

Cripps's Corner. Forest Row. Sussex. Apr. 9

[1923?] JRB

My dear Fisher

I have just been reading again your article in the Review on evolution, with interest; and I write down a few thoughts it arouses for my amusement mainly. I shall not myself ever tackle that subject again, but I hope you will continue to pursue it. Hence this needs no answer.

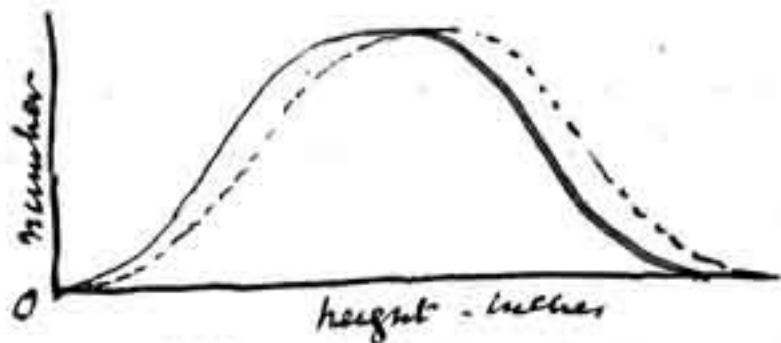
To my mind your most important point is the use of sexual arrangements in giving rise to an enormous number of possible combinations when a new gene appears; and not only to one^{as} when reproduction is by simple division.

One point I am a little doubtful about. You speak of an 'entirely new gene'. May one not have a new gene of a previously existing type of locus, ^{or} ~~and~~ a new gene in a hitherto unknown locus? In other words (a) the modification of an old factor, ^{or} ~~and~~ (b) the appearance of a new factor. I imagine you have mainly (b) in your mind, whilst I have mainly been trying to idealize (a). Of course every process must be by steps; because a molecule cannot be affected by a smaller change than that produced by the addition or subtraction of one electron. But an electron by itself could not make a gene. Hence (a) and (b) are ^{or may be} different processes. I imagine (b) to take place somehow by the splitting in two of an old factor; but till we know what a

factor is, this may be idle guess work.

We look at things, I think, rather differently, but I see nothing in what you bring forward which is definitely antagonistic to what I have suggested in my little pamphlet; I conceive that our differences may perhaps arise as follows; or be thus illustrated.

Take the case of gene X which mutates and gives rise to gene Y. Take all the individuals of the species which contain X before the new mutation occurs; take some character, say height, affected by the genes X and Y; and and distribute them in a curve, as below.



Let all the genes X be changed to Y; and I imagine the change in the curve would be usually something like that from the firm to the dotted line: granted that the mutation is a small one. I rather think you anticipate a more diverse effect. And how to judge which is right, I am blessed if I know.

If it is a case of gene Y coming out of the blue, again I imagine much the same result if this gene were added to the whole population.

You say that 49 out of 50 of mutations will die out; and that the 50th will take ¹⁰⁰50 generations to be present in 50 individuals. If I understand you right, it follows that infrequent (I won't define the word) mutations in a slow growing creature like man will take an enormous time to produce much result if they small (again I won't define).

But I won't bore you more. I really don't want an answer. My little pamphlet felt flat; but I hope it may sow a seed somewhere.

Yours sincerely

Leland Darwin

[P.S.] This is a rather hasty, and if I read it again, which I shall not, I dare say I should see that some of it was bunk.