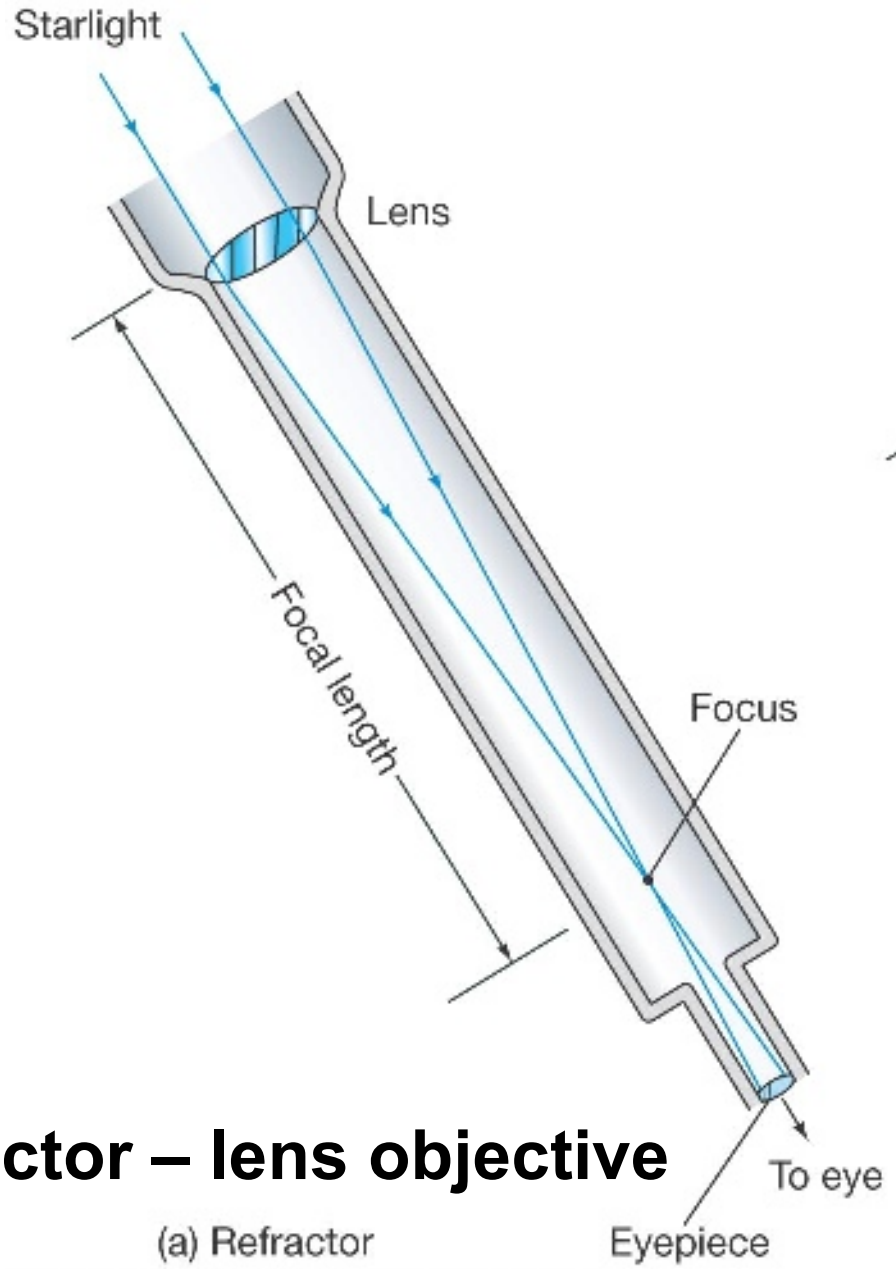
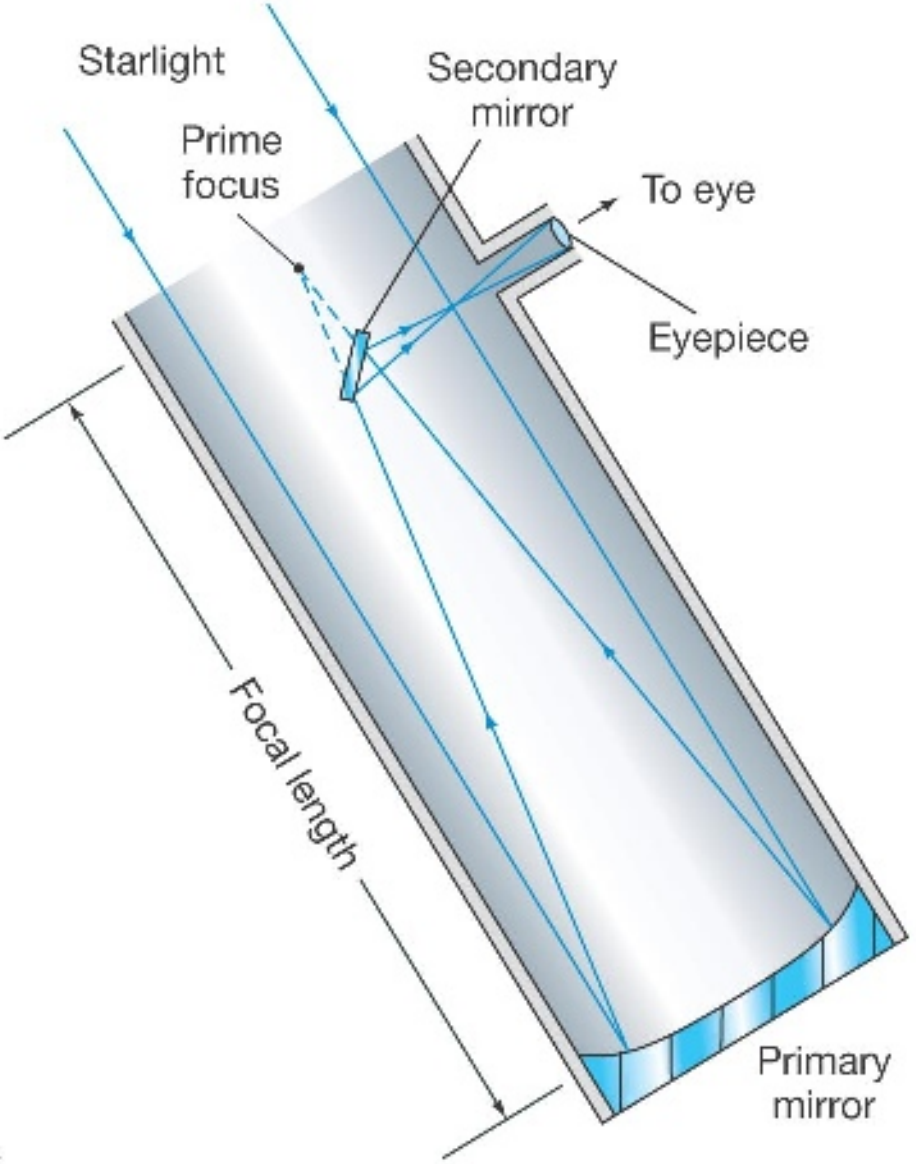
TELESCOPES – *the basic types of optical telescopes*

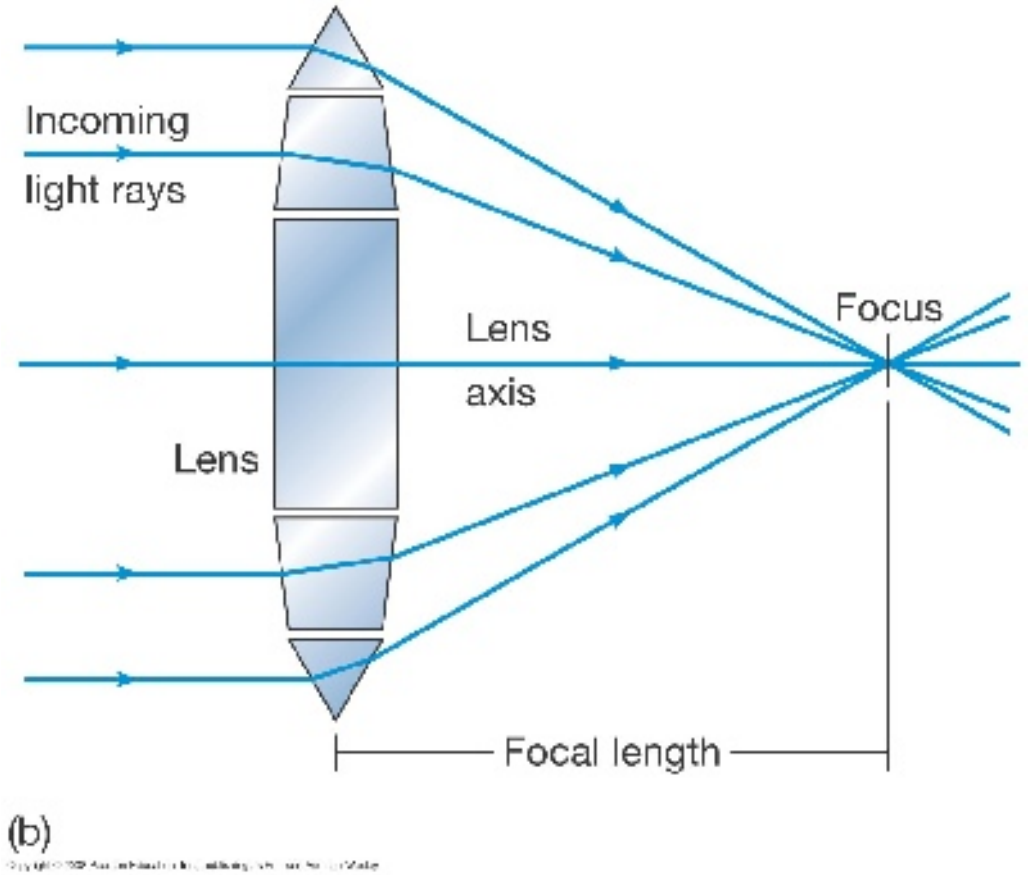


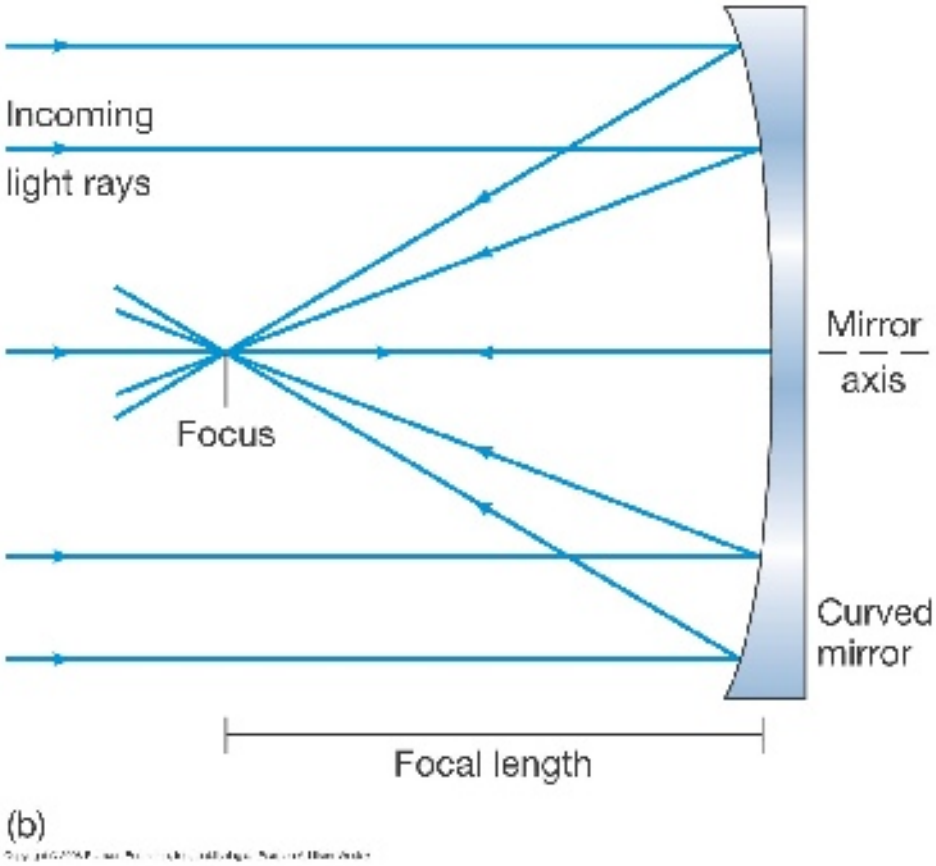


Refractor – lens objective

Reflector – mirror objective

TELESCOPES – *how they focus light*

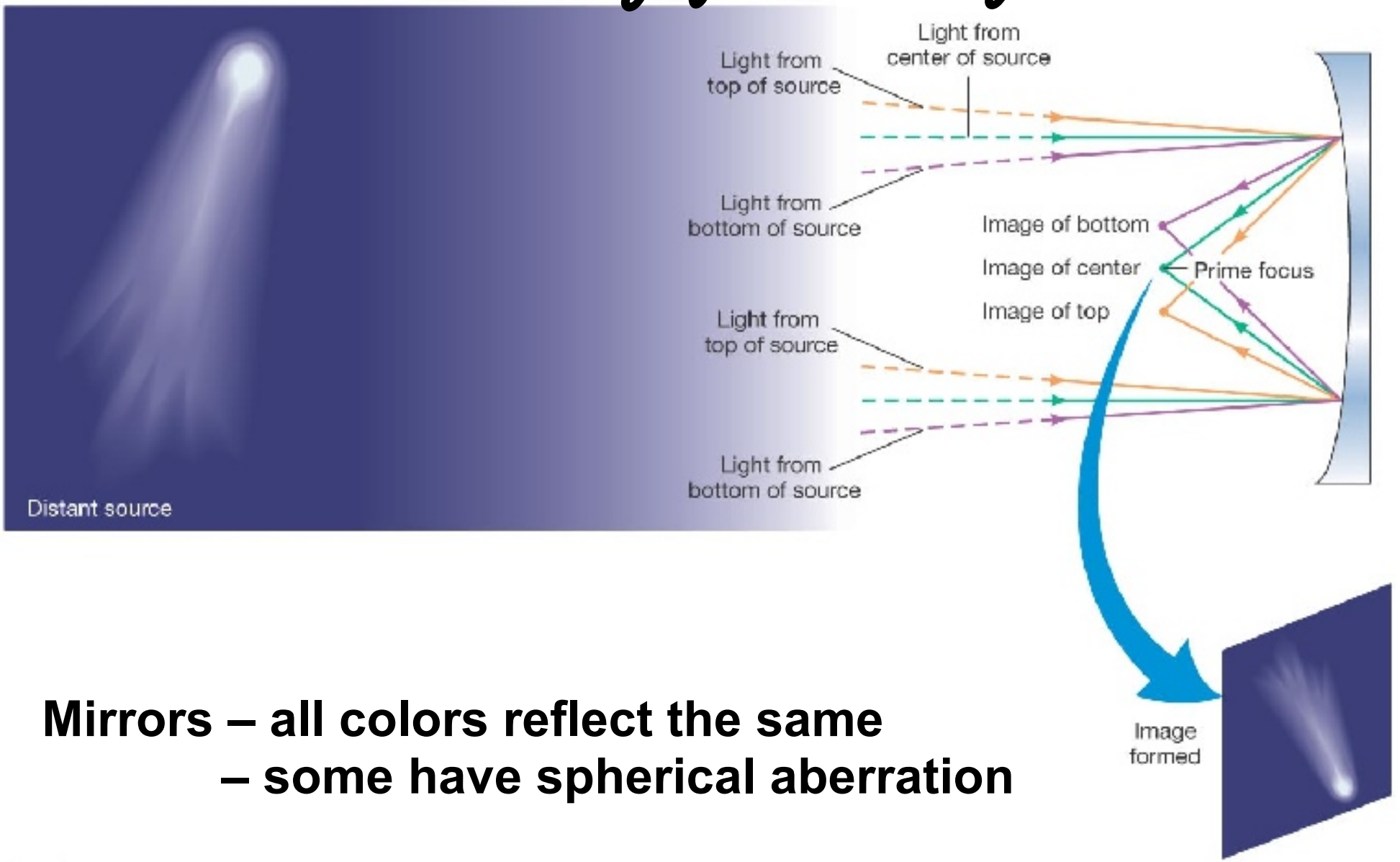




Refractor – lens

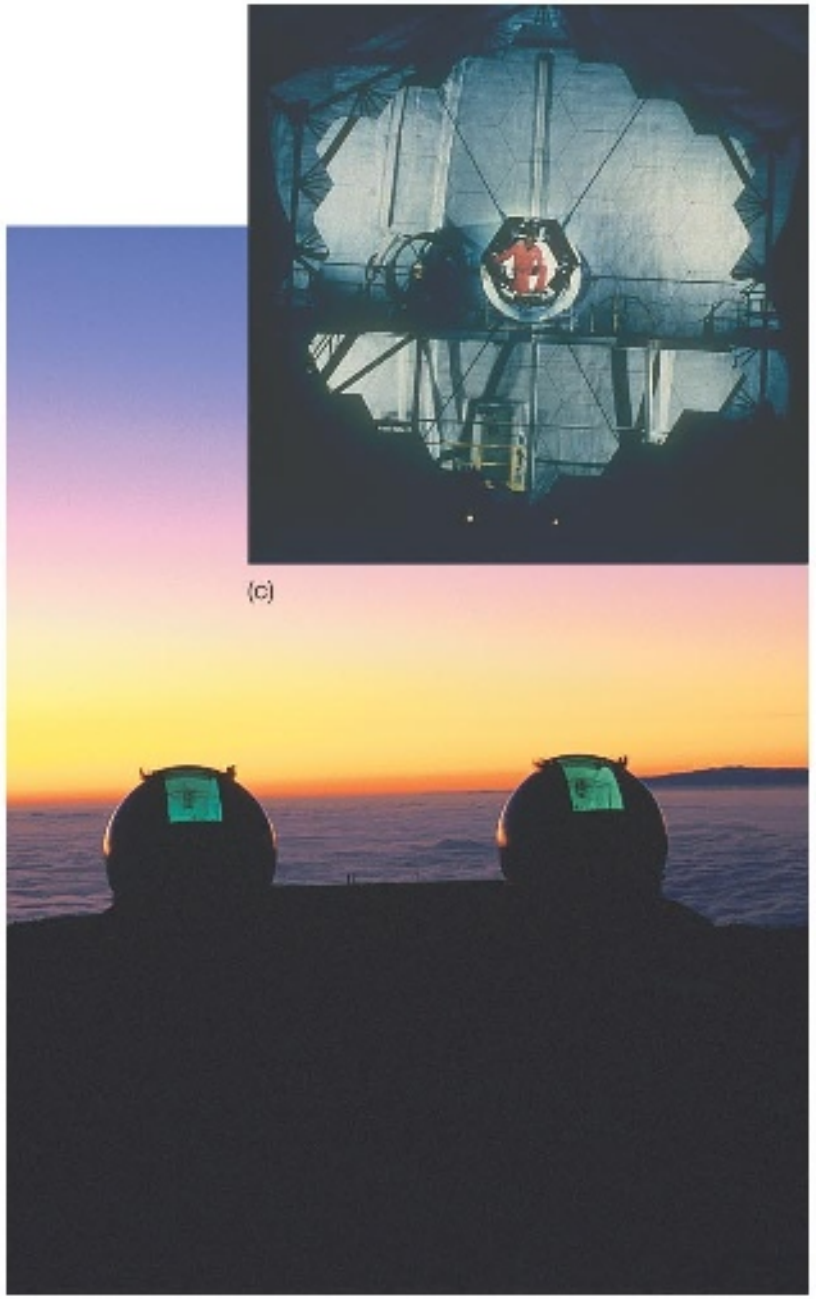
Reflector – mirror

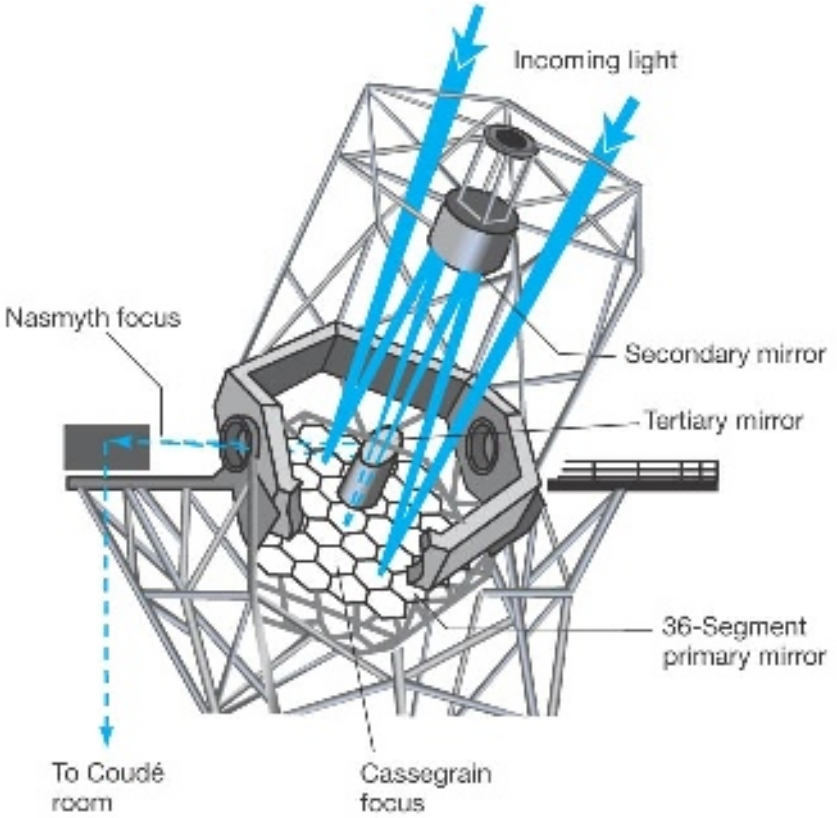
TELESCOPES – *how they form an image*



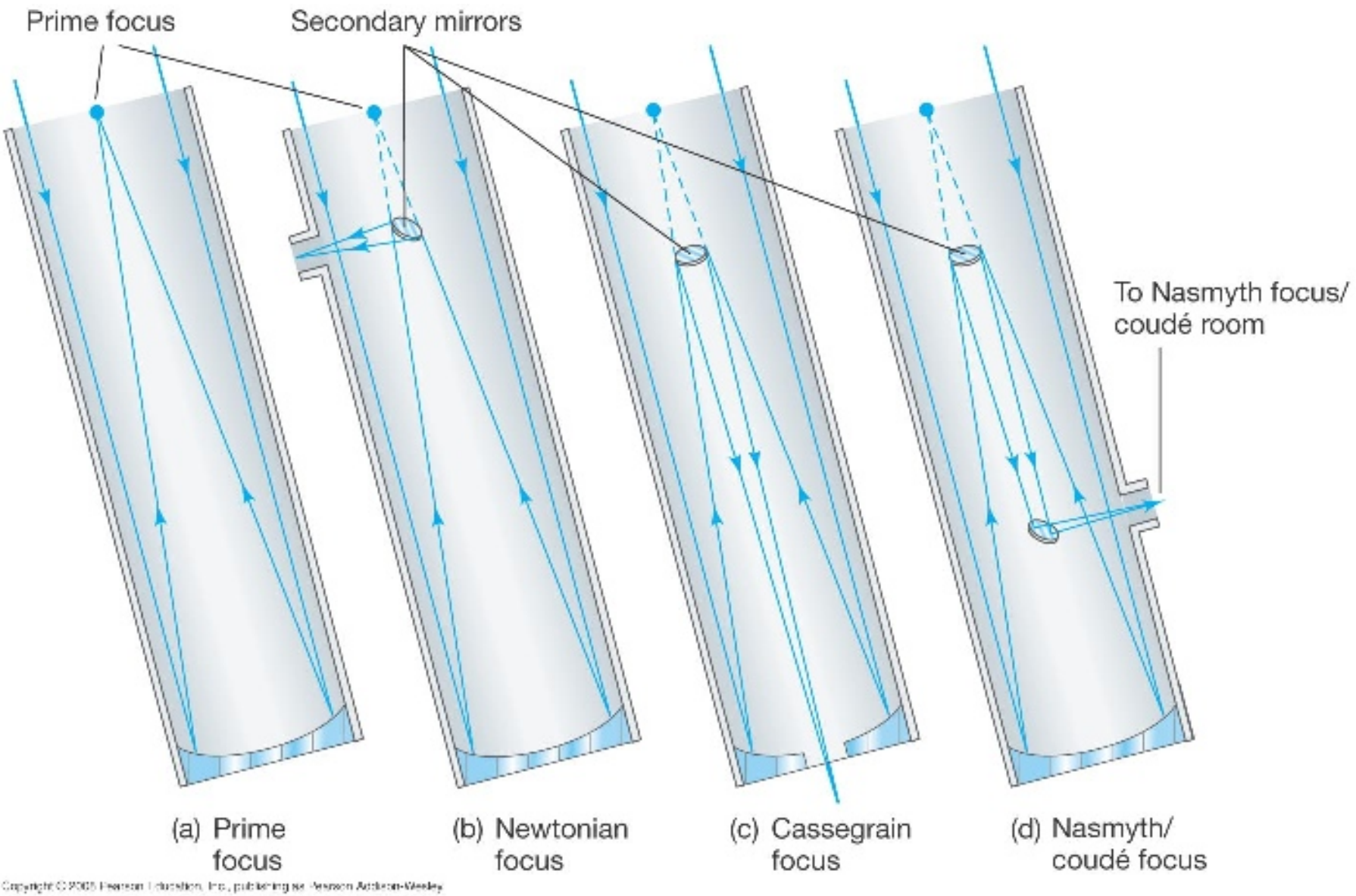
Mirrors – all colors reflect the same
– some have spherical aberration

TELESCOPES – *world-class reflector 'scopes*





TELESCOPES – *types of reflectors*



TELESCOPES – *purpose of the telescope*

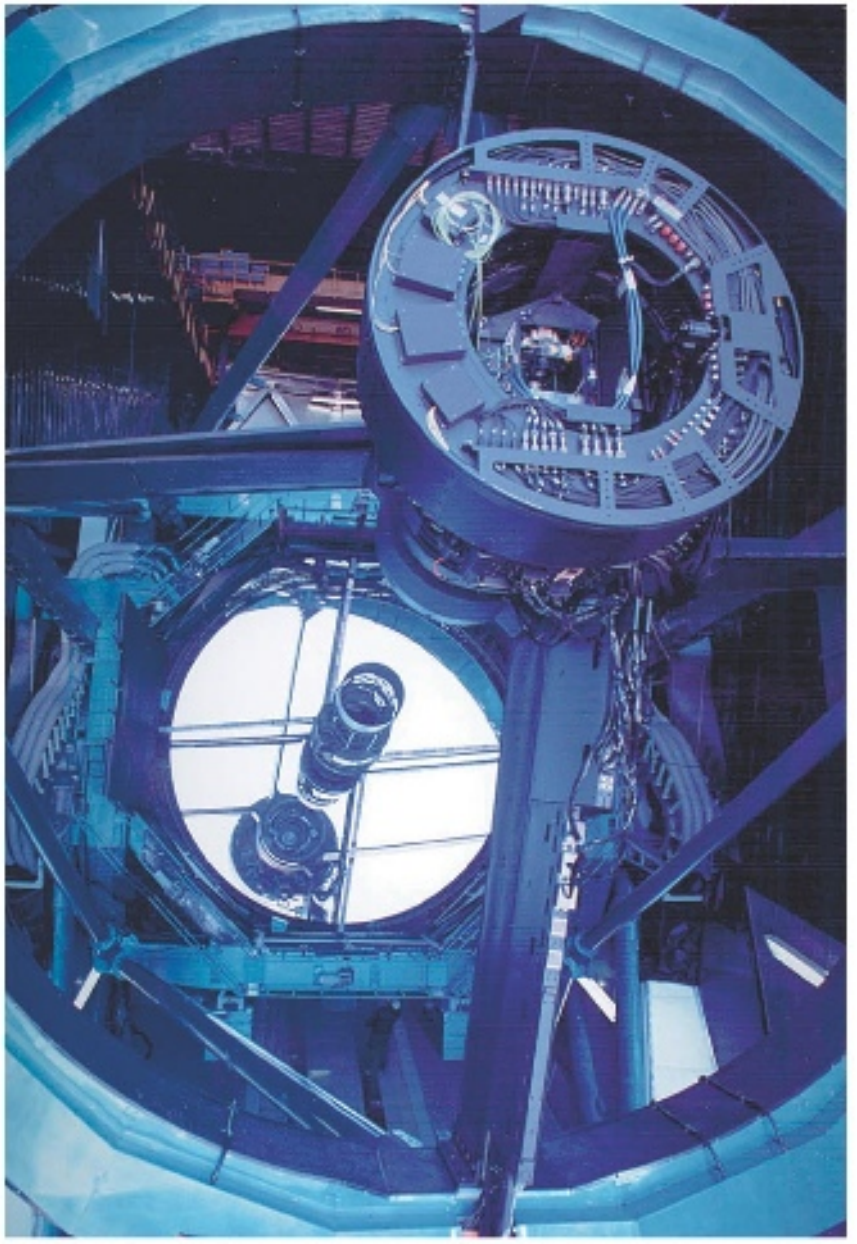
Mainly …

1. To gather light

2. To resolve detail

To a lesser extent …

3. To Magnify



(b)

TELESCOPES – *purpose of the telescope*

1. To gather light. Depends on size of objective.

Light Gathering Power = $A_{tel}/A_{pupil} = (d_{tel}/d_{pupil})^2$

(a)

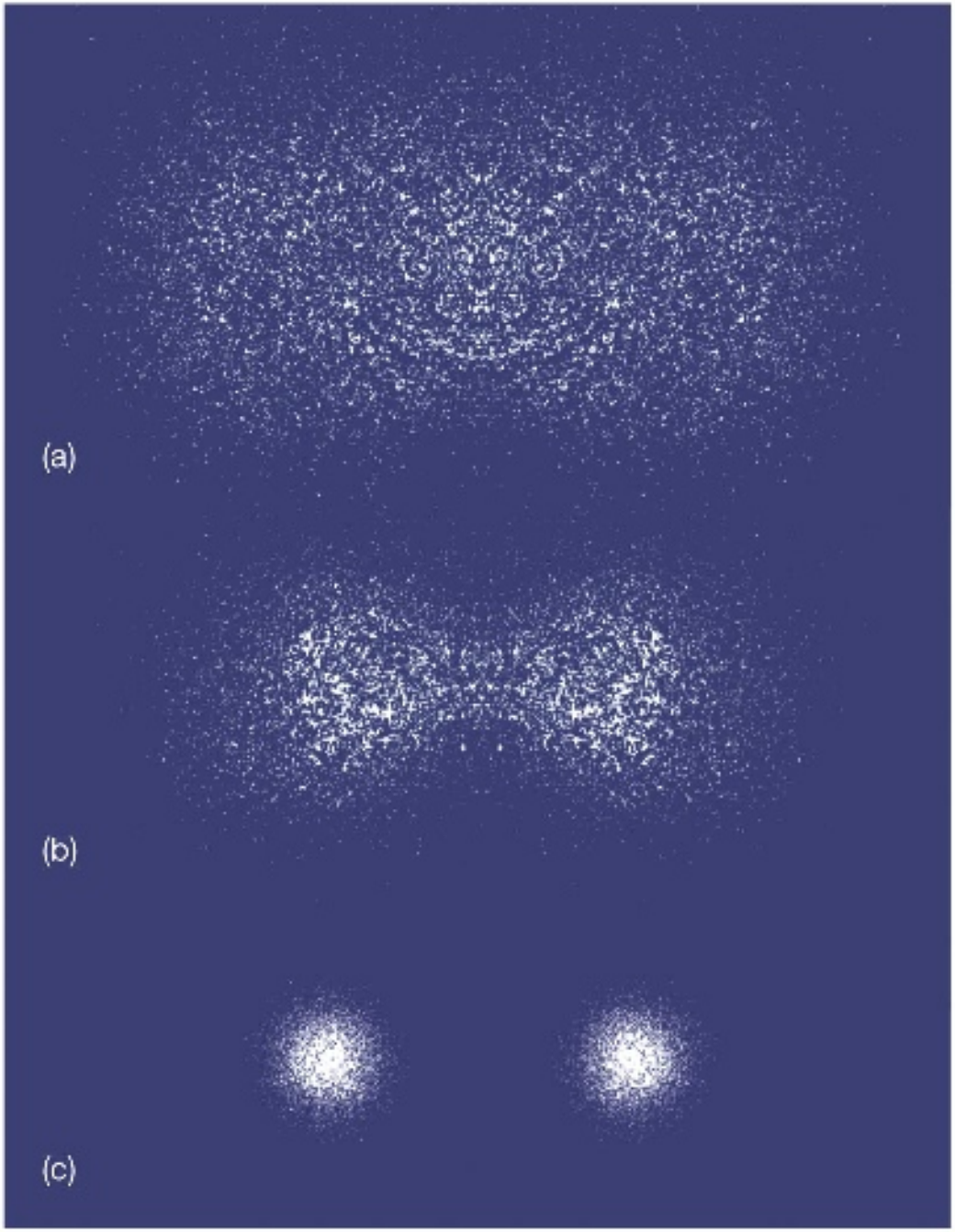
(b)

TELESCOPES – *purpose of the telescope*

2. To resolve detail.
Also, depends on size of objective.

Resolution in (c) is higher than resolution in (a).

Magnification fixed.



TELESCOPES – *which one to buy?*

Meade ETX90 $500

12” Schmidt-Cassegrain $5000+

10-12” Dobsonians $600-1000