T. Sundara Row [Rao], *Geometric Exercises in Paper Folding*, edited by W. W. Beman and D. E. Smith (Chicago: Open Court Publishing Company, 1901), pp. 137–139. Public domain.

THE HARMONIC CURVE OR CURVE OF SINES.

271. This is the curve in which a musical string vibrates when sounded. The ordinates are proportional to the sines of angles which are the same fractions of four right angles that the corresponding abscissas are of some given length.

Let *AB* (Fig. 81) be the given length. Produce *BA*

to C and fold AD perpendicular to AB. Divide the right angle DAC into a number of equal parts, say, four. Mark on each radius a length equal to the amplitude of the vibration, $AC = AP = AQ = AR = AD$.

From points P, Q, R fold perpendiculars to AC; then PP', QQ', RR', and DA are proportional to the sines of the angles PAC, QAC, RAC, DAC.

Now, bisect AB in E and divide AE and EB into twice the number of equal parts chosen for the right

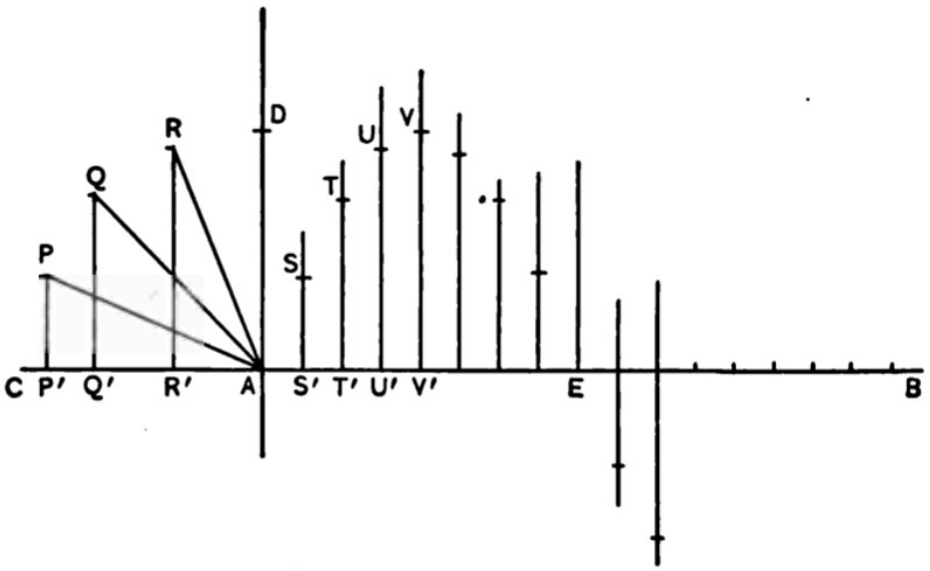

Fig. 81.

angle. Draw the successive ordinates SS', TT', UU', VV', etc., equal to PP', QQ', RR', DA, etc. Then S, T, U, V are points on the curve, and V is the highest point on it. By folding on VV' and pricking through S, T, U, V, we get corresponding points on the portion of the curve VE. The portion of the curve corresponding to EB is equal to AVE but lies on the opposite side of AB. The length from A to E is half a wave length, which will be repeated from E

to B on the other side of AB. E is a point of inflection on the curve, the radius of curvature there becoming infinite.