6 October 1944

Dear Dr Cappell,

Thanks for your long and interesting letter. I had not intended to reproach you at all, but rather to explain why I had no idea in the first half of this year that you had got any intellectual satisfaction out of what I had put forward. I was probably the more prone to jump to this conclusion as Taylor has always had a good many doubts about it. Of course, I could have published the thing myself, but I have been always, through the last thirty years, entirely averse from butting in on subjects on which I am not working practically, and have never regretted my constant policy of waiting until those who are practically concerned with the science in question are sufficiently interested to see eye to eye with me and make use of any ideas I can put forward.

I very much agree with you that the apparent allelomorphs so far found are better thought of at present as due to combination of

three closely linked genes. The distinction between perfectly linked gene-compounds and allelomorphs is scholastically academic, but in this case rare crossovers are suggested to my mind by the peculiar frequency system found in our own and American data and may be confirmed when information comes from farther afield. Your Moodie case is extraordinarily interesting from this standpoint. What frightfully bad luck that it should be complicated by a possible interchange of samples.

My frequency argument runs like this. There are three tolerably frequent allelomorphs, and four infrequent ones, much rarer, but(and this seems to me to need an explanation) with frequencies of the same order of magnitude. The three heterozygotes between common allelomorphs are all doubly heterozygous on the gene theory and would yield, by crossover, all of them $\underline{Rh_0}$, and one each $\underline{Rh'}$, $\underline{Rh''}$ and $\underline{Rh_2}$ respectively. If all these four are kept rare by counter-selection balanced against crossing-over, then the eighth allelomorph, $\underline{cg_n}$

Rh_y, must be expected to be rarer still, if equally disadvantageous, for it would only arise by crossing-over from heterozygotes involving four one of the rarer known genes. Rh_z is the only one of the eight which has not been found with certainty, and from the number of Δ-negative cases examined it pretty well must be very rare, perhaps only a fiftieth of the frequency of Rh' or Rh". What I should mean by anthropological confirmation of this view would be if, for example, Rh_1 and Rh_2 are common in China but very rare or unknown, it would follow that Rh_0 and Rh_z would occur as crossovers but Rh' and Rh" would be as rare as Rh_y is in this part of the world.

I hope all this does not seem to you hopelessly premature speculation.

Yours sincerely,