

8th. January 1947.

My dear Rao,

I am returning your paper with some comments. I wish I had had an opportunity of discussing the data with you before you put in any work on it. The comparison I think of interest between the precision obtained by a full multiparametric analysis and that obtainable from two factor data only should, I think, be made on a simple experiment, such as the four factor experiment of which I gave you the data. I enclose a slip showing the frequencies in the eight possible modes of gamete formation in terms of the three recombination fractions for single segments and one additional parameter which the data must supply also, even when Kosambi's restrictions are applied. I guess that the data you have used are compilations from different experiments carried out in different years though using similar genotypes. I imagine that if ^{you} examine them you will find considerable heterogeneity ~~within each~~ within each group, which, of course, undermines the conclusion that the different groups are homogeneous. My impression is that Punnett's data in the D chromosome ~~differs~~ significantly not only from Kosambi's formula, but from any formula giving a monotonic increase of $\frac{1}{2}$ for increase of map distance. But I do not suppose that further experimental results would confirm this.

I have suggested a few verbal alterations in terminology. The likelihood is defined as a function of the parameters, and I do not think that the phrase "likelihood of a sample" means anything.

The same ~~mean~~ quantity is, of course, the probability of a sample from given parameters and, apart from an arbitrary factor, the likelihood of parameters ^{for} ~~from~~ a given sample.

Yours sincerely,