1 July 1930.

Professor R. Ruggles Gates,
King's College,
Strand,
London, W.C. 2.

Dear Ruggles Gates,

I would not like to hazard a suggestion as to rubricalyx. I do not see why even on its first appearance a mutation should not be, for purposes of genetic classification, either dominant or recessive. Only statistics of a number of cases can indicate any general tendency towards one condition rather than the other. There is no doubt of such a general tendency among the Drosophila mutants, and it would not be invalidated if some of the "dominants" really were complete dominants, though asfar as I can ascertain with the help of a good many Drosophilists, none of them are. Is there any evidence as to rubricalyx being a duplication?

With respect to blood groups I fancy we must give up the two factors in favour of a multiple allelomorph series, O, A, A′, B. They seem to resemble Apotettix in their dominance i.e. there is a fairly common universal recessive, and a number of dominants, which however show no mutual dominance, but a combination of the single effects. I cannot think what such a factor is doing in Man.

There are a good many climatically limited blood diseases, such as malaria and yellow fever, so I would not be ~~so~~ too sure of the absence of selection. However, if it is absent, a mutation rate of 10^{-6} will establish itself in about 62 per cent. of the population in 10^{6} generations, which seems too long to allow, or a little less than 10 per cent. in 10^{5} generations, which is still a long time, and an uncomfortably low percentage. It looks as though you must postulate high mutation rates ethnographically limited, or else ~~limit~~ local selection.

Yours sincerely,