which \( l \) represents the length, and \( d \) the depth.) The same force is transmitted to \( B \). We can also determine this horizontal force, by the condition that it shall keep the part \( w e \) in equilibrio. Regarding \( w \) as a fulcrum, and the weight at \( B = \frac{1}{2} w \), the moment of this force will be \( \frac{1}{2} w \times \frac{1}{2} l = \frac{w l}{4} \). The moment of the horizontal force, acting with a leverage \( d \), will be \( H d \), and \( H = \frac{w l}{4d} \) as before.

We will now consider the action of these forces at another point (\( S \)), the weight, as before, being applied entirely at the middle point of the beam.

1. **Horizontal strain at \( S \).**

Since the weight \( w \) is equally supported by each of the points \( A \) and \( B \), we may continue to consider \( (w) \) as a fulcrum, and, that forces \( (\frac{1}{2} w) \), acting upwards at \( A \) and \( B \), maintain the equilibrium.

The portions (\( A n \)) and (\( n B \)) will be in the condition of beams fixed at one end, and loaded at the other.

The weight \( \frac{1}{2} w \) applied at \( B \), acting with a leverage \( u = S \)

\( C \) produces an effect equal to the product \( \frac{w}{2} \times u \), and the horizontal strain at \( S \) acting with a leverage \( d \) has for its moment \( H \times d \). Hence, \( H d = \frac{wu}{2} \) or \( H = \frac{u w}{2d} \), which becomes when \( (u = \frac{l}{2}) \), \( w = \frac{l w}{4d} \), as before.

The horizontal strain in the middle of the beam is to the same strain at any other point as \( \frac{l}{2} : u \), and consequently varies with the perpendiculars of a triangle constructed on \( \frac{l}{2} \) as a base.

2. **Vertical force at any point.**

The horizontal at \( S \) was found to be \( \frac{u w}{2d} \), but it is evident,