19th February, 1954.

My dear Henry,

Thanks for your letter about the blood-groups; I think as a matter of fact we agree perfectly. Let me express my own attitude.

For teaching purposes the distinction of gene and antigen must be stressed, if only to make clear what an important observational fact it is that antigen inheritance is so exceedingly simple. In making the distinction I ordinarily use A,B,O, for antigens, and represent the genes in your notation G^O, G^A, G^B ; similarly when a group of us had some legal reason, I think in connection with the Inter-State Commerce Commission, or one of its sub-committees, to make a formal specification of the Rhesus system we suggested formulae ~~some rules~~ such as R^{CDe}, R^{cde}, R^{cDE}, for the three common genes or gene combinations known more shortly as R_1, r, R_2. Of course in all this we were aware that we were proposing notations which might be used for instruction purposes by those who thought the actual situation to be of closely linked loci, and those who thought in terms of multiple allelomorphs. The former class will doubtless point out that the R became redundant if we did not wish to stipulate that the loci C, D,

and E, were in fact those of the Rhesus system.

Beyond teaching, usage in Research Laboratories is always liable to diverge in the direction of slang, nick-names, and technical distinctions of which the theoretical meaning is obscure. It is, I think, for the teacher to make clear that such usages are not wrong, save to imperfectly instructed people who may mis-understand them. Occasional danger points may be specifically guarded against without pedantically over-weighting the whole structure of notation, nomenclature and terminology. For my own part I should like to see such a term as carbolic acid abolished by every means that law and education can accomplish, for it is not an acid, does not give the reactions of an acid, but a dangerous substance in common use which may fail to be recognised just because it is faultily named.

So far as Race and Sanger's book is concerned, I am sure that there is at least one passage to which students could be directed in which it is pointed out that in the common serological usage the same symbol is used for gene and antigen. This seems to me no inconvenience provided the student is taught how to make such a distinction whenever he wishes to.

Sincerely yours,