Dear Doctor Fisher:

We did not get our Christmas cards made up in time this year for sending to England so am sending it along now. I decided to wait until I could get time to write and find out how you were all getting along.

I am sorry that I was not able to see George when he was in Canada. However, I presume that he had a reasonably good time in Moose Jaw as the people there are very hospitable from all reports.

It is very hard to get very much time for statistical studies these days. Although we have not been very much reduced in staff there have been some changes and this always makes more work. I have in mind the working out of a popular bulletin on some of the newer things that have been developed mainly by Yates with respect to Incomplete Block experiments. It is convenient to have Cochrane fairly close at least as far as correspondence is concerned and I have been able to discuss with him many aspects of the Incomplete Block experiments on which I was not entirely clear. I also have a large amount of data now on Incomplete Block experiments which can be used to determine their efficiency as compared to Randomized Blocks. A preliminary study of the data indicate that in our rod-row trials with 25 varieties we are gaining about 30 percent in efficiency by the use of the Incomplete Block methods.

Just at present I am engaged in a correspondence duel with one of our own men on an Experimental Station who has discovered that randomization of varieties and treatments in a field plot test is not as good as systematic arrangements. He brings up the usual arguments about using a method that reduces the variety variance to a minimum, and I have not yet been able to tie him down to what he intends to do about tests of significance in an unbalanced system.
I have been wondering if Miss Cox or Snedecor are aiming at another statistical session this coming summer. If there is any possibility of your coming over and difficulty in getting away I would like to know in good time as I am sure that something can be done about it. I had a talk with Jack Hopkins about this when he was here a few weeks ago and he said that he thought he could bring pressure to bear on the authorities through the National Research Council.

Michigan State College is holding a sort of summer school in statistics next summer and I am supposed to go down and lecture on some aspects of experimental design. It is possible of course that a lot of things may be called off in the U.S. from now on. They are really getting serious about the war and we look for them to put a tremendous effort into it from now on.

Do you know of any instances in which a test has been made of the significance of differences between polynomial regressions of the same order? The problem I have in mind is one in which samples of grain are taken at different intervals and nitrogen content determined. A treatment is being used for the control of leaf rust and the effect of the treatment is indicated by the change in the nitrogen content with time. Different treatments give different non-linear relations. It occurred to me that one might use a similar technique to that used for testing the heterogeneity of linear regressions by the analysis of covariance. Possibly I can work out the procedure for this myself although I am a little puzzled at present as to how to total sums of squares, sums of products, etc. without transferring all of the values to deviations from their respective means. In other words I can visualize how to do it but there are probably a good many short cuts if I knew how to work them out. I would be glad to hear from you on these points if you have time to spare for such things at the present time.

Kind regards to yourself and all of the family.

Sincerely,

C.H. Coulston