

January 2, 1942

Dear Mather,

I have just read your paper with De Winton on the Breeding System in Primula. There are two points you might care to discuss:

On the first I enclose a calculation slip giving an alternative approach, evidently very near the one you used for the combined probability problem at the foot of p.301. Unless I have gone wrong in the arithmetic, my X^2 is a little smaller than yours. I thought I had already published the method, but I see it is in a number of the Annals not yet sent to the press. However, you will easily see what I have done.

The second point concerns this question of the sheltering of lethals or other deleterious recessives. On general principles I certainly think we ought to expect SS plants, since they do not occur in nature, to have a bad internal balance of polygenic combinations. I do not think, however, that this is the same thing as saying that the S chromosome, or even the ^{portion} ~~position~~ immediately adjacent to the S locus, will be a sheltered refuge for deleterious recessives. You may recall my writing a short paper on this point,

(The Sheltering of Lethals) *Ann. Nat.* LXIX. 446

p.t.o.

with the conclusions that deleterious recessives could not accumulate in such places as, e.g., the Y chromosome in the male, unless the mutation rate there was about three times that in the homologous X locus. Your allusion to internal balance opens a much wider, and I should say a much more plausible, possibility.

Yours sincerely,

P.S. I imagine most of H.E. Wernicke's remarks on polyplody (*Am Nat.* LXXV. 344) are off the point about polyplody as a means of shelter.

, I enclose a letter from Waddington, and my reply.