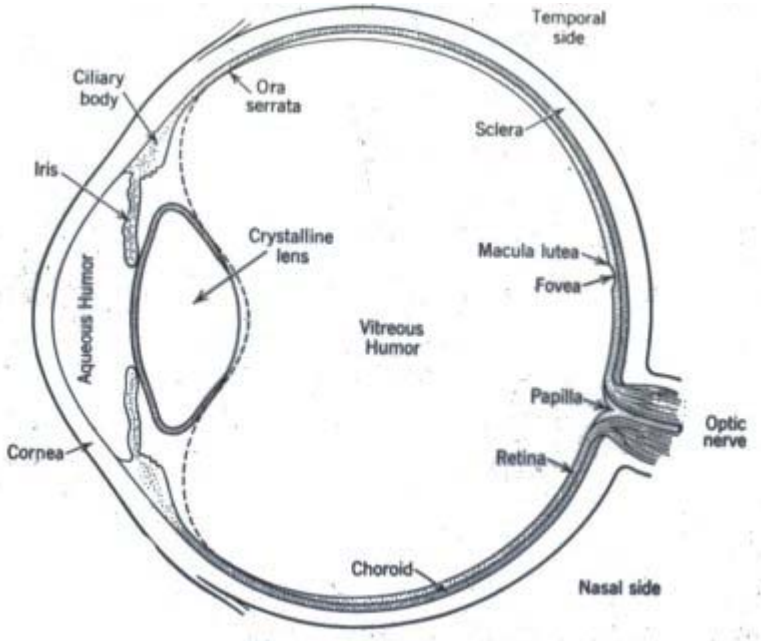
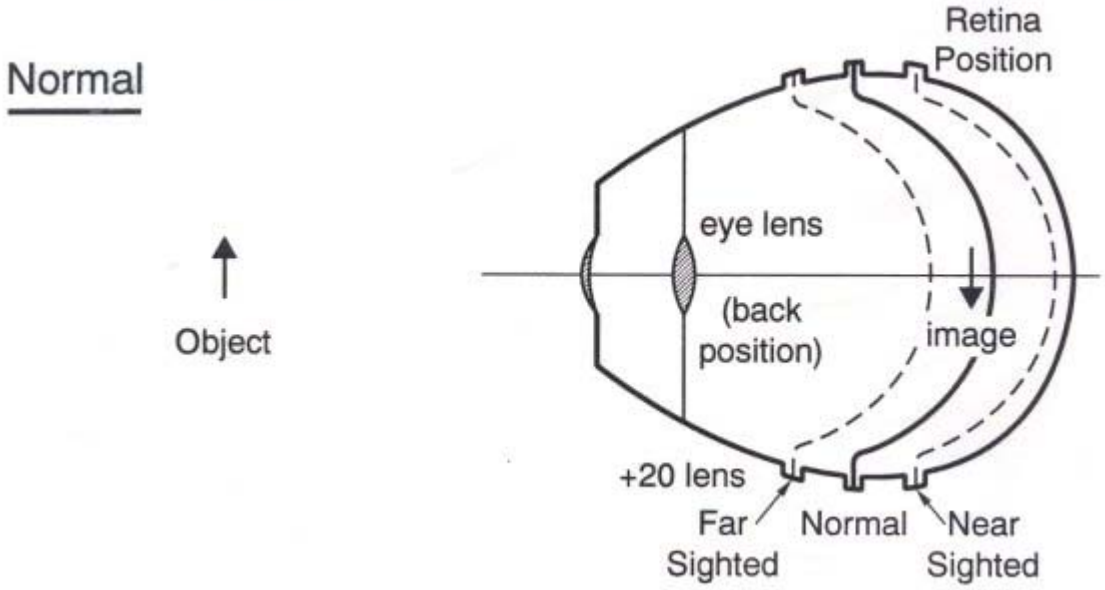
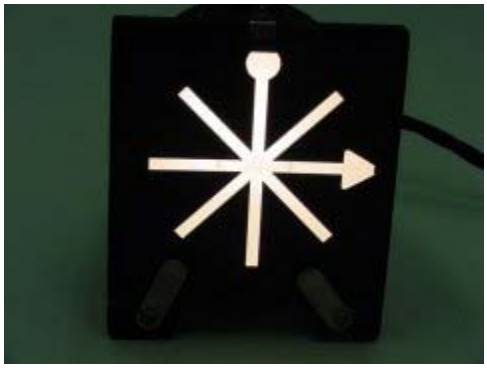
Question #285

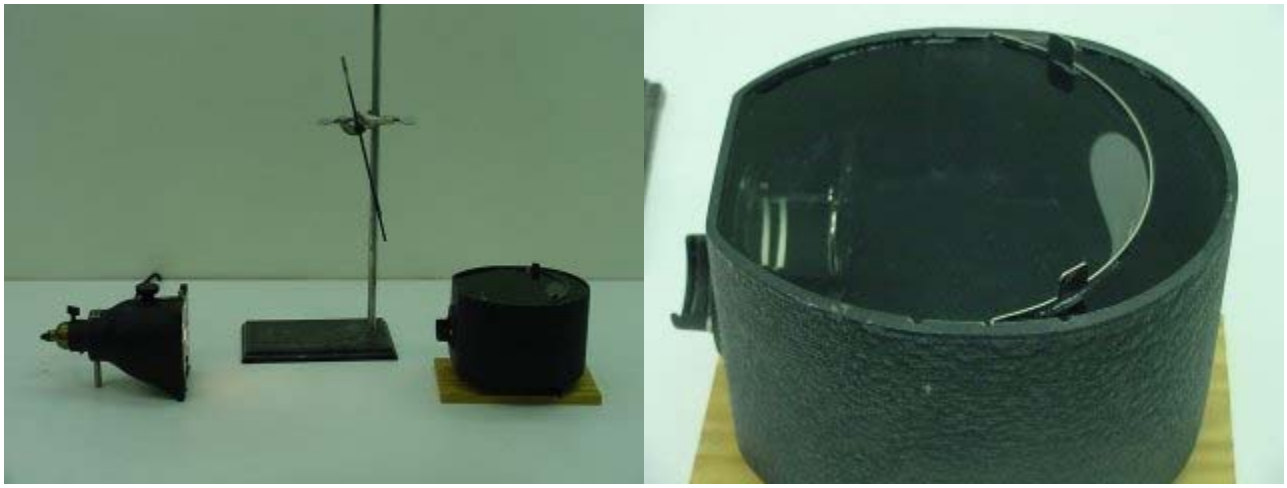






Shown at the left above is a reasonably accurate drawing of the eye. At the center above is a drawing showing the optical system used for this experiment: the object is at the left with the eye model "looking" right to left toward the object. The photograph of the object, at the right above, was taken by rotating the camera 90^o and looking backward along the optic axis toward the object.

The actual model is seen in the photograph at the right below. Notice that the retina is in the center position (from the drawing above) so that the normal cornea and lens combination focus the object onto the retina. The photograph at the left below shows the entire optical setup, with the source at the left and the eye model at the right. There is a flat mirror on a stand in the middle of the photograph. Focusing is provided by the curvature of the cornea, modeled by the glass surface where the light enters the eye model, and a lens positioned a few centimeters behind the cornea, representing the eye lens. The model is filled with water representing the *vitreous humor* occupying most of the volume of the eye and the *aqueous humor* between the cornea and the eye lens.



A movable screen represents the retina. If the eye is the correct length then the retina will be at exactly the location (the center position of the model) such that the primary focusing of the cornea plus the secondary focusing provided by the eye lens produces the image at the position of the retina.

The first question for this week is to describe the image produced by the eye on the retina:

- (a) real or virtual.
- (b) upright or inverted.
- (c) smaller or larger than the object.

(a) (b) (c) (d)

Now we will rotate the camera to look at the image on the "retina" of the model. Identify from the series of pictures above how the actual image on the retina will appear when it is photographed.

- (a)
- (b)
- (c)
- (d)

Click here for Answer #285 after May 7, 2007.

Question of the Week

Outreach Index Page

Lecture-Demonstration Home Page

For questions and comments regarding the *Question of the Week* contact Dr. Richard E. Berg by e-mail or using phone number or regular mail address given on the Lecture-Demonstration Home Page.