ON THE TREATMENT OF DISCONTINUITIES IN BEAM DEFLECTION PROBLEMS*

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In Mr. C. L. Brown's note on the treatment of discontinuities in beam deflection problems (Quarterly of Applied Mathematics, 1, 349–351), the last term of Eq. (7) is written in the form

$$- PH_a(x - b).$$

Before Eq. (4) can be applied, however, this term must be put in the form

$$- PH_a(x - a) - PH_a(a - b).$$

This allows Eq. (7) to be written in the form

$$EI_1 \frac{d^2y}{dx^2} = \frac{Px}{2} - PH_b(x - b) - \frac{P}{2} H_a(x - a) + \frac{P}{2} (2b - a)H_a$$

and gives, in place of Eq. (8),

$$EI_1 y = \frac{Px^3}{12} - PH_b \frac{(x - b)^3}{6} - \frac{P}{2} H_a \frac{(x - a)^3}{6} + \frac{P}{2} (2b - a)H_a \frac{(x - a)^2}{2} + C_1 x + C_2.$$

Then

$$C_1 = - \frac{P}{12b} [3b^3 + (2b - a)^3], \qquad C_2 = 0.$$

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