

29 February 1944

Dear Mr Lyle,

I am glad to hear the rumour of your foundry being damaged was unfounded.

On the statistical point you raise, if you are satisfied that method A is always applicable to your material, then in effect you are satisfied that it never differs to an extent which matters to you from either B(1) or B(11). It may be that you feel sure that with smaller samples B(1) would be appropriate; if so, any differences in result between A and B(1) should be regarded by you as evidence

that A is not always quite accurate enough. An appreciable discrepancy can only occur when both the samples are unequal and the estimated variances unequal, and the question is whether the error of the mean of the smaller sample must be estimated from the evidence of the smaller only, or whether we can use the spread of the larger sample, which, if this evidence is acceptable, will be more weighty than that available from the smaller sample.

I think one might in some cases be in uncertainty for some time as to whether B(i) or B(ii) was the better routine procedure, but this embarrassment could only arise if you are already uncertain as to the accuracy of Method A.

Yours sincerely,