the horizontal pressure at the crown, may both be transferred to \( n \) (the intersection of their lines of direction). The resultant is \( nA \), which must pass through \( A \), and as it represents the direction as well as the intensity of the pressure at \( A \), it must be tangent to the curve.

But \( A_n \) and \( AD \) are similar triangles, and as the weight is supposed to be uniform, and as a consequence \( A_o = oc \), it follows that \( BD \) also equals \( BC \), which is a well known property of the parabola.

The method which we have suggested for finding the curve of equilibrium, is based upon the principle that the horizontal pressure is constant at all points of the arch, and the vertical pressure upon any joint is equal to the weight of the portion of the arch between that joint and the crown.

If then this principle be correct when applied to the parabola, it follows that if any joint be taken, as \( G \), and a line drawn vertically through the centre of gravity of \( GB \), terminated by the line drawn horizontally through the crown; if \( n'P \) be made to bear the same proportion to the weight of \( GB \), that \( BR \) does to the whole weight on \( AB \) or \( BO \); then \( SP \), which represents the horizontal component of the pressure at \( G \), should be constant at every part of the curve, and be equal to \( AW \) or \( \frac{1}{2} AR \).

To prove that this is the case, and that the parabola conforms to the rule that we have endeavored to establish.

Take \( BR \) to represent the weight on \( AR \) and call it \( x \). Also let \( AR = y \). Take any point \( G \), and let \( n = \) ratio between \( Gu \) and \( AR \). \( Gu \) will therefore be equal to \( (ny) \).