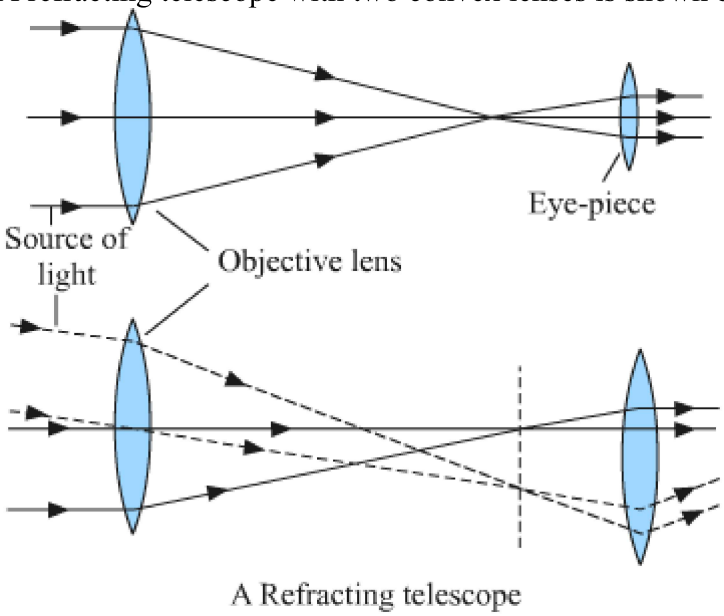
18. Observing Space Telescope

Optical telescope

- **Refracting telescope**

A refracting telescope with two convex lenses is shown below. It may consist more that two lens.



A Refracting telescope

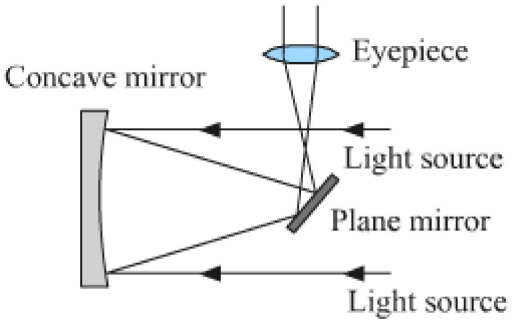
Disadvantages of refracting telescope

- Difficult to make
- Difficult to handle
- Presence of chromatic aberration

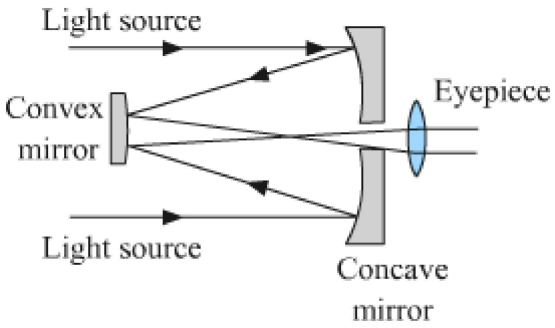
- **Reflecting telescope**

This type of telescope uses mirrors in place of lenses.

- **Newtonian telescope**
- **Cassegrain telescope**



The Newtonian telescope



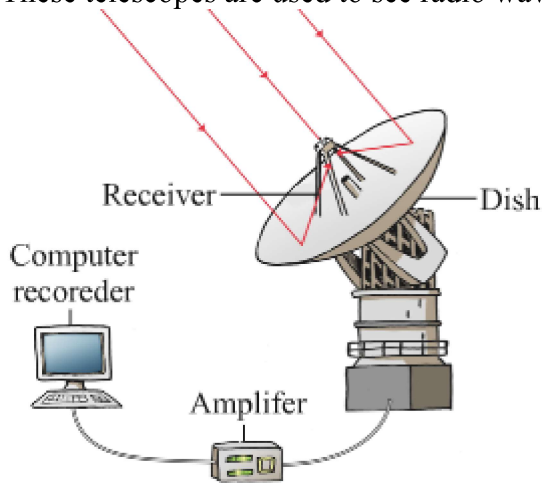
The Cassegrain telescope

Advantages of reflecting telescope over refracting telescope

- It is easier to make large mirrors as compared to large lenses.
- Mirrors are less heavy as compared to lens of same size.
- Images formed by mirrors are free from chromatic aberration.

Radio telescope

These telescopes are used to see radio waves coming from space. It has one or more dishes of parabolic shape.



Telescope in space

The limitations due to which the Earth based telescopes have problem in making good quality observations are:

- Intensity of light rays reaching the Earth's surface decreases.
- The light rays change their path slightly and thus shake the position of the image.
- We cannot use optical telescopes during day time.
- Even in night, city lights and cloudy weather can cause hindrance in observing the heavenly bodies.

To overcome the above problems, telescopes are now being erected in space itself. Some of the telescopes in space are:

- **Hubble telescopes:**
- **Chandra**