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Dear Buchanan Smith,

      I am puzzled and I confess a little disappointed at the iregularity of the series of mean squares. I suppose it must be something to do with the lumpiness with which they come out of the pedigree material, as in the case of the single pedigree which I analysed.

      The negative correlations show how high the sampling errors must be, for the true correlations must be positive or zero at least. Then each column of mean squares ought to increase downwards (apart from the 4th. and 5th. entries) and so should each row increase to the right. But the 24218 (P.$\frac{1}{2}$ sister x Not brother) on which the main argument turns is lower than (Same mother x Not brother) in the same table, and lower even than the full sister yields 24882, and (P.$\frac{1}{2}$ sister x Same bull) 27821. I cannot help feeling therefore that the mean square is somehow much too low and consequently the correlation much too high. Can it be that in such cases the cows have nearly always been bred in the same herds?

I do not think there is any hope of deriving a theoretical standard error for the material, and I had meant to rely on the consistency of the series of mean squares, and if the data became available on the consistency of the results from different batches of pedigrees, perhaps from different breeds.   On this basis I do not think we can avoid the conclusion that not enough independent material has yet been accumulated to give a reliable series, though why this should be so is a real puzzle to me.   Of course, the same yield high or low, which enters into a large number of pairs of the same degree of relationship must have a considerable effect on the average, but I had certainly hoped that your data would be sufficiently ample to give smoother averages.

Thanks for letting me see the results.   I wish I could see my way to making a less tedious suggestion than to increase the material.

Yours sincerely,