

Parallax. When the distance of the object is very great, the rays proceeding from each point arrive at the eye with so little divergence, that each pencil may be considered as composed of rays which are parallel to each other; the actual deviation from parallelism being quite insensible. But if the same object be brought nearer to the eye, the divergence of the rays becomes more perceptible; and the effect of the same degree of refraction is to collect them into a focus more remote than before.* For every distance of the object there is a corresponding focal distance; and when the eye is in a state adapted for distinct vision at one distance, it will have confused images of objects at another distance; because the exact foci of the rays will be situated either before or behind the retina. It is evident that if the retina be not placed exactly at the point where the focus is situated, it will either intercept the pencil of rays before they are united into a point, or receive them after they have crossed one another in passing through the focus: in either of which cases, each pencil will throw upon the retina a small circle of light, brighter at the middle and fainter at the edges, which will mix itself with the adjacent pencils, and create confusion in the image.

It is found, however, that the eye has a power of accommodating itself to the distinct vision of objects at a great variety of distances, according as the attention of the mind is directed to the particular object to be viewed. The mode in which this change in the state of the eye is effected has been the subject of much controversy. The increase of the refracting power of the eye necessary to adapt it to the vision of near objects is evidently the result of a muscular effort, of which we are distinctly conscious when we accurately attend to the accompanying sensations. The researches of

* This is illustrated by Fig. 412, 413, and 414; the first of which shows the rapid convergence of rays proceeding from a very distant object, and which may be considered as parallel. The second shows that divergent rays unite at a more distant focus; and the third, that the focus is more distant the greater the divergence.