

and accord which has existed throughout the universe for ages and ages.

The first law of light is, that it always travels in straight lines. This is a fundamental principle in the study of light, and on it are founded many very important laws. Thus it differs from sound in its method of propagation, for a wall between the eye and the luminous body will prevent it from being seen, while sound may be heard around or over the obstruction.

It is of interest to note the velocity at which light travels. By means of astronomical observations it has been found that light shoots through space at the approximate rate of 190,000 miles per second. This is quite a development of speed, yet even at this velocity it takes years for the light of some stars to reach us, from which some idea of their immense distance may be gained. Experiments to determine the velocity of light have been performed on our earthly sphere but on account of comparatively small distances available they have been none too exact.

Reflection and refraction are two very important and interesting headings under which phenomena are classed. Reflection necessitates the use of mirrors which, according to their shape are divided into plane, concave, convex, spherical, parabolic, conical, etc. The effects produced by their scientific use are sometimes very beautiful and are always in complete accord with certain clear and well defined laws. By the adjustment of plane mirrors at various angles, multiple images are formed, which appear most bewildering to an observer ignorant of these fundamental underlying principles. Concave mirrors are utilized in converging rays of light *i.e.* bringing them all to a point called the focus. A light placed at this point will produce brilliant illumination to a considerable distance, as is seen in searchlights. Light falling on convex mirrors, is diverged and spread out in all directions. Such mirrors, therefore, can have no real focus. All the varied styles of mirrors are put to many and diverse uses in science and the arts.

We come now to refraction, which may be described as the deflection or bending which rays of light experience in passing obliquely from one medium into another, so, for instance, from air to water. The most common example of this phenomenon, and one which illustrates it most clearly is that of a stick thrust into water, appear-