

ACQUIRED MYOPIA

To the Editors of THE BRITISH JOURNAL OF OPHTHALMOLOGY.

SIRS,—May I add a brief observation to the interesting discussion recently appearing in the *British Journal of Ophthalmology* as to the cause of acquired myopia?

It is not, I believe, a routine procedure—it certainly is not in the clinics of the United States—to determine instrumentally the tension and to record the visual fields of young children. This is done usually only in the case of a suspected intra-ocular neoplasm. The reason for the omission of these important diagnostic measures is undoubtedly because they are not considered clinically important. With the instruments ordinarily employed, it is moreover, a difficult and a somewhat fearsome affair for a timid child. The necessity of placing the child on his back in a horizontal position and approaching him with an instrument to be placed upon the eyeballs often causes such a degree of consternation and resistance on his part as to make an accurate determination of the pressure difficult. With the tonometer of Dr. Bailliart, however, after the instillation in the child's eyes of a few drops of butyn, the tension may be determined with the child in a sitting posture, and if done tactfully, is easily accomplished without apprehension on his part and even with his co-operation. If this is done it will be found that an increase of pressure to the extent of from 10 to 15 mm. of mercury is present in a large proportion of eyes in which myopia already exists, as well as in those in which it is developing. Risley pointed out many years ago that the progress of myopia is from the hyperopic eye through the turnstile of astigmatism. Hess has shown that the accommodative effort does not affect the tension in the normal eye; in the astigmatic eye it does.

The points of least resistance in the young elastic structures are at the anterior and posterior poles. Before and at about the advent of adolescence all of the tissues are undergoing important changes. The endocrines are beginning to take on increased activity. If the balance is not maintained in the functioning of the thyroid, the pituitary and the sex glands, an increase of tension will often manifest itself in the eyes. That the increased pressure does not become more evident is due to the fact that compensation is found in the stretching of the eyeballs. As the elasticity gives way the pressure is reduced. It is again increased as the progress of the myopia ceases. In malignant myopia these changes are continuous. It will usually be found that each increase of approximately one dioptré of myopia will be preceded by a hypertension varying from 10 to 15 mm. Hg. This, of course, will be variable depending upon the resistance of the tissues.

Again, when the middle period of life is passing and when functional glandular changes are diminishing or ceasing, especially during a time of mental or physical stress, the intra-ocular balance is again disturbed. The sclera and the cornea by the 50th or 60th year will have become denser. Then the point of least resistance is not at the poles of the globe; it is in the cribriform plate of the optic disc and when hypertension occurs a cupping of the disc results. Occasionally it happens that in an adult, for one reason or another, such as continued depressed vitality or low blood pressure, the body tissues remain less resistant or are not sclerosed. They then may respond to an increased intra-ocular pressure precisely as they do in childhood.

The following typical cases will illustrate each of these forms.

A girl of ten years comes because of an increased myopia.

O.D. minus 3·00 D. sph. V. equals 5/8.

O.S. minus 1·50 D. sph. V. equals 5/8.

Tension in the right eye, 28; in the left, 26 (Bailliart).

Slight congestion of both optic discs and narrowing in all directions of visual fields, headache but not severe in character. The diminished visual acuity and restriction of fields is due in all probability to the pressure on the optic nerve fibres as they leave the disc. The child is treated with pilocarpine each night on retiring and the emotional life studied, both of which are important.

If the child can be safely carried over the period in which these deep bodily changes are taking place the structures will themselves become so adjusted that further progress of the disease does not take place, and under correction normal acuity returns.

Toward the end of middle life similar disturbances may occur. A case will illustrate the development of myopia produced by hypertension in an adult rather than the classical symptoms of glaucoma.

A man of 46 occupying an important official position with much responsibility, a solicitor, and having low blood pressure, suddenly within a period of a few days complained of having lost the sight in the left eye. Prior to this attack he had had for a number of years a myopia of about three dioptries in each eye and a moderate lateral astigmatism and with practically normal acuity. His refraction was found to be as follows:

O.D. minus 2·75 D. sph., minus 0·50 D. cyl., axis 105°, V. equals 9/8.

O.S. minus 6·25 D. sph., plus 1·37 D. cyl., axis 135°, V. equals 7/8.

Tension in the left eye, 21 mm. Hg; left eye, 42 mm. Hg.

There was present a definite narrowing of the left field, but no cupping of the discs.

The higher tension in the eye with the higher myopia would indicate that an increase of intra-ocular pressure had resulted in a posterior polar relaxation, the scleral tissues being less resistant than is commonly found in late middle life. The hypertension therefore, produced an increased myopia instead of cupping of the disc.

Intra-ocular hypertension is a symptom perhaps rather than a primary cause of myopia and it is probably not the only reason for the posterior relaxation of the globe. In a family of four children, the oldest and the youngest male and female who are tall, fair and similar temperamentally and physically, have developed a fairly high degree of myopia. The second and third who are shorter and sturdier, living under like conditions, have normal eyes. They form two groups having dissimilar likes and aptitudes. The former have in all probability potentially structural tissue weaknesses which the second group escapes.

Do not such cases as these give an impression that progressive myopia may be a temporary form of glaucoma simplex juvenilis? The recognition of this aetiological factor should have an important bearing on our method of managing this serious disease in children.

Yours faithfully,

PARK LEWIS.

BUFFALO,
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NOTES

Death

THE death is announced of Professor Landolt of Lugano.

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Appointment

MR. CECIL W. R. MCCALDIN has been elected Hon. Assistant Surgeon to the Nottingham and Midland Eye Infirmary.

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Royal London Ophthalmic Hospital, Annual Dinner

THE Annual Dinner of past and present students of the London Royal Ophthalmic (Moorfields) Hospital, was held at the Langham Hotel on Thursday, February 9.

Sir Arnold Lawson was in the chair, and among the sixty-seven present were:—Lt.-Gen. Sir H. B. Fawcus (Director-General of the Army Medical Service); Air Vice-Marshal J. McIntyre; Sir William and Lady Lister; Lady Lawson; Mr. T. W. Luling (Chairman of the Hospital); Dr. A. M. H. Gray (Dean of the Medical Faculty of the University of London); Sir W. Morley