

23rd. November 1949.

Dear Dr. Gordon,

Thank you for your letter with notes on the proposed Brucella test.

There would, I think, be serious objection in principle to the use of animals as controls of a different origin or different age from those used for vaccination. Of course in a sense the use of any animals as controls reduces the number available for the various classes of vaccinated, but this reduction is no greater when the control animals are a random or stratified sample of the whole of the material available than when they are a specially characterised portion of it.

I should guess that the real difficulty of setting out an efficient, or in other words economical, design for <sup>your</sup> the purpose lies in our comparative ignorance of the results to be expected, and perhaps also in not having formed an opinion in advance as to the level of immunity at which discrimination is going to be <sup>not</sup> more valuable.

I take it we may assume that if the vaccinated calves were to live indefinitely times would come when protection, as measured by the frequency resisting a standard dose, falls to 90% to 50% to 10% to 1%, and so on. Now I imagine it is quite unimportant for veterinary practice to examine between what times

and with what speed the curve descends from 10% to 1% protection, but I do not know, and I do not know whether our committee has considered where it would like the utmost accuracy to be concentrated, e.g. at 95%, or 80%, or 50% protection, against the standard test dose, which I presume represents a materially more concentrated infection than that which is ordinarily responsible for the transmission of contagious abortion.

The point is of importance because if the majority of calves are tested at times not long before or after any given percentage has been passed, then that percentage will be determined experimentally with nearly as great precision as the total number of cattle in the experiment renders possible. I imagine the equal numbers set down for testing in the first six pregnancies is not only unrealistic in that unequal numbers will survive to experience such pregnancies, but also in the sense that many calves will be killed at ages at which protection is nearer to 100% or nearer to 0% than would be really informative.

I am afraid I could not make the visit to Compton on 24th-25th. as I shall be visiting Oxford at that time. I should like, if it were convenient to you, to discuss all outstanding points so far as is possible by correspondence, though we could surely arrange a meeting in Town when our minds have been already somewhat prepared by discussion on paper.

Yours sincerely,