December 22, 1941

Dear Koakal,

I have just seen your letter of October 21st. It is, I think, clear that the bad result of the first approximation arose entirely from the difficulty of choosing a sufficiently good trial curve. Superficially your trial curve certainly does not fit the data so badly as to make one anticipate that it was not good enough. However, the adjustment of $\chi$ from 0.8 to nearly 0.99 was obviously exceedingly drastic seeing that, if I understand the meaning of $\chi$ correctly, $\chi$ cannot possibly exceed unity. This, in fact, constituted a danger signal.

I should therefore be inclined to make trials based on $\chi = 0.90$ and 0.95 adjusting the other two constants only so as to obtain their two best curves subject to the restriction of $\chi$ to these two arbitrary values. From the best curve with $\chi = 0.9$ and the best curve with $\chi = 0.95$ it should, I think, be possible in a single step such as I proposed in my last letter to come very near to the best fitting type three curve.

I think your work on these curve fitting problems has an importance which will need to be emphasised in that your experience has shown what was not previously known, that with heavily grouped data far from normality, often with infinite and finite ordinates
at one terminus, the judicious guessing or preliminary exploration needed to obtain a satisfactory start may be the most difficult part of the business. One certainly needs all three parameters to be approximately right, and in practice this means that the error of none of them shall be large compared with the difference from any limiting value, such as unity is for in this case.

With best wishes, Yours sincerely,