light. The light from an object seen by moonlight is reflected twice before it reaches the eye. The moon reflects the light from the sun, and the object, the light which it receives from the moon.

Every luminous object gives off, or radiates, in every direction, an infinite number of straight lines of light. Each of these lines taken alone is called a *ray* of light. A bundle of rays is called a *beam* of light when the rays run *parellel* to each other. When the rays *diverge* from a luminous point or are made to *converge* to a focus they are called a *pencil* of rays, thus:



Fig. 1 represents a pencil of rays diverging from a flame F, after passing a convex lens they are rendered parallel and these parallel rays passing the second convex lens B, the rays are converged to the point (focus) P.

The parallel rays may be called a *parallel* pencil; the diverging rays a *divergent* pencil, and the convergent rays a *convergent* pencil. The point where rays of light meet is called the *focal* point or simply a *focus*.

Strictly speaking, there is no such thing in nature as parallel rays; the nearest approach we have to it are the rays of light we receive from the sun and the fixed stars. Practically, for our purpose however, we may consider rays of light parallel that are received by the pupil of the eye from objects that are twenty feet distant or any distance greater than that. Pencils of light from objects less than twenty feet distant are more decidedly divergent.

A good illustration of a divergent pencil can be obtained from a lighted lamp or candle in a dark room. If a piece of card board, with a small circular opening in it, be held near the lamp, you will have, upon the opposite wall, an illuminated spot of the same shape as the opening in the card, but very much larger.