18th. March 1947.

My dear Rob,

Thanks for your letter.   To take your last paragraph first, I should think you had the best idea for section R exactly. one wants the British anthropologists to get their EA dope straight from the nearest horse's mouth instead of, as will otherwise happen and has so often happened in other subjects, about ten years later from a learned Viennese, who has got it from German scientists, who got it from an American, who got it from you, each having muddled the facts and distorted the history of the subject as it passes along.

I am afraid the matrix of sampling covariance got a bit detached from the main body of my screed.   If you have a good look at it you will see that it is a triangle with a hypotenuse, or longest side, which might be used as a vertebral column or leading diagonal of an 8 x 8 square, supposing one repeated the triangle on the opposite side, so producing bilateral symmetry.   The eight values along the diagonal are the sampling variances of the eight estimates of gene frequency.   I have probably left out a number of noughts and put a comma after the fifth decimal place to show where one stands.   If ever you want to know the standard error of one of these eight estimates you can take the square root of the corresponding diagonal value and, I suppose, multiply it by 100, to express the standard error in units percent.   This, of course, is the same as moving the decimal point four places to the right

before taking the square root.   But you should make it clear to Miss Sanger that if she wants the standard error of something other than these straight estimates, e.g. if she wants to know whether R'' is significantly more frequent than R', she would take the sum of the two corresponding diagonal elements less twice the covariance entry found where the row through one and the column through the other intersect, and, of course, in doing this one takes account of the fact that elements off the diagonal, which are the sampling covariance of different pairs of estimates, are very often negative. So, in this case, one has in percent units

$$
\begin{array}{ll}
V(R'') & .068045 \\
V(R') & .058809 \\
+ & .003450 \\
\hline
 & .130304 \\
\text{Standard error} & .3610\%.
\end{array}
$$

This is what I did for the difference $R_0-R''-R'-R_g$, using ten values from the table, with the result that she might like to check. As you see this last difference is very well within sampling error.

I have not anything so handy for getting the precision of the ratios which indicate crossover frequencies or of the estimate of R_y, so I shall not bother about this unless heckled.

Of the publications you are considering, I am certainly attracted to the American journal.   There seems to me very little for or against putting my name to the paper, as I do not want to be consulted about what you say, though I am quite willing to take

responsibility for making the estimates, which, if my name did not appear, you could ascribe to me and refer to the Annals paper for the method.

I had not before noticed the privy council's stamp on your notepaper. I shall now imagine you led by secret stairs to a sumptuously upholstered boudoir to give your opinion on the shadiest aspects of the Almanach Loan.

Yours sincerely,