shall (like A B) bisect the angle between the branches. The branches, however, are of unequal length, the one B C D being longer than the other, by a quantity equal to half the length of the undulation or pulse of the musical note in question. It is evident, then, that if that note be sounded at A, each pulse will subdivide itself at B *b*, and the divided portions will run on along the two branches with equal intensities till they reunite at D *d*. They will arrive there, however, in opposite phases, and will therefore counteract each other at their point of reunion, and in every point of their subsequent course along the pipe D E; so that on applying the ear at E no sound should be heard, or at best a very feeble one, arising from some slight inequality in the intensities wherewith the undulations arrive by the longer and shorter pipe—a difference which may be made to disappear, by giving the longer a trifle larger area for its section.*

(10.) Suppose now that the pipes instead of being cylindrical were square, and that the whole surface of one side of a chamber were occupied with the orifices A of such pipes, leaving only such intervals as might be necessary to give room for their due support, and for

* I ought to observe, that I have not *made* the experiment described in the text, ✗ nor am I aware that it has ever been made; but it is easy to see that it ought to succeed, and would furnish an apt enough illustration of the principle of interference. Instead of a pipe, inclosing air, a canal of water might be used, in which waves of a certain breadth, excited by some mechanical contrivance at one end, would not be propagated beyond the point of reunion, D, of the two canals into which the main channel, A B, was divided.

✗ See Note on p. 507