



ELLIOTT JENKINS (LEFT) AND THORNE DONNELLEY (RIGHT) TESTING THEIR WRIGLEY TOWER OUTFIT

Highlights in the History of WDAP

The Chicago Broadcasting Station that Plays Dance Music for Half a Continent

By J. ELLIOTT JENKINS

I CANNOT make up my mind whether this brief history of WDAP, which I am writing at the request of the Editor of RADIO BROADCAST, will be a confession or a biography. However, it should be somewhat amusing, especially to those familiar with broadcasting stations. It certainly is to me.

Thorne Donnelley and I, though we had never worked together before, had been perfectly good hams in the days of Morse and carborundum, when you used part of your father's automobile for your transmitter, and your initials were your call. My early training in the art of making the cook's favorite rolling pin into a tuning inductance came from Paul Godley, then an operator on the Great Lakes. But in 1921, when the Local Westinghouse station first opened up with the Chicago Opera, the trouble began. Donnelley came up to my house one evening to consider a Morehead

tube hooked to a loose coupler tuner. Strains of Aida were faintly audible. This was too much. The following week, I was summoned to his house, where he had collected most of the receiving apparatus in Chicago. It covered the floor and the grand piano, and a certain amount of it would function. A few days later came a hurry call on the arrival of a 20-watt Paragon transmitter. This gave room for a lot of thought.

A few days later, riding past the Wrigley Tower on Michigan Avenue, I said I thought it would make a good place for an experimental laboratory. About a week later, Donnelley came bursting into my own laboratory on Van Buren Street, followed by three men, two boys, and several dozen boxes. I said, "What's this?" and he replied, "Our broadcasting station for the Wrigley Building. I'm going over there now and string the antenna while

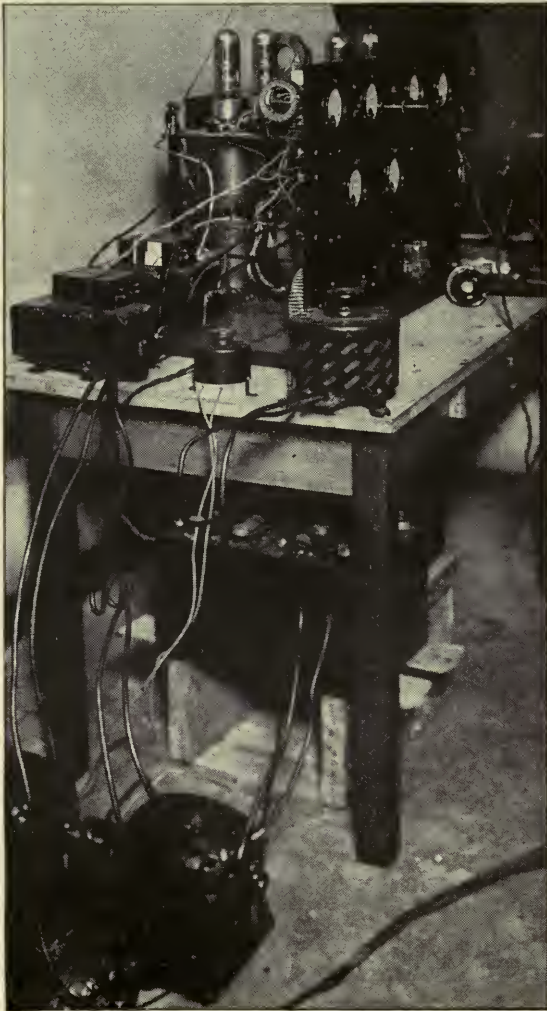
you put this stuff together." He shoved some papers at me, original art drawings by Charlie Logwood, then in Chicago, of a 100-watt, grid-modulated oscillator, and I went at it.

In about a week the thing was up, perched in the penthouse among huge water tanks and steel pipes. It led into a sort of cage antenna which hung at an angle to the tower. It radiated four amperes and sounded like nothing the air had ever heard before. We worked it as 9CT for a while, and then our broadcasting license arrived. This necessitated a studio. A dear friend of ours was experimenting with the advertising business on the floor below, so we appropriated the front half of the office and moved in a piano and a few yards of drapery. We overcame the microphone problem by

packing a four-button carbon affair into a fibre waste basket and hanging it on a pale blue parrot-cage support. I shall never forget the general effect. On top of the piano sat a loud speaker, connected to a hand microphone in the operating room. When the operator—it required just one to run the transmitter and the concert—would announce the station and the next number, it would be fairly audible to those in the studio. Then he would turn and bellow—"All right, *shoot!*" and the temperamental talent below would recover as rapidly as possible and do its best at the waste basket. It was a great way to run a station, and I wish we could return to it.

"WDAP, located on the Wrigley Building, Chicago, Illinois (it's a wonder we left off the U. S. A.), ground out her closing quotations and her three concerts a week all through the winter and up to July, 1922, steadily growing worse. It is a curious thing, that process of natural decay which a station, put up by the inexperienced, always undergoes. It just gets worse, despite your increasing knowledge and your violent efforts, and nothing will save it. So one afternoon in late July, a fortunate thing occurred. The sky turned a peculiar green, lightning flashed, and windows in the "Loop" blew in. A moment later the sun shone. With mingled feelings I drove to the Wrigley Building. It had a curious bare appearance in the sunshine. Pieces of our antenna were picked up in all directions for weeks. As I remember, we had used acid flux when putting it up originally.

But sometime before this, Donnelley and I had realized that it is almost impossible to put up a decent antenna on a tower-like building, so we began making overtures to the Drakes, deeply affected by thoughts of the reinforced concrete understructure the deep courts, and the sixty-foot steel masts on the corners of the roof. One of the directors of the Whitestone Company, which operates the Drake Hotel, had unfortunately heard the old station, but the idea went over regardless. So immediately after the windstorm, we moved an astounding collection of junk into the two handball courts and dressing room on top of the Drake. These were not in much demand, and would make marvelous studios and transmitter room. The dressing-room faced the south court, so we set the old 100-watt job up there and with tremendous effort strung a huge T antenna between the southeast and southwest flag masts.



THE STATION IN THE WRIGLEY TOWER
Showing generators, inductances, "hay wire," etc.



THE ORIGINAL STUDIO EQUIPMENT AT THE DRAKE HOTEL

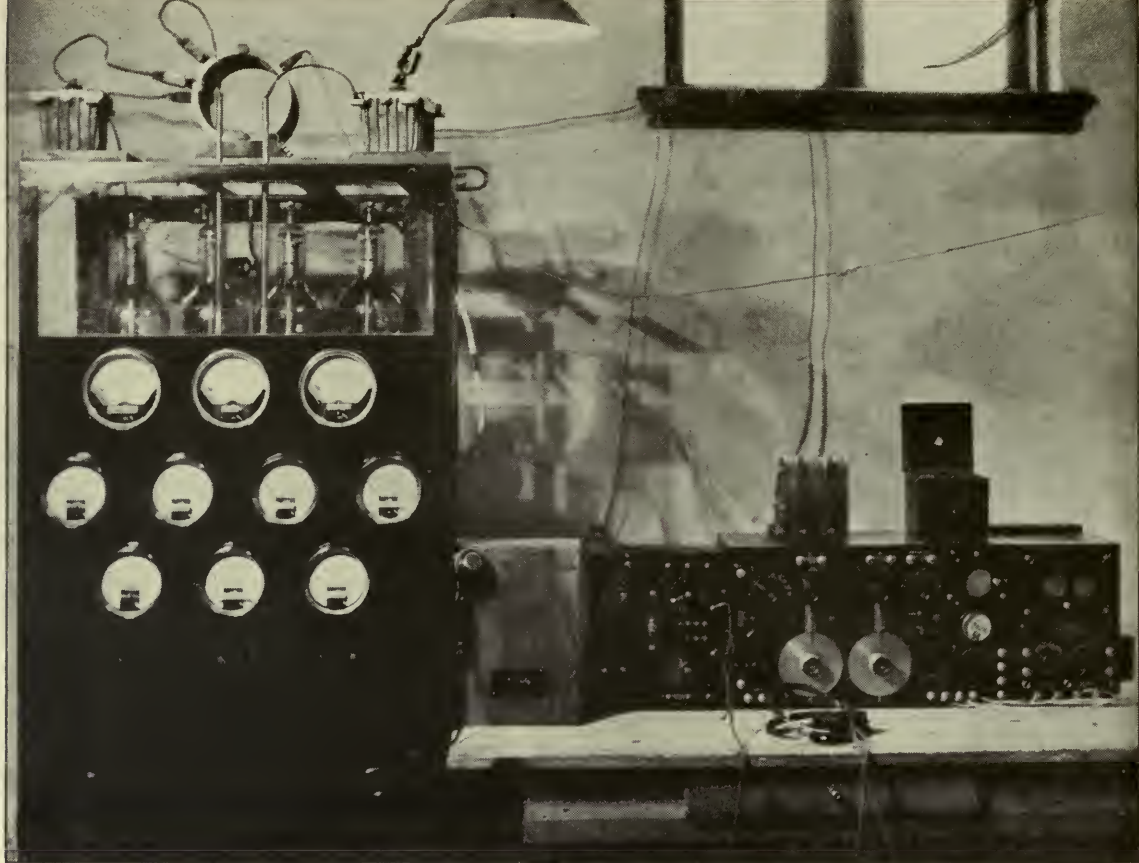
The pale blue parrot cage support is visible. It holds the signal lamp

Sixty feet under it we rigged a fan counterpoise. This was a success from the start. One ampere sent into it would raise the dead.

In the meantime I had been working as I never intend to again, building a one-kilowatt set. This was of the power amplifier type for the simple reason that it cost just half as much as the usual type of large transmitter for the given rated output, using half as many tubes and half as much current. It had a 50-watt grid modulated driver and room for four $\frac{1}{4}$ -KW tubes. Excepting our good friend E. K. Oxner, Donnelley and I were our own authorities on large power amplifiers, so when the new transmitter simply refused to work, we could go nowhere for help. After a three weeks' struggle, we gave a Sunday night concert with three amperes in the antenna. People in town phoned us to shut the rotten thing off, but a few crystal set owners called up wild with enthusiasm. They were hearing us without their antennas, and our modulation was perfect. For the next three days the mail rolled in, coming from everywhere but the West

Coast. It seems that our small output was so concentrated on just one wavelength that all tube sets within twenty miles began to backfire when tuned to it. For some time after that, listeners with tube sets anywhere near us found it necessary to turn their tube filaments way down to get us properly.

We felt that we had something unusual, and went to work hard on the set, adding tubes and working up the radiation, half an ampere at a time. Finally the West Coast mail began to come in. It was a nightly occurrence to have listeners in the Eastern states get excited and call us on the phone, relaying our signals back to us over the land line. I recall one night when I was particularly impressed with the speed of ether wave transmission. I was at the transmitter, and the doors to the studio were open. A gentleman in Seabright, N. J. called us up and I took the call. He complimented us on the station and put one of his headphones to the telephone mouthpiece. The notes of the piano number in progress went through our broadcasting microphone and



THE FIRST TRANSMITTER AT THE DRAKE HOTEL

It got its concerts as far as Surrey, England, Rio de Janeiro, Wrangel, Alaska, and to a ship 300 miles this side of Honolulu

the set to Seabright, and back to my left ear over the wires so much more quickly than they came through the air from the studio to my right ear that the difference was easily noticeable. In one case they traveled 1,800 miles; in the other, 40 feet.

I will never forget the first night we broadcast Jack Chapman's orchestra. Our lines to the main floor had just been installed, and I went down with a microphone and put it on Jack's piano. When I got back to the transmitter room I found Donnelley and the first operator dancing violently around the place dragging a crystal monitoring set after them. Apparently everyone listening felt the same way, as our mail went from 200 to around 800 letters a day.

WDAP went off the air recently for several weeks, and all hands turned to for the completion of the new transmitter. This takes up the entire other handball court on the floor. It is in the form of a single unit of two-inch

pipings and conduit work. All the generators are at one end. Then come the filter systems, input control panels, circuit breakers, and field rheostats. There are three transmitter cases in a row, the middle one containing a hundred-watt driver circuit. This may be coupled to either of the outside cabinets, which contain separate power amplifiers. In front of all this is the operating desk, with remote controls for everything and microphone lines. Way up above the structure are the tuning variometers, of $\frac{3}{4}$ inch copper tubing. The lead-in comes through the skylight for an antenna of four long cages in the form of an X. Under the antenna is a vast counterpoise covering the entire roof of the hotel.

We went on the air with the new station Saturday, June 29th, 1923. We have great hopes for it, and letters received thus far indicate that the two years of hard work we have spent on power amplifiers was more than justified.