Notes on Remarks made the Rochester I.R.E. Convention on November 8, 1943 in Connection with a Paper Delivered by Dr. I. E. Mouromtseff under the title, "Review of the Problem: Demountable Versus Sealed-Off Tubes"

November 10, 1943

Over five years ago when there was still prospects of using higher than 50 kw. carrier power for broadcasting, some experience was obtained on a demountable tube. After our development work was completed on the 250 kw. tube to be manufactured by the Western Electric Company as the 320A, the English and French work on demountable continuously pumped tubes was reviewed. (First picture shows the conditioning and test position at the Western Electric Tube Shop with a 320A tube being oscillated at 20,000 volts and approximately 375 kw. input).

In the light of some experience with eight 320A vacuum tubes operated in a Mexican station before the Havana Treaty, it was hoped some station in this Country could be interested in trying a demountable tube installation which would operate in conjunction with their standard equipment. It was visualized that the standard sealed-off tube complement would be used for relatively short intervals to carry the program during the times required for maintenance of the demountable tubes, such as filament replacement, exhaust

(Picture 2 shows a 10' giant tube which was operated at the Bell Telephone Laboratories.) We cannot say much about this tube but you will notice Mr. C. E. Fay on the stepladder and Mr. C. F. Wollner, his mechanical aid, standing on the floor beside it during the experimental trials. Three phase filament power of approximately 40 kw. and sufficient anode cooling area to dissipate 500 kw. was built into this model. Following Dr. I. E. Mouromtseff's experience at Westinghouse with the AW-220 tube, a water-cooled grid was incorporated into its design.

With the growing appreciation for the need of higher radio frequency powers for certain heating applications which have been mentioned today by the author, it seems certain that demountable tubes will enter the electronic tube picture in this Country as well as in England where we believe they have been used successfully for several years. After the war, we will undoubtedly learn more of their usefullness and their limitations.

Summarizing, the advantages for the demountable tube made more practical with the advent of oil diffusion pumps, such as the type being manufactured here at Rochester, are as follows:

(1) Material savings including the use of less strategic metals.

(2) Space saving by requiring more head room for the fixtures needed for the demounting techniques.

(3) Greater utilization of station man power for lower transportation costs and shipping hazards.

Unless the demountable tube is operated in conjunction with standby sealed-off tubes, the disadvantages would include:

(1) Greater time loss off the air due to conditioning time.

(2) Greater plant investment.

(3) Greater mechanical skills required by the operators.

(4) Added operating problems, as if the present broadcasting station is not already sufficiently complex.

Mr. James Weldon now of the Technical Branch of the Office of War Information was responsible for the equipment shown in picture 3.

H. E. MENDENHALL