

Imaging instruments (part II)

- Photographic camera
- Single-lens magnifier
- Microscope
- Telescope
- Examples

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The single-lens magnifier

3.5 Image Formation 1

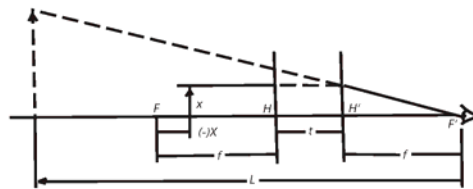


Fig. 3.3 A thick-lens simple magnifier. Only the principal planes of the lens are shown.

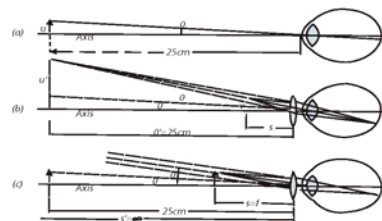
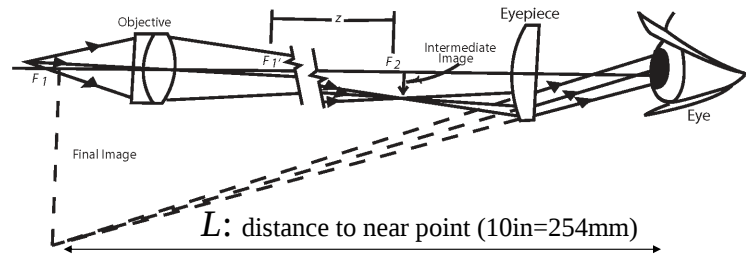


FIGURE 101
The angle subtended by (a) an object the near point to the naked eye, (b) the virtual image of an object inside the focal point, (c) the virtual image of an object at the focal point.

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The compound microscope

from *Optics*
by M. Klein & T. Furtak



Objective magnification

$$M_O \approx -\frac{l}{f_O}$$

Eyepiece magnification

$$M_E \approx \frac{L}{f_E}$$

Combined magnification

$$M = M_E M_O$$

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180 Geometrical Optics

Telescopes

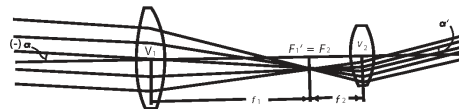


Fig. 3.40 Astronomical telescope.

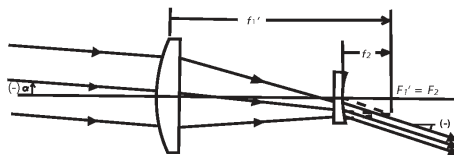


Fig. 3.41 Galilean telescope (fashioned after the first telescope).

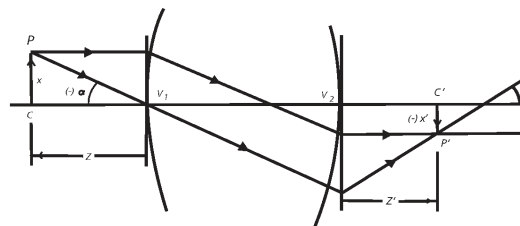
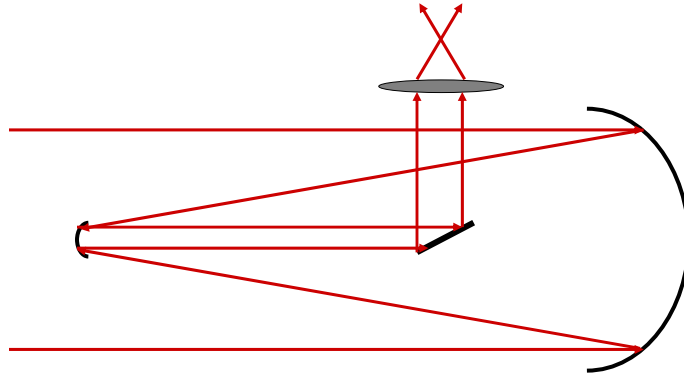


Fig. 3.42 General telescope system; image formation.

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The Cassegrain telescope



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