

NEW YORK TELEPHONE COMPANY

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EXCHANGE 4-4600

September 18, 1946

Mr. John Penn
c/o Radio Station WHA
Madison 6, Wis.

Dear Mr. Penn:

My sister, Miss Jennie Schrage, who is head of the Traveling Library of the State Library Commission, tells me that you are preparing a thesis on the history of radio at the University, and would be interested in background on the early days of this development. The following are random reminiscences of the winter of 1916 and spring of 1917, long before WHA, and of the time that the University set up an experimental station under the call letters "9XM."

The moving spirit at this period, as well as later, was Earle M. Terry, Associate Professor of Physics. I feel strongly that, in any write-up of radio development at the University, Professor Terry should be given great credit for his interest and almost superhuman efforts in developing this station.

As an example, this was at a time when transmitting tubes were not available commercially, and Professor Terry himself mastered the art of glass blowing in order that he might construct transmitting tubes for the station. Before this, the station was, as I recall, a four kilowatt, rotary spark, code transmitting station, first put together with a series of leyden jars to serve as condensers. These jars were mounted on a high rack in the station and because of the high voltages brushed over badly. In order to avoid this, we filled the jars part way with water and floated oil on top as an insulator. This worked fine most of the time, but occasionally the voltage would build up to the point where a jar cracked, resulting in a deluge of oil and water and a rather complicated mopping up job.

Later, a large tank condenser was built and filled with kerosene. A breakdown here resulted only in an air bubble. The breakdowns were due to the interesting habit of shutting off the rotary spark gap motor before concluding the signing off. This gave a beautiful descending tone, as the last few dots and dashes were transmitted, but the slowing of the motor obviously built up unreasonably high voltages in the condensers.

Malcolm Hanson was "No. 1 Boy" at the station and was an extreme enthusiast. I remember his coming around to my rooming house at four o'clock in the morning to wake me up because it looked like a good night for reception.

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 The station was in a constant state of flux. Professor Terry encouraged all of us to try out any ideas that we might have, even though he might be morally certain that they were not practical. As an instance, one time I built an aerial switch to transfer the aerial from transmitting to receiving. This was mounted on a bread board and operated by a solenoid, which developed so much "oomph" that it promptly took off into space, leaving the bread board behind. At another time I installed my own private "rig," which was a one-half kilowatt rotary spark job. This we used for working near-by stations, though on one occasion we talked with a ship in Honduras with this outfit. That was a record in those days.

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 Among our visitors was A. Hoyt Taylor, who was then, I believe, Professor of Physics in North Dakota. Professor Taylor, as you probably know, later did major development work on radar. On the occasion of his visit, we had in our receiving set a "loose coupler," which was simply two air wound coils, one within the other, arranged so that the inner coil could be slipped part way out of the outer coil. Professor Taylor, in order to prove something or other, removed the inner coil ~~bottle~~, attached it to a long cable, and proceeded to carry it out of the room and down the hall, which was very loose coupling indeed. However, the set still worked. We were very modern -- we had a vacuum tube! This was one of the first two-filament audions. Other than this, we used crystal detectors of various kinds, as well as the so-called electrolytic.

bottle

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 The only other name I remember as an active operator in the station besides Malcolm Hanson and myself, is Dick Oetjen, whose father was, I believe, a model maker at Yerkes Observatory. Dick had a commercial license and was regarded as very "hot stuff" indeed on this account.

Merle (?) Jansky, who later became Professor of Physics at another state university, was in the department at about this time, but I do not believe he was very active in the radio end.

C.M. Jansky

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 I left the University to enlist in the Navy in May of 1917, at about the time that Professor Terry was setting up continuous wave transmitters, using his homemade vacuum tubes. When I returned to the University about 1919, the experimental phase was somewhat passed, the rotary gap had been dismantled, we were in the age of vacuum tubes, and with the disappearance of the crashing spark and the ozone in the air, the whole business seemed very effeminate indeed. At this point I rather lost interest and had no further regular connection with the station.

The above is rambling and does not prove anything in particular, but I thought you might be interested in a little of what now appears to be ancient history.

very

Very truly yours,

C. Schrage