

Hello All,

As always, please send any questions about the reading assignment directly to me at oldtimetelephones@goeaston.net. I will bundle questions if necessary, repeat the questions, and give answers in an e-mail to the TCI List Server before moving on to the next reading assignment. This way everyone will benefit from these questions and answers. By sending questions directly to me, we will avoid unnecessary clutter on the List Server. Previous reading assignments, notes, questions, and answers are available in the TCI Library at <http://www.telephonecollectors.info/telephony-101/>.

Please start reading at the last paragraph on p. 20 and stop at the last paragraph on p. 22.

At the urging of the late Bruce Crawford and with further clues from Roger Conklin, I greatly expanded the section on non-positional transmitters in the 2nd Edition of the book, which you are now reading. I was previously unaware of the work of George Eaton, but with help from Bruce and Roger, I was able to find Eaton's article in *Telephone Engineer* and his important patent. Subsequently, I took apart some transmitters to see how they corresponded to their respective patent designs and then drew all the diagrams in Figs. 2-8, 2-9, 2-11, 2-12. By the way, all of this research was done before Google became available.

The principle of the non-positional transmitters is still Ohm's law. No new physics is introduced, but engineering advances are made. Improvements in carbon granules along with geometry changes continued to reduce carbon noise. The position dependence was eliminated by the clever shaping of the carbon cavity. And frequency resonances were reduced (next reading assignment) by tinkering with material choices and thicknesses.

If you study all of the diagrams, you can figure out how these design changes evolved and created a truly non-positional transmitter. The funny bullet shape of the early transmitters in western Electric E-1 handsets is explained in Fig. 2-9 and related text. And it could be noted that the Automatic Electric transmitters worked so well that the company declined to switch to the final industry-standard T1 transmitter design.

If there are any questions about the current reading assignment, we will deal with the questions before moving on to the next reading assignment.

Ralph