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PERFECT QUALITY AND AUDITORY PERSPECTIVE IN THE TRANSMISSION AND REPRODUCTION OF MUSIC[1]

By Dr. FRANK B. JEWETT

BELL TELEPHONE LABORATORIES

IT is quite impossible in the short space of the fifteen or twenty minutes allotted to me to attempt anything in the way of detail, either in the matter of the scientific principles involved in the apparatus and equipment of this particular system of music transmission or in the elaborate arrangement of parts involved in the demonstration to be given in Constitution Hall next Thursday evening. As a matter of fact, all the scientific material has been or will be incorporated in various technical papers. Further, the demonstrations which Dr. Harvey Fletcher is proposing to give at the time of the Thursday demonstration will be more illuminating than anything which I could hope to reproduce here.

All that I propose to do, therefore, is to outline briefly the fundamentals of the problem, the extent to which we have succeeded in solving them, and the general arrangement of parts which will be employed in the transmission and reproduction of a complete symphonic concert from the stage of the Academy of Music in Philadelphia to the stage of Constitution Hall in Washington.

For the perfect pick-up, transmission and reproduction of orchestral music a system is needed, such that the sound reproduced in the ears of the listener is the same as that which would be produced in his ears if he were listening to the orchestra directly. In other words, the frequency, intensity and phase relations of the sound in each ear must be accurately reproduced in order best to convey the frequency and intensity range of the sounds and the spatial relations of the instruments. So far as we now know, this can be done

[1] Presented to the annual meeting of the National Academy of Sciences, Washington, D. C., April 25.