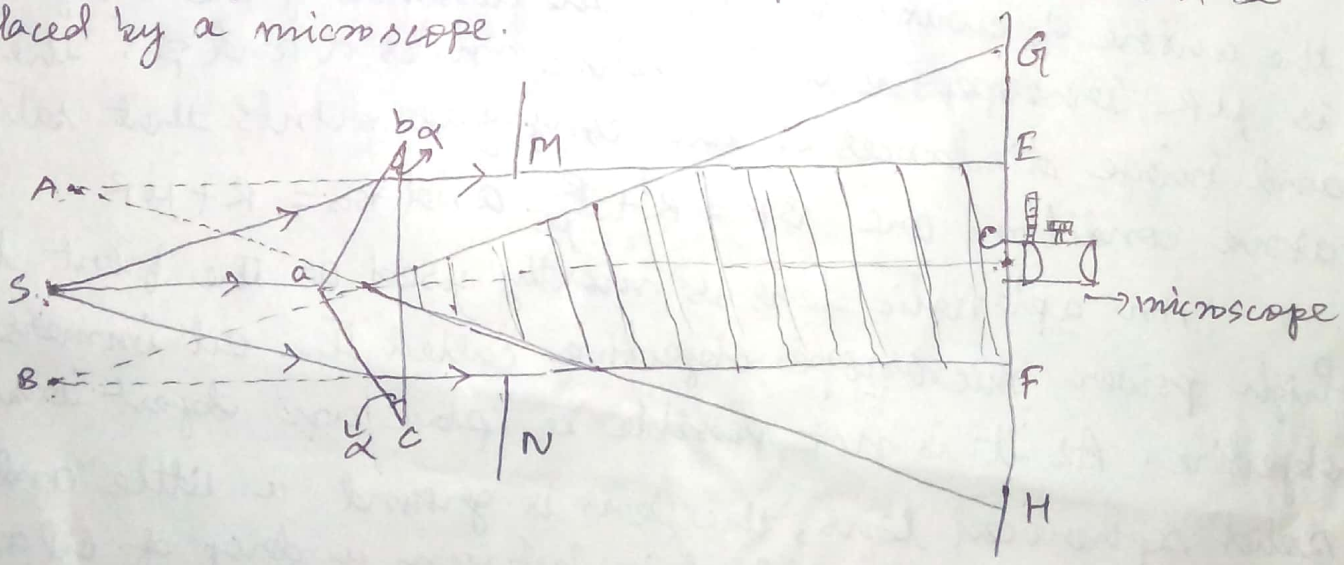
Coherent sources: Two sources are said to be coherent if they emit continuous light waves of the same frequency or wavelength nearly ~~by the~~ of the same amplitude (preferably equal) should either in phase with each other or have a constant phase difference.

Fresnel's Biprism:- The biprism abc consist of two acute angled prisms placed base to base. Accordingly it is constructed as a single prism of obtuse angle of about 179°. The acute angle both the sides is about 30'. The prism is placed with its refracting edge parallel to the line source S (slit) such that Sa is normal to the face bc of the prism. When light falls from S on the lower portion of the biprism it is bent upwards and appear to come from the virtual source B. Similarly light falling from S on the upper portion of the prism is bent downwards and appears to come from the virtual source A. Therefore A and B act as a coherent sources.

Suppose the distance betⁿ A and B is d. If the screen is placed at C, interference fringes of equal width are produced betⁿ E and F but beyond E and F fringes of large width are produced which are due to diffraction. MN is a stop to limit the rays. To observe the fringes, the screen can be replaced by a microscope.



The point C is equidistant from A and B. Therefore, it has maximum intensity. On both sides of C, alternately bright and dark fringes are produced. The width of the bright or dark fringe is $\beta = \frac{\lambda D}{d}$

Any point on the screen will be at the centre of a bright fringe if its distance from C is $x = \frac{n\lambda D}{d}$, where $n = 0, 1, 2, 3, \ldots$ etc.

The point will be at the centre of a dark fringe if its distance from C is $x = \frac{(2n+1)\lambda D}{2d}$ where $n = 0, 1, 2 \ldots$ etc.