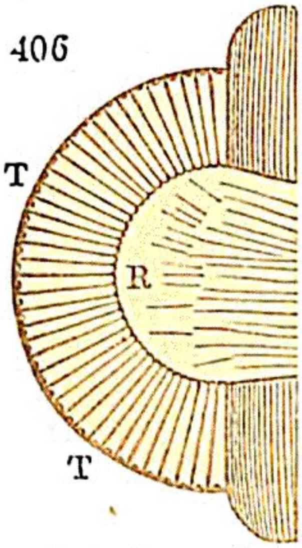
rying this design into effect we have the choice of two methods, both of which we find resorted to by nature under different circumstances.

The first method consists in providing for each of these single rays a separate tube, with darkened sides, allowing the ray which traverses it, and no other, to fall on its respective point of the retina, which is to be applied at the opposite end of the tube. The most convenient form to be given to the surface of the retina, which is to be spread out to receive the rays from all these tubes, appears to be that of a convex hemisphere; and the most eligible distribution of the tubes is the placing them so as to constitute diverging radii, perpendicular, in every part, to the surface of the retina. This arrangement will be understood by reference to Fig. 406, which represents a section of the whole organ: (T, T,) being the tubes disposed in radii every where perpendicular to the convex hemispherical surface of the retina (R.) Thus will an image be formed, composed of the direct rays from each respective point of the objects, to which the tubes are directed; and these points of the image will have among themselves, the same relative situation as the external objects, from which they originally proceeded, and which they will accordingly faithfully represent.

406




The second method, which is nearly the inverse of the first, consists in admitting the rays through a small aperture into a cavity, on the opposite and internal side of which the retina is expanded, forming a concave, instead of a convex hemispherical surface. The mode in which this arrangement is calculated to answer the intended purpose will be easily understood by conceiving a chamber (as represented in Fig. 407,) into which no light is allowed to enter, except what is admitted through a small hole in a shutter, so as to fall on the opposite side of the room. It is evident that