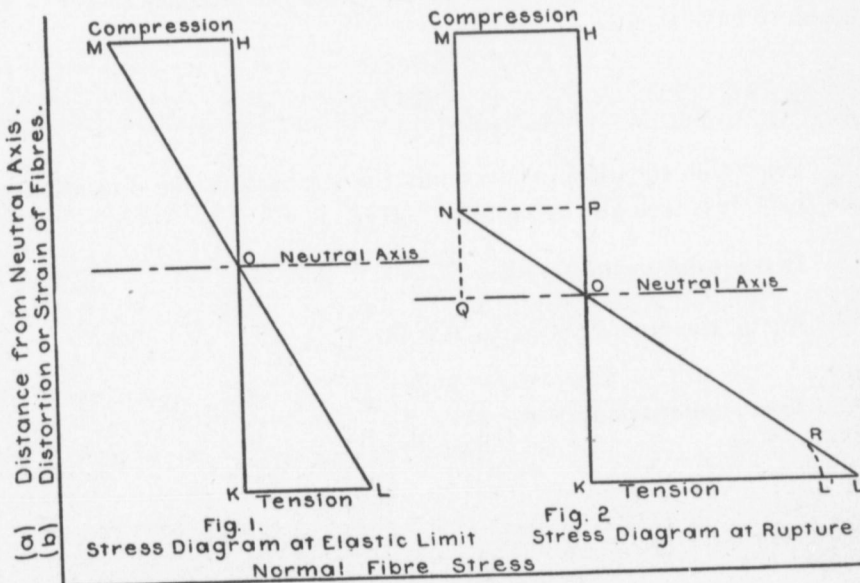


DEVELOPMENT OF FORMULA.

In the beam under consideration let the following quantities be observed and recorded:

- Let h = depth of the beam,
 b = breadth of the beam,
 l = length of the beam,
 W_e = load at elastic limit,
 W = load at rupture,
 Δ_e = deflection at elastic limit,
 Δ_r = deflection at rupture,
 E = Young's modulus of elasticity,
 f_c = compression-endwise strength (from separate test).



By means of formula derived from the geometrical relations of the diagram (Fig. 2.) and the statical equations of equilibrium the following quantities can be calculated:

Let s_e = elongation or contraction of extreme fibre at elastic limit = OH in Fig 1.

s_t = elongation of extreme tension fibre at rupture = OK in Fig. 2.

s_c = contraction of extreme compression fibre at rupture = OH in Fig. 2.

y_t = distance of neutral plane at rupture from tension side of beam = OK in Fig. 2.