October 6, 1937

Dear Bliss,

Thanks for your letter of September 29th, which regularises what we are doing about tables, i.e. publishing your long table of probits and a short corresponding table of angles which I had already prepared, each with its own supplementary table, designed for precise fitting rather than for universal use.

I have not had very much experience in applying either empirical probits or those derived from the provisional line, but my expectation is that convergence to the maximum likelihood solution will be rapid, and that differences in the final results of the two processes will seldom be important. You suggest, in your third paragraph, either that there may be no convergence, or that convergence may be slow. Is this based on direct experience? For, if so, I must have missed some essential feature in the situation. If I am right as to normal rapidity of convergence, e.g., that each trial divides the errors of the last by something like 10, then the method of laying down the provisional line cannot be very important, and your objection to Irwin's proposal as unnecessarily tedious would be a strong one, as I think it is.

About degrees of freedom, I think the position is unchanged; x cases where the expectation of those dying or surviving is small do certainly somewhat disturb the theoretical χ distribution. If one were suspecting a simple departure from expectation, such as would be shown by curvature of the regression line, then the expectations of survival at several high doses might properly be pooled, as I think you have done, to make a safer test. High values of χ due to general heterogeneity may, as you suggest, retard the convergence of the fitting, but what I regard as more important is that, in such cases, one's confidence in the fitted line is really weakened by the fact that, though your fitting process may give the line which fit best, yet the fact is that no line fits at all well.

About the possibility of meeting in London, I ought to tell you that I have undertaken to visit India this Winter, and will be away from here from the end of November until the middle of February. There is, however, an extremely interesting group of students in the Department, including several Americans, so that, even if your times do not allow you to catch me, I hope you will spend some time here if you find it convenient.

Yours sincerely,