In the camera obscura we have an imitation of the eye, its ground glass screen representing the retina, and its lens—the cornea and lens of the eye.

If we remove the lens the back of the camera immediately becomes visible.

This phenomenon then can only be explained by the laws of refraction.

"When a properly formed eye is exactly accomodated for a luminous object, the diverging rays from this incident upon the eye are refracted by the ocular media in such a manner that they unite at a point in the surface of the retina which is the image of that object. The retina in consequence of its transparency transmits much of this light to the *choroid*, by which most of it is absorbed; bnt many of these rays are reflected in the same direction in which they entered the eye and return to the object whence they started. The object, then, and its image on the retina are reciprocal points (they may be considered conjugate foci) each being in turn object or image."* Thus, let E (fig. I.) represent an eye accommodated for the object O. In this case the diverging rays from O, falling upon the cornea of the eye E, are refracted by the media of the eye and collected at P, a point in the retina of E. This point, P, in E's retina, is the image of the object O; and since the rays, when reflected from the eye, simply retrace their steps, the rays from the retina at P will return only to the object O. These reflected returning rays cannot therefore meet the eye of a person at A, but the pupil of E will appear black. And, if the observer's eye be placed in the line OE the illuminating rays will be intercepted. From this it is apparent that without some special contrivance, one person cannot bring his eye into the direction of the rays returning from the eye under examination, without at the same time intercepting the incident rays. *This is effected by substituting reflected for direct light*, the observer placing his eye behind and looking through the mirror into the illuminated eye. This is the principle upon which is constructed the Ophthalmoscope which was invented in 1851 by Helmholtz, a German physiologist, but we are indebted to Liebreich, also a German, for the convenient little instrument now in general use by Ophthalmoscopists. This Ophthalmoscope, the theory of which is illustrated in fig. II., consists of a metallic mirror $1\frac{1}{4}$ inches in diameter and of about 6 inches focal length, pierced by a

* Hulke, Treatise on the Ophthalmoscope.