

April 23, 1940

Dear Lack,

I will try to answer your questions seriatim. There is no lower limit to the number of measurements for which it is worth recording the dispersion, either as a standard deviation, a variance (which is the square of the s.d.) or a sum of squares, from which the variance is obtained by dividing by the degrees of freedom, and which is, in many ways, the most convenient form for record purposes.

2) As regards the number of decimal places to be retained, remembering that the error of rounding off may be as great as 5 in the next decimal place, it is as well to see that this error does not exceed one tenth of the standard deviation of the value given; that is, for the last place kept the standard error should be at least 5. In your intermediate work, however, you will probably keep one or two places more than are needed for this, to avoid the accumulation of errors in the course of calculating.

3) I cannot think why you ascribe the view that small isolated populations are less variable than larger ones to Sewell Wright, as Darwin in the Origin makes at least a section heading

of the statement that widely dispersed and common species vary most. With regard to testing this generalization on the Galapagos finches, one way would be to estimate rough proportional numbers based on the size of the islands inhabited and arrived at absolutely independently of the variances of the populations, and to see whether you had a significant regression of variance or standard deviation on population sizes so estimated. I agree with you that it looks as though there were something in it in the sample you send.

I doubt whether very much use is made in practice of standard errors attached to the statistics obtained from different populations, and, as you say, they can be obtained from the data you supply, so that their omission would be a legitimate way of lightening the printing.

I think your remark about the disappearance of male secondary sexual plumage is quite exceptionally interesting. I hope you will follow it up with a comparative summary of other groups, as it is the kind of idea likely to be the basis of a really fruitful contribution to the subject.

Yours sincerely,