a post be long and composed of elastic materials, the condition, that it shall be of sufficient dimensions to resist flexure with a given applied weight, brings the question into a tangible form, and the solution is simple; on the other hand, if the post is short, the usual limit of the weight, which is generally one tenth of that which would be required to crush the material, is amply sufficient to compensate for any variation in the point of application, or line of direction of the pressure that may be produced by unequal settling or other causes.

If we attempt to continue the subject, as heretofore, by establishing relations between the moments of the acting and resisting forces, the first step must be the determination of the position of the neutral axis; as no comparison of moments can be made until we know the point or axis of rotation to which they are referred.

In posts placed vertically and loaded at their upper extremities the position of the neutral axis can no longer be assumed in the centre, but will vary greatly according to the amount and point of application of the weight, and the degree of flexure that is supposed to have been produced.

It appears reasonable to conclude, that when a post is uniform in composition and acted upon by a force applied exactly in the direction of the axis, all parts of the central cross section are subjected to nearly equal degrees of pressure; but if the weight be applied at either side of the axis, the compression no longer continues uniform but becomes greatest on that side towards which the pressure is applied.

**Fig. 7.**

Let $A B C D$ represent the longitudinal section of a rectangular post of some stiff material: when the weight is applied at $w$ every part of the cross section $(n n')$ may be considered as