February 13, 1942

Dear Peters,

Thanks for your letter. The extra degree of freedom from Winches was the comparison between those receiving no tablets and no drench, which I take to be equivalent treatments. Perhaps, however, no phenothiazine in drench animals received some sort of inoperative beaver that I had forgotten about.

Table 1 is really Cx^b, i.e., something proportional to the actual number of eggs expected in the sheep count. I did this for two reasons, first because it seemed a handy way to deal with the lost sheep, and next because in examining agreement with expectation I did not want the lower egg counts to have as much weight compared with high egg counts as a straight analysis of the logarithm would imply.

In view of the very striking results of the worm counts, I should wash out the attempt in this first note to get qualitative indications. The fact is that in so many sheep other species predominate in the egg count that, with our former experiment, the worm counts are much more decisive on differential effects. I am very glad you have looked at the egg counts specially from this standpoint, and that they confirm the worm counts, as I have not done this.

If one takes five times the weight difference between the first and last weighings at five intervals apart, three times the difference between the second and fifth, and once the difference between the third and fourth, one should divide by $5^2 + 3^2 + 1^2 = 35$ for estimating the average increase per interval, or by 7 for the average increase over five intervals. I thought this would make use of repeated weighings better than using the simple difference of first and last weighings: but of course it makes little difference. Anyhow, this is where the 7 in place of a 6 comes from.

I should guess now that the resistance of a minority of species to the drug may be the largest factor in making the results irregular, both in egg count and in weight; but as animal husbandry experiments go, I don't think the results give anything to grumble at, though there is, of course, a lot about them that I would not like to try to explain. I imagine that, if a nation-wide campaign were started now with compulsory drenching, it might well produce about 50 tons of mutton on the hoof for every ton of phenothiazine used for the next year or two, which may well be what matters most; but it certainly looks as though this advantage would be accompanied by a change in the intestinal fauna which would make the flocks in a few years time very much less responsive to treatment. The more recalcitrant members of the menagerie may be relatively harmless now,

[illegible] mutual monopoly

I should hate to think that members of the Committee were under an obligation to understand the statistical analysis, though of course I feel under an obligation myself to make its results in-

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telligible , not only in respect of what they seem to me to indicate, but in respect of the extent to which the different flocks have confirmed, or failed to confirm, each others evidence. I do think your worm counts have been most important, but so far I have not any others to compare them with. Tell me if any other points occur to you. By all means send me the data you mention, unless you would rather make the point you base on them yourself.

Yours sincerely,