behind, the *retina*—that complex expansion of the *optic nerve* which coats the inner part of the globe throughout two-thirds of its whole area, and acts as the sensitive plate of this optical camera. The nerve of vision, as seen in the diagram, carries impressions made upon it to the brain, and the individual interprets them as color, light, form, etc. We must not forget the *choroid,* which forms a dark, almost black, background to the retina. This coat is of especial importance in the eyes of printers, and those who habitually use their visual organs for near work of all kinds, as by means of it the superfluous light entering the eye is absorbed and prevented from rebounding against other parts of the retina, and so making a blurred picture upon the nervous "plate."
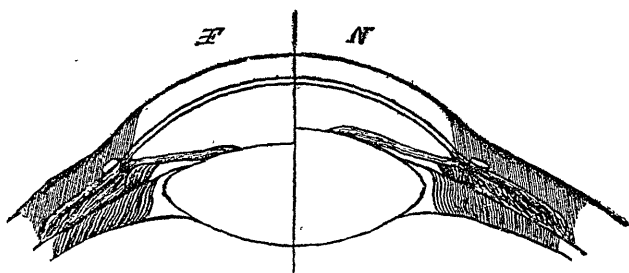

FIG. 3.

Showing how the eye adapts itself for vision at all distances ; *N* shows the contracted ciliary muscle and more convex lens for near work ; the left side (*F*) shows the lens adapted for distant vision.

In the case of the normal eye, rays of light from all objects more distant than a couple of yards are focused on the retinal background without much effect upon the part of or change within the organism; but if the object be brought much closer, a very decided alteration of the optical apparatus is necessary. This change must be made "in the twinkling of an eye," and to understand how it is accomplished necessitates a brief reference to some of the first principles of optics.

Convex lenses make parallel rays convergent, divergent rays less divergent, and convergent rays more convergent.

Concave lenses make parallel rays of light divergent, divergent rays more divergent, and convergent rays less convergent.

Figure 4 shows the course of the parallel rays (*a, a, a, a*) of light from a distant object as they strike the cornea and enter the *normal* eye through the pupil. A ray of light coming from a rarer medium (air) into a denser one (cornea) is turned toward a perpendicular let fall at the point where it strikes the surface.