Federal Communications Commission and controlled by that body. Rules and regulations are very strict and must be complied with in every respect. One almost feels that, if he wants to look out the window, he should first make application to the Federal Communications Commission in quadruplicate and receive a permit. Control involves such things as transmitter and maintenance logs, frequency control, modulation limits, radiation pattern, and power limits. All equipment and operation must meet certain standards, and annual proof of performance must be made to show proper operation. A Federal Communications Commission inspector may drop in for a complete inspection at any time. To show how strict such inspections are, let me tell you of an incident which happened a number of winters ago. The Federal

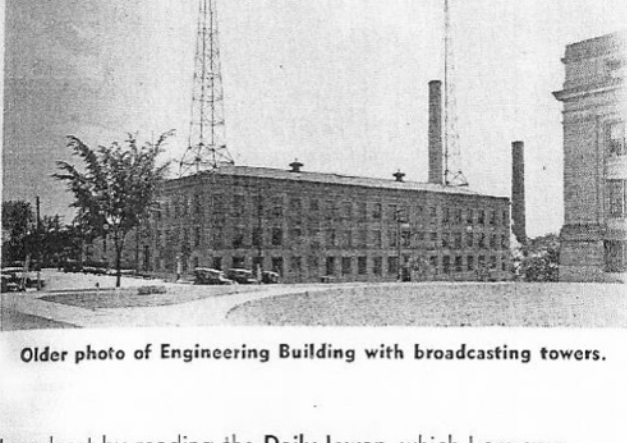
Communications Commission requires that each tower be surrounded by a fence equipped with a gate which must be kept locked. Our operator must enter the enclosure twice a day to log meter readings. On this occasion we had such a snow and ice storm as to completely cover the fence, so the operator walked over the drifts to read the meter at the base of the tower. He was able to get one gate open a few inches but was unable to close it. An FCC inspector chose this time to make an inspection and we were cited for having an unlocked gate at one of our three towers. We were required to show cause and state what measures would be employed to prevent any recurrence.

Program-wise, the Federal Communications Commission controls such things as hours of operation, political broadcasts, fairness doctrine, program logs, and a myriad of others.

We broadcast some twenty to twenty-five different programs daily, or 150 weekly. We have some twenty employees on regular budget and more on part-time pay, as compared to the 1920's when, besides myself, we had one operator and one secretary. In the old days we made up our noon

20

Iowa Transit

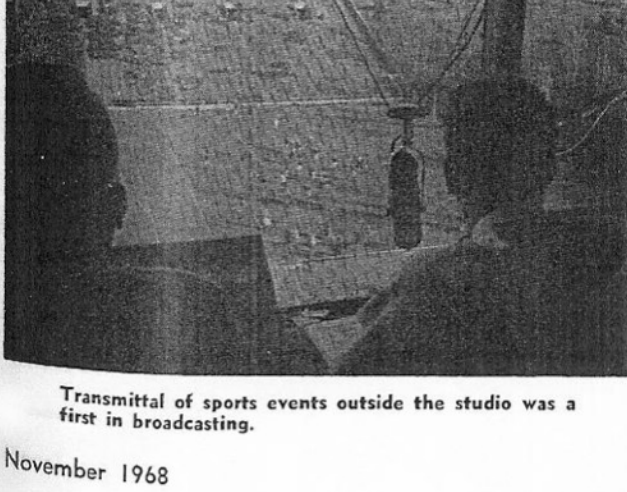


Older photo of Engineering Building with broadcasting towers.

broadcast by reading the *Daily Iowan*, which I am sure made up their weather reports by holding up a moistened finger to determine the wind velocity and direction.

Our first broadcast transmitter incorporated two experimental vacuum tubes sent to me by a friend and Iowa graduate who is employed by a large electrical firm which was then just starting experimental work with vacuum tubes. They required 500 volts direct current which, in those days, was hard to come by. We drove four direct current motors as generators. With all the attendant difficulties, we did get our 500 volts until the transfer circuits in the Physics Building broke down. The microphone was placed directly in the ground circuit carrying radio frequency current many times its designed capacity. This caused the microphone after five minutes' use to become too hot to touch so we switched to a second microphone to allow the first to cool off. The quality must have been terrible but those who listened with earphones and cat-whisker detectors thought it was excellent.

Music was provided by my own tin wind-up phonograph and seven records. After a period of weeks the loyal listeners



Transmitter of sports events outside the studio was a first in broadcasting.

November 1968

sent us ten more records, so our programming blossomed. I guess it made little difference as long as they could listen to music by wireless. Our first live music was provided by a saxophone sextet made up of engineering students who organized themselves to perform in the MECCA show.

It is possible that we developed the first public address system. Having secured one of the first radio receiver loudspeakers, we connected it to a microphone and William G. Raymond, then Dean of Engineering, heard us talking from the basement of the Physics Building. He walked over and suggested that he could provide money for more loudspeakers if they could be used to amplify the speaking at the student convocation held on the campus east of Old Capitol. The arrangement, although satisfactory, was extremely touchy, and required an operator's hand on the control constantly. My being the operator meant shutting down the equipment as I dashed onto the platform, received my degree, and dashed back to continue with the broadcast of commencement.

Our baseball broadcasts were done from the roof of the grandstand where the present English Building is located. There were many problems. The wire strung from the studio to the grandstand had to be replaced for every game as fishermen found it made a good trotline. Announcers in those days also qualified as acrobats. The equipment was heavy and bulky and one had to climb to the top of the grandstand and then swing over a three-foot roof overhang—and all this with a 50-pound amplifier box. The steep slope of the roof required a 2x4 nailed in place to brace one's heels against to keep oneself from sliding off. In addition, the roof on which we sat for the duration of the game was covered with gravel the size of marbles—uncomfortable hardly describes it. In contrast, today's sports announcers require an air-conditioned booth with an elevator, and transportation to the field, and they usually have an engineer and three assistants to start preparations three days before the event. They must dress in sports jacket and hat, wear dark glasses, and carry a portable typewriter. The typewriter I've never figured out, as I've never seen them use it.

When radio networks were first suggested, it seemed logical from a frequency allocation standpoint to put all network stations on one frequency. Listeners in any part of the country could then tune to one particular spot on the dial and always receive the network program. This seemed impossible at first, because it would produce various whistles at that spot on the dial. To eliminate this difficulty, I had the idea of exactly controlling the frequencies of all network stations by transmitting an above-audible frequency on the same network lines that carried the program material. This proved workable technically, but was not so acceptable from the standpoint of network income. In testing the theory we installed a second experimental station on the west side of the campus with an artificially constructed 100-mile telephone line between. These experiments were usually carried on after midnight and the power of the west side station was usually pushed up to a point where the trans-

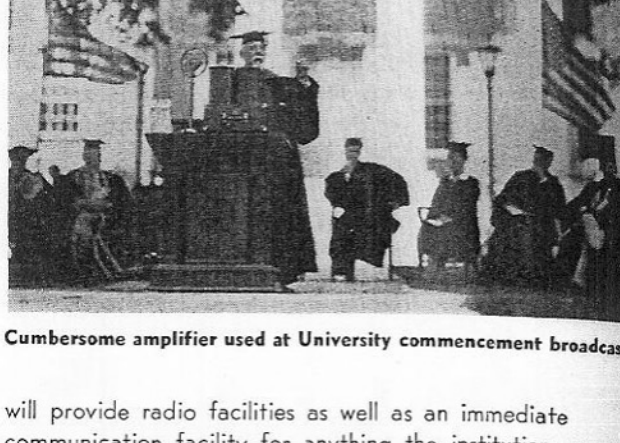
21

mitter was completely overloaded. The operator of that station unfortunately had a speech defect and one night when everything was apparently doing fine he called the studios to suggest we decrease the overloaded power. The conversation went something like this:

"I—eeee-ah-h-h—l—eeee-ahhh-h-h—Too late!"

In the first days of the old Federal Radio Communications Control, our contacts were considerably different from those made now. There were few formal applications and hearings. One usually sat down with one of the commissioners to discuss the problem and a decision was made immediately. Cases were not always decided on their merits but occasionally on the political strength one could muster. In some instances cases were decided between opposing attorneys over lunch, and horse trading was the accepted procedure.

Yes, there has been considerable change in all phases of broadcasting over the past fifty years. Now we're planning a state-wide radio and television network to cost \$15 million when completed. A plan is underway to join the radio facilities of the CIC institutions—the Big Ten and the University of Chicago—with a wireline network to provide a mutually programmed source for production of the best that these eleven institutions have to offer. Another proposed plan, called the Educational Communication System, proposes a network covering the whole United States which



Cumbersome amplifier used at University commencement broadcast.

will provide radio facilities as well as an immediate communication facility for anything the institutions may wish to transmit. The possibilities are only limited by one's imagination. Although these plans have been on a drawing board for many years, it still takes time and money to bring them into operation and, having had a hand in them all, I hope that I can see some of the results in the near future.

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22

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