ocular disease. The other members of the family that were examined showed no changes in the fundi.

This case was shown at the North of England Ophthalmological Society but no member had seen a similar case before and this is my excuse for submitting this drawing for publication.

The most exhaustive account in the literature seems to be in Vol. II, pp. 661 et seq. of Parsons, Pathology of the Eye.

ANNOTATION

The Normal Refraction in Infancy and its bearing on the development of Myopia

An investigation on this subject was undertaken, by Arnold Sorsby, at the request of the Jewish Health Organization of Great Britain; and the results are presented in the L.C.C. Annual Report for 1933 (Vol. IV, Part III, p. 55) just published.

The L.C.C. has repeatedly drawn attention to the fact that visual defect is much more frequent in Jewish than in non-Jewish children at the age of 14 years when pupils leave school. Defective vision among Jews is also heavier on the boys than on the girls, the reverse of what occurs among non-Jewish children.

Sorsby's previous attempt "to disentangle the factors of race, sex and environment in the causation of a heavier incidence of visual defect in Jewish children" was published in our columns (Vol. XII, p. 197, 1928). His results confirmed the greater prevalence of visual defect in Jewish boys; but did not substantiate the view that excessive close-work done by Jewish boys was responsible. He held that the "greater prevalence of visual defect among Jewish children was due to a racial variation, while the reversal of the sex-distribution in the incidence of refractive error in Jewish children was explained by a sex-linked non-racial factor which determines a greater increase of refraction in the case of boys; in them the tendency for the eyes to change towards emmetropia or myopia is therefore greater, and with more Jewish boys having a low hypermetropic reserve, the greater incidence of myopia among Jewish children at the school-leaving age could be thus explained."

This paper dealt with selected material.

Miss McIlroy, investigating for the L.C.C. (Annual Report for 1928, Vol. III, p. 86), could not substantiate the presence of a lower hypermetropic reserve in Jewish children; she also found that low myopia, absent at the age of seven years, increases during school life in all groups, but to a far greater extent among Jewish children, both boys and girls, than among gentile children. Her
results were based on a large series, but are open to the criticism that the refractions were not done under cycloplegia, and that thereby "much latent hypermetropia must have been missed."

The present investigation by Sorsby was carried out at the Council's infant schools. Complete atropine cycloplegia was obtained. 1,344 infants, 772 Jewish and 672 non-Jewish between the ages of four and eight years were examined. At this age it may be assumed that no excessive amount of close-work was done in the infants' schools. The report is illustrated by a graph and by tables.

This valuable paper may be summarised in the author's own words as follows:

1. Under atropine cycloplegia about 75 per cent. of the infant population between the ages of four and eight years show a refraction ranging between 0·5 and less than 3·5 D. of hypermetropia.

2. In the same age group 9·1 per cent. of non-Jewish children show a refraction around +0·5 D. (with ±0·75 D. range); the corresponding percentage for Jewish children is 12·7; 2·4 per cent. of non-Jewish children as against 4·8 per cent. of Jewish children show a refraction around −0·5 D. (with a range of −0·75 D.).

3. There is no sex difference in the distribution of refractive errors during infancy.

4. Astigmatism is decidedly more frequent in Jewish children. Considered in three divisions: (1) 0·75 and 1·0 D., (2) 1·25 to 2·0 D., and (3) 2·25 D. and over, the percentages for Jews and non-Jews are 15·7, 10·6, 4·7, and 10·7, 7·3 and 2·0 respectively. The total incidence of astigmatism is therefore 31 and 20 per cent. for Jewish and non-Jewish infants respectively.

5. The refraction curve of infants between the ages of four and eight years does not follow a binomial curve. In addition, the curve for Jewish children is more spread out and tilted towards the myopic side.

Sorsby's conclusions are as follow:

1. The greater prevalence of low hypermetropia in Jewish infants is confirmed from an examination of unselected cases. It is held that to this and not to any environmental factor must be ascribed the greater frequency of myopia amongst Jewish children at the school-leaving age.

2. The higher incidence of visual defect in Jewish children is to be explained not only by the onset of myopia in a larger group of potential myopes but also by the greater frequency of astigmatism.

3. The greater incidence of astigmatism in Jews is perhaps to be explained along biological lines. Astigmatism is frequently inherited in a recessive manner, and would be more frequent in such a highly inbred people as the Jews.