August 2, 1940

Dear Riddell,

Many thanks for sending me your sample of 200 children. There is more in it than I can discuss in one letter, as I should like to be clear about a few points at once, or as soon as you have time to answer me. The first point, and one of most importance, is that, having had the experience of classifying these eye colours using Brownlie's groups, I should very much like to know whether you find consistent classification easy on this system, or whether there are large quantitative differences within each group which make it doubtful whether children in the same group are genotypically similar. Your classification differs most strikingly from Brownlie's in having a lower frequency of mixed eyes. He has 23% blue and grey, where you have 9% on the girls and none in the boys. It is clear that you are classifying children differently from Brownlie, and this does not in itself matter, so long as you have the impression, after this considerable amount of experience, that you are separating distinct types.

Again, while you agree with him in having a considerable class grey and yellow, you find very few grey and chocolate. These are not the sorts of differences from differences in a population sampled by one wd. expect from differences in the convention used in assigning the classes.

P.T.O.

For example, I imagine that many of Brownlie's blue and greys would have gone into your grey class, and it may be that ~~your~~ his grey and chocolates have gone into classes 4 and 10, that is, chocolate in one class and yellow and chocolate in the other. Of course it is worth only a limited amount of trouble to try to reconstruct what Brownlie has done, and the trouble will seem less worth taking if you are satisfied that you have been making a consistent and reliable classification than if you feel dissatisfied with your own classes. Neither of Brownlie's genetic interpretations comes near to being realised in your data.

With respect to hair colour, I have felt, as you have, that there are more than three grades in the range fair to dark-brown, even in the absence of any ~~sign of~~ gene for red. For example, though my daughter Phyllis has fair hair in a sense, there are certainly families with a fairer shade. I am a little disappointed that red has not sorted itself out more consistently in your series. If in classes 1 to 3 one ignores the large sex difference one has totals ~~for~~ 4: 14 and 16 agreeing well with the view that nearly 1/3rd of the genes in the red locus are of the red type, so that about 1/9th are homozygous red and 4/9ths homozygous not-red; but this is not true of your next three classes, 4, 5 & 6, where the two sexes are entirely consistent, but both have about 2/3rds in the homozygous not-red class, while the reds are very rare. I wish I had a classified series to compare with yours, for I have very strongly the impression that red hair with medium red brown pigmentation (a rather carrotty red) is commoner than the more flaming red corresponding with fair hair. Genetically I should expect the frequencies of classes 1, 2 and 3 to be proportional to those of classes 4, 5 and 6, and, so far as they are distinguishable, to 7, 8 and 9 - though I have no real hope of distinguishing 8 and 9. I must write to Rhoe and see whether he

finds more boys with free-hanginh ear lobes, as you have done. My impression is that he has found it a fairly consistent character in his material. I haven't great hopes of hair whorls.

Thanks for the pedigree of "Hereditary Stationary Sex-Linked Night Blindness" which I shall put into the next available Annals, Vol X. No. 4 with pleasure.

Yours sincerely