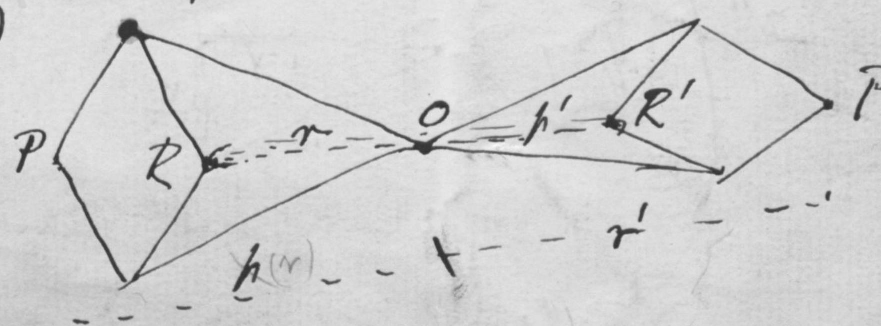
Nature Aug 8 1878 Photo focussing p1r

Horace Darwin

The object is to make 2 points one on each side of a bar move in such a way as always to remain at conjugate foci. PR P'R' are the poles of 2 cells alike in all respects. The poles R & R' are connected by a bar with a slot in it (see picture over) through which the pivot at O passes – also PRR'P' are constrained to keep in a straight line




$PO = p$ (r) $\quad P'O = r'$ $\quad RR' = L$

$RO = r$ (p) $\quad R'O = p'$

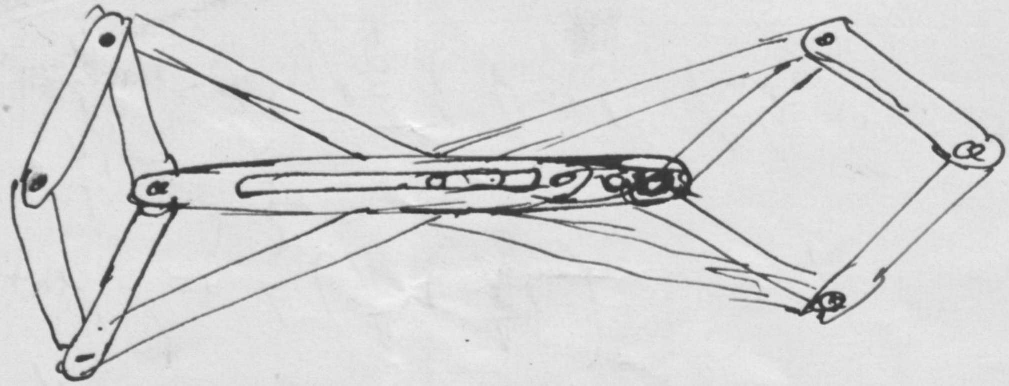
there is clearly a typical error here – r' & p' sh^d be transposed

$r = \frac{k}{p} \quad r' = \frac{k}{p'}$ where k is a constant

$$L = r + r' = k\left(\frac{1}{p} + \frac{1}{p'}\right)$$

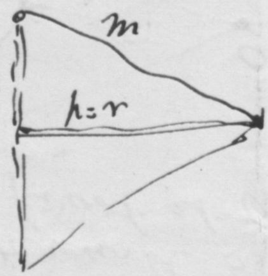
$$\frac{1}{p} + \frac{1}{p'} = \frac{L}{k}$$

Hence if $\frac{k}{L}$ is the focal length of the bar $p$ & $p'$ are conjugate foci.



$k = .\,p\,r$

$\frac{K}{L} = $ focal length of lens




$k = p^2$
$= \sqrt{m^2 - n^2}$

~~kell~~ $l = \dfrac{\sqrt{m^2 - n^2}}{\text{focal length of lens.}}$

(the length of the connecting link RR')

M.7