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LESSON XXXVII

THE OPHTHALMOMETER-THE PERIMETER

The Ophthalmometer.—In the examination of Sanson's images (Lesson XXXIV, p. 118) the student will have observed that he obtains a bright erect image of any object reflected from the anterior surface of the cornea. For a given object, the apparent size of this image is dependent on the radius of curvature of this surface. If, therefore, there were any method of measuring the size of the image (or of measuring the relative displacement of two images), it would be possible to calculate this radius.

Such a measurement is possible with the ophthalmometer. The instrument consists essentially of two luminous objects, or 'mires,' and of a telescope by which is observed the reflection of these mires from the surface of the cornea. The telescope has a double object glass, and a bi-prism placed between the two parts. This arrangement gives a double image of the eye of the subject, with the mires reflected from it, and the degree of separation of the images of the eye is so arranged that the double images of the mires overlap to an arranged amount. The degree of overlap measures the curvature of the surface.

The exact working directions will depend on the construction of the particular instrument used, which are variously described by their makers as ophthalmometers, or astigmometers.

The importance of the measurement of the curvature of the cornea lies in the fact, that it is usually the structure at fault, when the eye has the defect of astigmatism.

The Perimeter.—This instrument consists of a quadrant which can be revolved so as to trace out a hollow sphere. The subject places his chin on a rest, gazes at the centre of the sphere, and regards the little patches of white or coloured paper, that slide up and down the quadrant. To obtain the