46. Let $y = y(x)$ describe the path of the light beam. Then, according to Fermat, the beam follows a path governed by the Lagrangian

$$\boxed{\mathcal{L} = n(x,y)\sqrt{1+(y')^2}}$$

Making the approximations

$$n = n(h) + n'(h)(y-h) \quad \text{and}$$

$$\left[1+(y')^2\right]^{1/2} = 1 + \tfrac{1}{2}(y')^2 \Rightarrow$$

$$\mathcal{L} = \left[n(h) + n'(h)(y-h)\right]\left[1 + (1/2)(y')^2\right] \Rightarrow$$

$$\mathcal{L} = \text{const} + n'(h)y + n(h)(\tfrac{1}{2})(y')^2 + \text{HOT}.$$

$$\frac{d}{dx}\frac{\partial \mathcal{L}}{\partial y'} - \frac{\partial \mathcal{L}}{\partial y} \Rightarrow \boxed{n(h)y'' - n'(h) = 0}$$

$$\therefore \; y(x) = a + bx + \frac{1}{2}\frac{n'(h)}{n(h)}x^2 \Rightarrow$$

Putting midpoint at $x=0$

$$\boxed{y(x) = \left[h - \frac{1}{8}\frac{n'(h)}{n(h)}d^2\right] + \frac{1}{2}\frac{n'(h)}{n(h)}x^2}$$

Note $y(\pm d/2) = h$.