

## OPHTHALMOLOGY.

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 UNDER THE CHARGE OF

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**A Common Misconception of Astigmatic Refraction.**—SUTER (*Annals of Ophthalmology*, January, 1905) calls attention to a misconception which we suppose almost every student of refraction has at some time held, and from which many never free themselves. The error is the more widespread from the fact that some text-books actually teach it, and others do not make the matter as clear as it should be. The error is this: that in astigmatism the meridians intermediate between the two principal meridians have each a separate focus, which is situated upon the optic axis somewhere between the focus for the meridian of least curvature and the focus for the meridian of greatest curvature. As a matter of fact there are but two foci upon the principal axis—one for the meridian of least curvature, and one for that of greatest curvature.

The focal lines are two lines perpendicular to the axis at each of the foci, anterior and posterior; the directions of the two lines are at right angles to each other, being parallel respectively to the principal meridian to which each belongs. A pencil of parallel rays refracted by an astigmatic surface is divided into two pencils, one of which is brought to a focus at a point in the anterior focal line, and the other at a point in the posterior focal line. Thus of two rays impinging upon opposite extremities of an intermediate meridian, neither will ever meet the optic axis nor will the two rays meet each other, and, consequently, there can be no focus for rays lying in this meridian.

**The Operative Treatment of High Myopia.**—FROST (*Brit. Med. Jour.*, November 12, 1904) details his experience and conclusions based upon operations on 39 eyes in 35 patients during the past nine years. The patients' ages ranged from ten to forty-eight years; 2 were lost by suppuration, rather strangely the only cases under twelve years of age. Detachment of the retina occurred in 8 cases, but it is difficult to say that this event was due in every case to the operation; thus in 1 case the detachment did not occur until six years after the operation; in another the interval was four years; in 2 two years; in 3 others it was eight months, four and two months respectively, and in 1 ten weeks. The result was vitiated in several other cases by chronic disease, such as cyclitis, glaucoma, and choroiditis. As regards the degree of myopia, the writer's view is that the operation is of little benefit if the resulting ametropia exceeds 4 D. This condition is only fulfilled if the myopia is not less than is corrected by a lens of  $-15$  D. placed 10 mm. in

front of the eye. This represents a myopia of only 13 D. measured from the cornea.

The optical effect of removing the lens increases with the degree of myopia; an emmetropic eye rendered aphakic requires about 10.50, whereas an eye myopic 25 D. becomes nearly emmetropic; that is, such an eye would have to be 31.1 mm. in length, and this is the posterior focal distance of the cornea.

The visual acuity also must be taken into account when considering the probable benefit to be derived from the operation. The improvement to be expected therefrom can only be due to increased size of the retinal image, so that when the defective vision before operation is due to fundus changes it is irremediable by the operation. At the same time the changes actually visible with the ophthalmoscope afford a very unsafe guide in forming an opinion as to the improvement that may be obtained after the operation. The writer tests the visual acuity by the ability to read No. 1 Jaeger at the patient's far point. A rough but practically useful test.

The operation is usually called for only in young adults, or at the age of puberty; high myopia in young children is very rare. Young eyes thus affected are probably unsound and bad subjects for operation. Older people do not frequently require the operation, because they have chosen their path in life and have become accustomed to the inconvenience of wearing strong glasses. In the series reported only 5 were over thirty-five years old.

Should both eyes be operated on? When improvement has resulted from the operation on one eye it is rare that the same result is to be expected from the other. There is usually a difference of several dioptries in the myopia of the two eyes. Moreover, operation on the second eye deprives the patient of the ability to see near objects without glasses.

In the discussion which followed this paper, which was read before the section of Ophthalmology of the British Medical Association, Dr. E. Landolt remarked that highly myopic eyes were almost always diseased eyes affected with chronic choroiditis and its multiple consequences. Operation on the weaker of the two eyes would probably not yield a great advantage. Operation on the better eye might lead to entire loss of useful sight. Extraction was admissible only on one of two relatively good eyes of about 20 D. myopia.

**Posterior Cortical Cataract of Traumatic Origin.**—KOLLER (*Annals of Ophth.*, January, 1905) reports the case of a young man who received a perforating flap wound in the upper outer quadrant of the cornea of equitriangular shape, each side about 3 mm. long. Examination six days later showed that the flap was well adapted. In the region of the posterior pole of the lens a delicate star-like, somewhat diffuse opacity was present. Three and one-half weeks after the injury, the opacity of the posterior pole was smaller but much better defined. Vision was  $\frac{6}{8}$ ; with the stenopœic slit it was  $\frac{6}{2}$ . A better scrutiny of the anterior part of the lens with the ophthalmoscope revealed a condition which had most likely existed from the start, but had escaped notice. In the anterior capsule of the lens exactly corresponding to the inner angle of the corneal wound was an opacity not larger than the finest dot, and adjoining it, outward and downward, the most