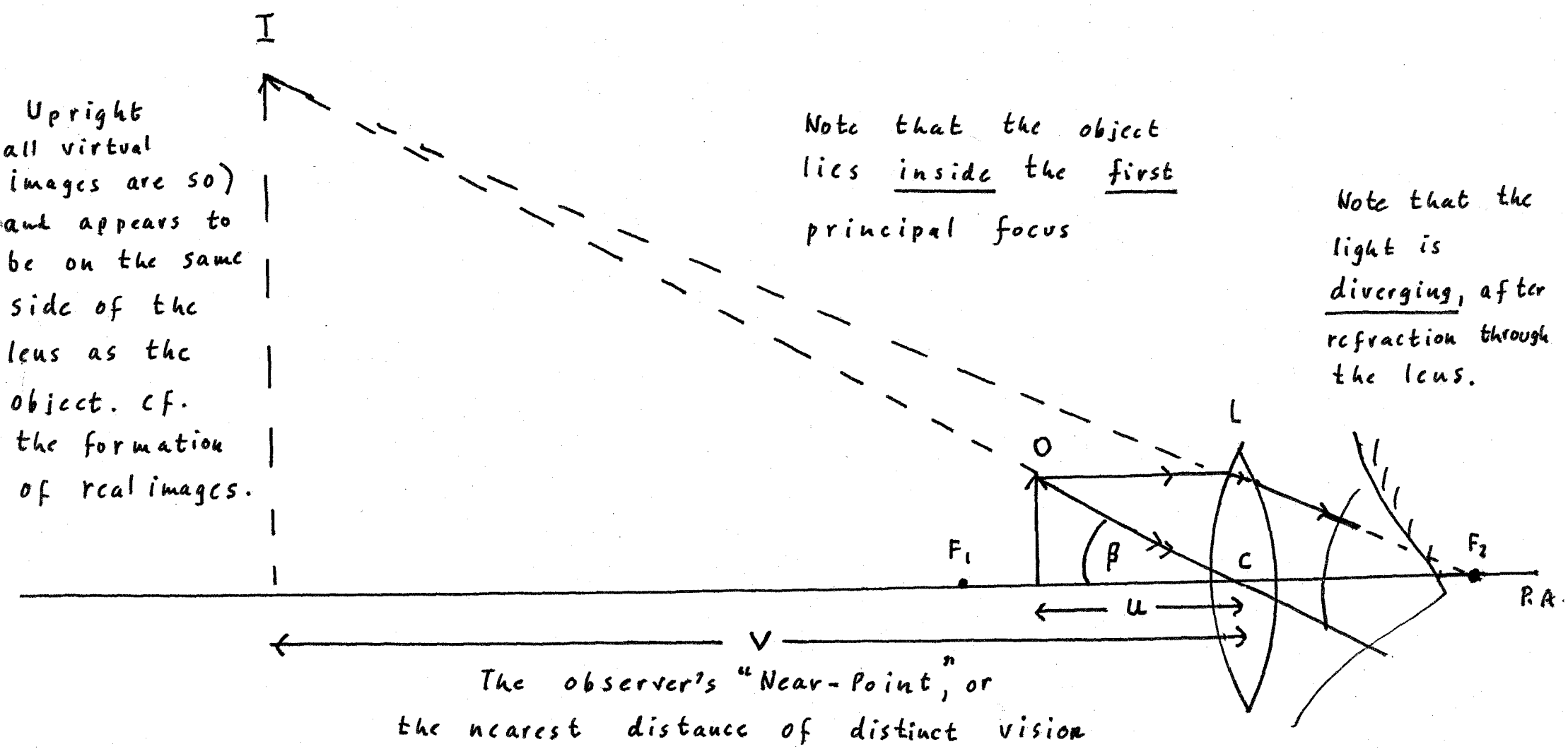
The "Magnifying" glass

$v = -18$ cm (virtual)

$u = 4$ cm (real)

$\Rightarrow$ The p.f.e. $= 5.1$ cm

The position of the lens, close to the eye, is adjusted until the virtual image is clearest.



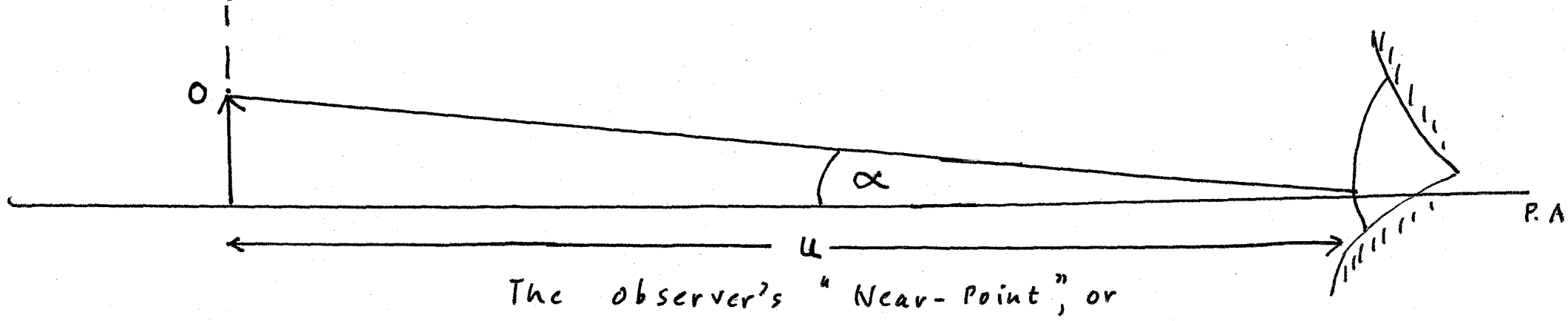
The observer's "Near-Point", or the nearest distance of distinct vision

The angle subtended at the eye, by the image, is β

Without the lens

The object at a distance of U will now be well inside the observer's nearest distance of distinct vision, and would appear blurred.

In order to be seen clearly, it has to be placed at the "Near-Point", and now subtends at the observer's eye an angle of α.



The observer's "Near-Point", or the nearest distance of distinct vision

We can define the magnifying power as:

$$\frac{\text{angle subtended at eye by the image at the "Near-Point"}}{\text{angle subtended at eye by the object were it located at the "Near-Point"}}$$

That is, $\boxed{m = \frac{\beta}{\alpha}}$

DF
2017, January 18