Frimley is a very different thing from the treatment carried on in the early days of sanatoria. Patients are no longer stuffed and rested indiscriminately. They are given work, rest, and food on a carefully graduated system; they are taught how to treat themselves—what to do and what to avoid. The sanatorium treatment, however, deals with but a small proportion of the cases; tuberculosis must be tackled on a much more extensive scale. Calmette in Lille and Philip in Edinburgh, seeing the importance of bringing the treatment of tuberculosis to the working classes and even the very poor, have organised what is now known as the dispensary system, in which are combined an intelligence department, an ambulance service, a training school, an out-patient and in-patient hospital service, and a sanatorium department. In Edinburgh the result has been a fall in the death-rate beyond that of other cities equally or more favourably situated, except in that they have not been provided with this well-organised system.

It is recognised that prevention of tuberculosis is certainly more important than its cure, and all interested in this question must realise what enormous impetus has been given to the whole movement by the energetic action taken by the President of the Local Government Board. His keen interest in the Milk Bill, in the Washington Congress on Tuberculosis, and in the Whitechapel Exhibition, his grasp of principles and the wealth of detail contained in his opening address at that exhibition, gave evidence of complete conviction and determination to act up to his conviction. All this marks a great advance in the public treatment of the question in this country. Medical men have long suspected that tuberculous milk was a prolific cause of abdominal consumption amongst their little patients. They have known how readily delicate children recovering from measles, whooping cough, inflammation of the lungs, and similar conditions, have been infected, sometimes from tuberculous patients, at other times, however, under conditions where infection from the human subject appeared to be impossible, and they now welcome with enthusiasm any legislation that will render impossible the spread of tuberculosis by the milk from infected cattle. Medical officers of health, aware of the insanitary conditions under which a large proportion of the population, not only urban, but rural, live, hail with satisfaction the idea that in any well-considered action they may take they will now, not only be commended, but helped. The National Association for the Prevention of Consumption has done well, not only to follow Ireland and America, but to improve upon the methods adopted in those two countries. Nothing but good can be the outcome of this movement, and we hope that the seventy thousand visitors to the Whitechapel Art Gallery will be followed by hundreds of thousands, who will have the opportunity of seeing this or a similar exhibition at the "White City" or on its tour through the large and populous centres of England, and perhaps even of Scotland.

VISION IN RELATION TO HEREDITY AND ENVIRONMENT.[1]

THE Francis Galton Eugenics Laboratory at University College, London, has already done much valuable work in many directions under the supervision of Prof. Karl Pearson. With the assistance of Miss Barrington, a useful inquiry has been made into the question of the inheritance of vision and the relative influence of heredity and environment on sight. The paper is a mathematical investigation of statistics culled from a variety of sources. Of these, two communications by Dr. Adolf Steiger, of Zürich, on the corneal curvature, and the report on 1400 school children issued by the Edinburgh Charity Organisation Society, afford the best material. Other contributory material of less value is taken from reports on the refraction of London elementary-school children by Dr. A. Hugh Thompson and the Education Committee of the London County Council, and on the eyesight of 500 Glasgow school children by Dr. Rowan. Throughout, the difficulty which specially besets such statistical investigations is present in the fact that all the material is intensely selected. There is no means of supplementing it by a knowledge of the distribution of astigmatism and other errors of refraction in the community at large. Thus, in dealing with percentage statistics of the heredity factor in myopia, the authors say that "the distribution of parents of the normal and the proportion of myopes to the normal in the general population (or at any rate in the 'universe under discussion') must be found before any appreciation of the effect of heredity can be made."

The first moot point which arises in dealing with the inheritance of refraction concerns the determination of the unit to be used to obtain a quantitative scale. It is now customary to measure the refraction in terms of the refractive power of the correcting lens instead of, as formerly, in terms of its focal distance. When the variations of the mean values in the population are small compared with the mean value in the individuals under discussion, it matters little which unit is adopted. This is true of corneal refraction (3 per cent.), but untrue of corneal astigmatism (75 per cent.). The difficulty is overcome by using, whenever possible, the method of contingency, fundamentally, or for purposes of control.

Investigation of the inheritance of corneal astigmatism leads to the conclusion that it is certainly inherited, as evidenced by minimum limits of 0·3 to the parental and of 0·4 to the fraternal coefficients, but the material is neither sufficient nor sufficiently classified to determine with any degree of certainty the accurate value of the inheritance coefficients. The authors point out that "there is a splendid field for a man who will measure the corneal astigmatism in a non-selected population." As this would be an easy and accurate task with the ophthalmometer there ought to be no difficulty in getting it carried out. Investigation of corneal refraction shows that it is inherited at the same rate as other physical characters in man. In dealing with the inter-relations of refraction, keenness of vision, and age, the results show how much more influence myopia has on visual acuity than hypermetropia, and that refraction defects contribute more than half the abnormality of keenness of vision. They further show that there is not the least doubt of a sensible relationship of age to each of the several categories of eye defect. It is probable that a great deal of hypermetropia, hypermetropic and mixed astigmatism disappears, probably owing to growth, between six and ten, thus swelling the number of emmetropic eyes, but that after this age there is not sufficient evidence to say whether these categories vary or not. Myopia and myopic astigmatism increase throughout, but this increase does not balance the total gain due to rectification by growth; it may be caused by continued action of some environmental factor, or by a growth factor.

The general conclusions derived from the slender data of this first study are as follows:—There is no evidence whatever that overcrowded, poverty-stricken homes, or physically ill-conditioned or immoral parentages are *markedly* detrimental to the children's eyesight. There is no sufficient evidence that school environment has a deleterious effect on the eyesight of children. Though changes of vision occur during school years, they are phases of one law of growth, a passage from hypermetropia to emmetropia and myopia of the eyes of "unstable stocks." There is ample evidence that refraction and keenness of vision are inherited characters, and that the degree of correlation between the eyesight of pairs of relatives is of a wholly different order to the correlation of eyesight with home environment. Intelligence as judged by the teacher is correlated with vision in only a moderate manner (p. 16). We scarcely think that the data justify so strongly worded an *ex cathedra* statement as that made by the authors in conclusion:—"The first thing is good stock, and the second thing is good stock, and the third thing is good stock, and when you have paid attention to these three things fit environment will keep your material in good condition. No environmental or educational grindstone is of service unless the tool to be ground is of genuine steel—of tough race and tempered stock."

[1] University of London. Francis Galton Laboratory for National Eugenics. Eugenics Laboratory Memoirs. V. A First Study of the Inheritance of Vision and of the Relative Influence of Heredity and Environment on Sight. By Amy Barrington and Karl Pearson, F.R.S. Pp. 61. (London: Dulau and Co., 1909.) Price 4s.