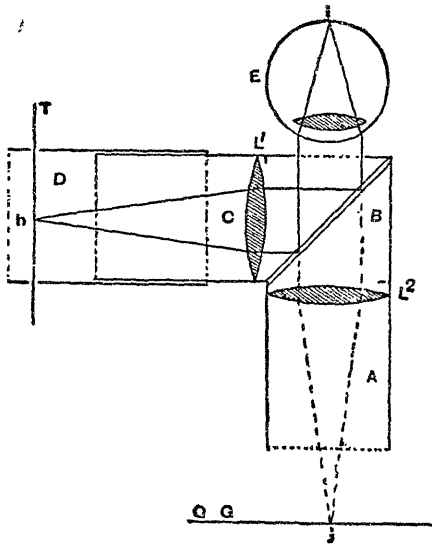


years have since elapsed, I desire now to report the result of these experiments, and to present some specimens of the photographs then made. These pictures are quite crude, but inasmuch as they appear to demonstrate at least the possibility of accomplishing the end desired, I trust they will not be found devoid of interest. They are prints from two negatives taken from the retina of a cat while under the influence of chloroform. The first is simply a view of the optic nerve entrance, with the radiating retinal blood vessels, and magnified about four diameters. The second, also magnified, presents a view of the ocular fundus with a dim outline of an image, in this case, a portrait, impinging upon this portion of the fundus. The ramifications of some retinal vessels are also to be seen in the photograph.



A, the camera tube. B, an extension outwards of the camera tube. C, a tube meeting tube B at right angles. D, the sliding tube for carrying the object to be photographed. E, the eye. P, the plate glass. T, the transparency. L^1 , L^2 , the lenses. G G, the ground glass at the back of the camera for adjusting the focus and where the prepared plate is placed. h, a single point of the illuminated object on the transparency. i, the image of this point on the retina of the eye, E. j, the photographic image of this point on the plate at the back of the camera.

My apparatus may be described as follows: A small photographic camera with a principal focus of about three inches is used. Upon the outer end of the tube carrying the camera-lens (or lenses) is attached a T tube, one tube crossing the other at right angles. We will

call the camera-tube containing the photograph lens, tube A, the tube attached thereto, tube B, and the tube meeting the latter at right angles tube C. D is a slotted tube sliding upon tube C. In tube B is placed an elliptical shaped plate of polished plate glass, and inclined at an angle of 45 degrees to tube C. This plate glass is placed so that rays of light impinging upon its surface from tube C are directed outwards from the outer end of tube B. This plate glass partly transmits and partly reflects rays of light incident upon its surface.

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While these photographs were being taken the eye of the cat was held near the opening at the outer end of tube B. The transparency was exposed to the direct rays of the sun, and the prepared plate was "exposed" about five seconds.

The principal difficulty in making these photographs arose from the fact that the cornea reflects the light very strongly. This is the case with the eye of lower animals as well as with the human eye, but in the latter a much larger proportion of the light reflected into the eye being absorbed, the light reflected from the fundus is comparatively feeble and not sufficiently intense to illuminate the prepared plate already partly illuminated by the light reflected from the cornea. Hence my attempts at photographing the human retina, or the inverted retinal image imprinted thereon, were not attended with success. As a large proportion of the rays of light incident upon the fundus oculi of the cat are again reflected, a comparative brilliant image is formed on the prepared plate, and this renders the photograph possible, notwithstanding the reflections of light from the