tioners in the engineering profession, will perhaps aid in rendering the following brief, and somewhat superficial discussion acceptable.

LXX. An erect arch subjected to the action of weight, or vertical pressure, is in a condition of unstable equilibrium; and can only stand while the weight is so distributed that all the forces acting at each point of its length, are in equilibrio. To illustrate this, we may assume the arch to be composed of short straight segments meeting and forming certain angles with one another, and the weights applied at the angular points.

A weight at e, Fig. 22, for instance, acts vertically, and, if de be produced till it meet the vertical drawn through b in m, then the triangle bcm has its sides respectively parallel with the directions of three forces acting at the point c; namely, the weight at the point c, the thrust of the segment be, and that of de. Hence, if these three forces be to one another as the sides of said triangle,—that is, if the weight (w) : thrust of be : thrust of de : : bm : be : cm, then they are in equilibrio. If w be greater than is indicated by this proportion, the point c will be depressed, bed approaching nearer and nearer to a straight line, and becoming less and