

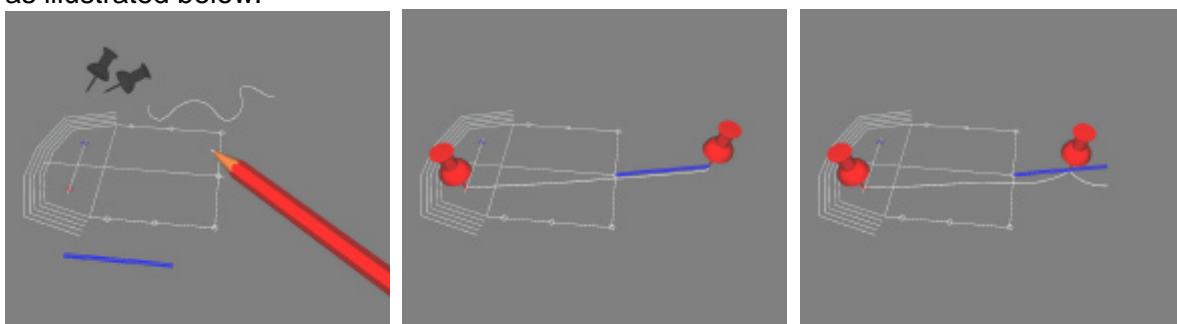
Shaping the Meyerson.

Nicholas Edwards

The basic shaping of the Meyerson was developed from simple time-based and direction-based acoustical criteria. Building on research in papers by Barron, Gottlob and Schroeder, I developed a room shaping based on the following criteria:

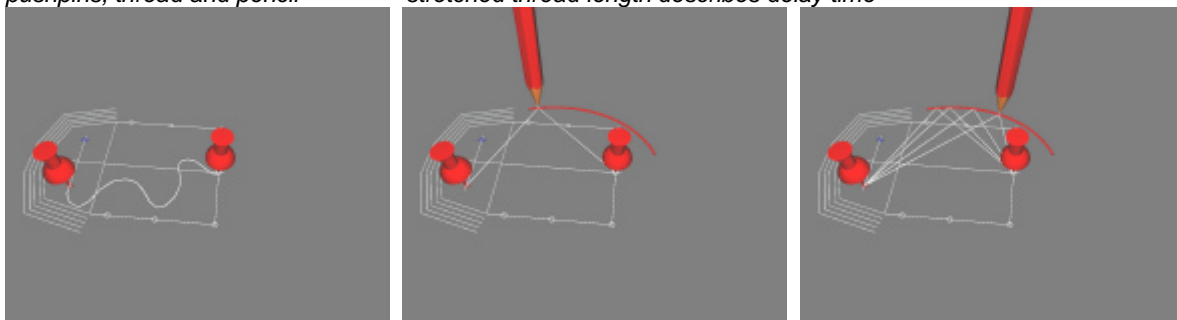
- Lateral reflection to arrive between 15 and 50 ms after the direct sound
- Lateral reflection to arrive along lateral axis +/- 30 degrees

Using only pushpins, thread and a pencil, these criteria were applied to develop the room shaping as illustrated below:

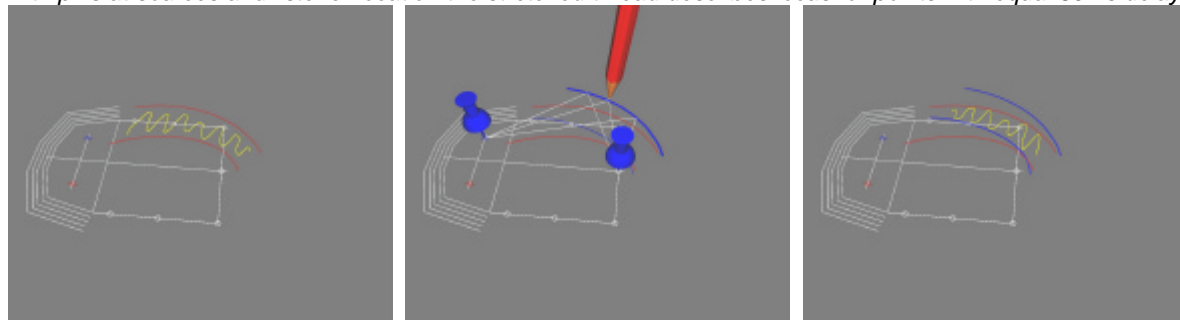


pushpins, thread and pencil

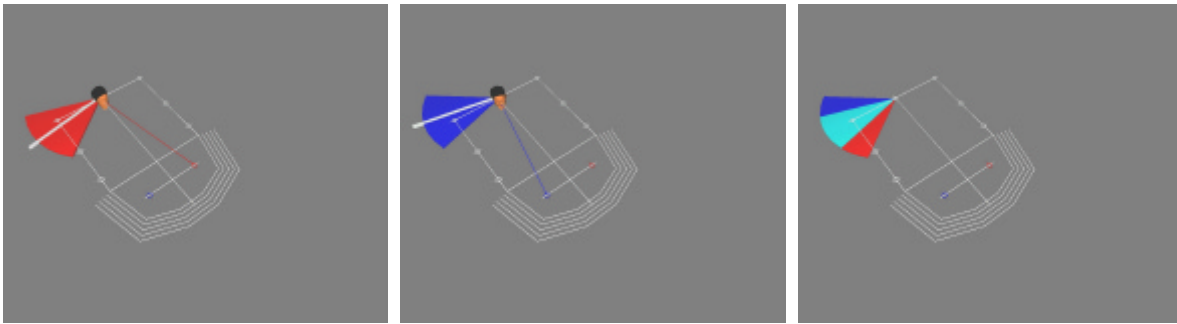
stretched thread length describes delay time



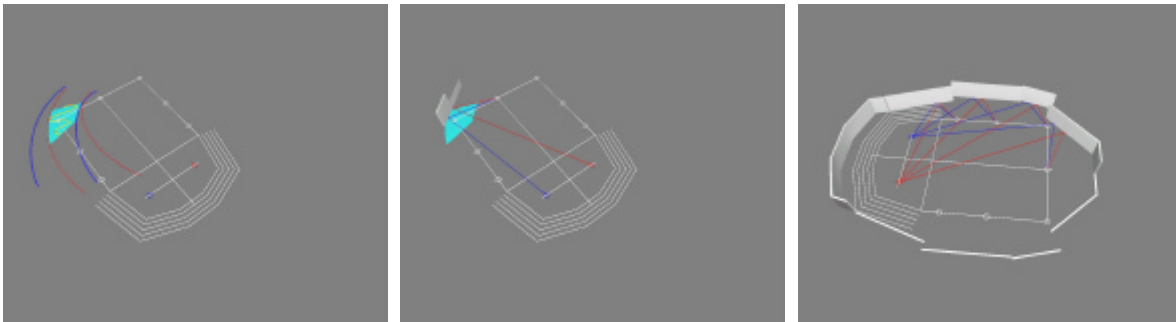
with pins at sources and listener location the stretched thread describes locus for points with equal 50ms delay



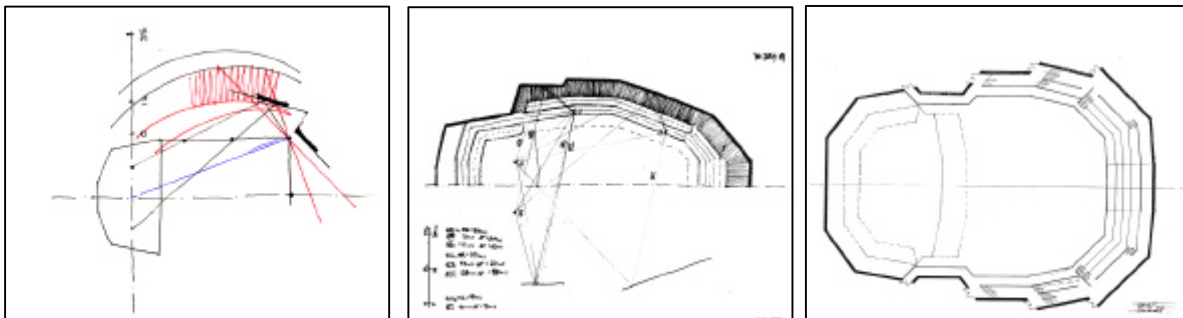
process repeated for 15ms delay and for sources on stage left and right: shaded zone meets time criteria



directional criteria for lateral sound from sources on stage left and right: overlap zone meets direction criteria



overlap of time and directional criteria places the wall element for this listener location, repeated for other locations



scan of my original memo design criteria original memo design proposals earliest drawing of room shaping

References:

BARRON, M.: The effects of early reflections on subjective acoustical quality in concert halls. - Thesis, Institute of Sound and Vibration Research, Southampton, UK, 1974

SCHROEDER, M. et al: Comparative study of European concert halls: correlation of subjective preference with geometric and acoustic parameters. - J. Acoust, Soc. Am 56(4) Oct 1974 pp 1195 - 1201

GOTTLÖB, D.: Comparison of objective acoustic parameters in concert halls with results of subjective experiments. - Dissertation, University of Gottingen, 1973

ANDO, Y.: Effects of early multiple reflections on subjective preference judgements of music sound fields. - J. Acoust. Soc. Am. 65(2) Feb 1979 pp 524 - 527