

12 Egerton Place

S.W. 3

Dear Fisker.

[Early 1923?] <sup>MB</sup>

I have been reading your paper on Evolution with care. It makes me see that mutations may not need to be as frequent as I thought. Your way may of course be all right and all that is needed, in which case my explanation ~~before~~ <sup>became</sup> unnecessary. I dare say this fact makes me a little prejudiced. I am rather stupid in taking in Mendelian ideas, and my comments may well be futile.

First as to some minor points. I don't follow why you think that with pure lines new genes must necessarily be relatively rare. If the new genes are caused by environmental effects I see no

learn why this should be the case. At the end you speak of asexual organisms. I asked Darwin if there were any <sup>organisms</sup> which it was certain never conjugated and he replied 'no'.

I don't quite understand what change you assume is taking place when a new gene comes in to being. I suppose you ~~take~~ <sup>assume</sup> a number of factors & allelomorphs - A a, B b, C c, D d, etc; and that in place say of A we get A'. But you speak of the best possible combination of factors on p 6. Are not all the factors always present? Should it be combination of allelomorphs?

You speak of stature being changed far outside the existing range of variation without

mutation. But if ~~of~~ dealing with such a series of allelomorphs, every possible combination might be produced, and ~~that~~ you would not thus get any organism outside the possible range. It so would you get them much outside the actual range?

This question very likely merely shows I am not there!! You say that a single mutation may enable thousands of new genetic combinations to be tested. But if one considers any particular structure on which natural selection can concentrate its attention, I should have thought that the number was not so vast. And it is the action of selection on each separable quality that we

have to hold in view. Again I feel this may be nonsense.

I feel that a system like yours leaves a good many things unexplained. There are the uniformity such as it is of useless structures; the disappearance of intermediate varieties; and, I should be inclined to add, the scarcity of mutations in pure lines. I still think you must assume <sup>some</sup> mutations to be small and frequent, and I don't know how well that fits in with your system.

I send you here with a copy of something I have written on this point - an extract from my paper, which may or may not appear.

the appearance of new forms far beyond the limits of the existing varieties

I should be especially thankful  
if you will enclose the  
part with a red line against  
it. I want to know if I  
quote Pearson right, and if  
I make a right use of the  
fact. Of course you won't  
like what I ~~say~~ write,  
because it runs on different  
lines of thought to yours.  
And you can't well judge  
from a mere extract.

Yours sincerely  
Leonard Darwin