

Cripps's Corner. Forest Row.

Sussex. Nov 5. 22.

Dear Fisher.

I do not think I ought to trouble you any more on the evolution problem, as I know I shall write no more about it. I hope to stir you up to write a great work on the <sup>mathematical</sup> ~~theory~~ of evolution.

Environment seems to me likely to affect absolute measures most for the following reason. We can imagine the relative measures remaining approximately unchanged during growth, whilst the absolute measures changed much. Supposing natural selection were set the task, as it were, of making the absolute measures as little variable as the relative measures, it would have to devise some means of stopping the growth at a given point in different environments. This would not be a result easily obtained. A failure would mean that different environments would affect absolute measures, whilst not necessarily affecting relative measures. This gives a rough idea of what is in my mind.

It is true that Bateson set me thinking about unladen characters; but my father's words affected

me much more. In the Origin he speaks of species whose types might be "absolutely distinct from each other in every detail of structure". In the Descent of Man he states that not sufficiently considering useful structures was one of the "greatest oversights" in the Origin. He adds that "it is, as I can now see, probable that all organic beings, including man, possess peculiarities of structure, which neither are now nor were formerly of any service to them". He gives explanations which do not seem to me to be satisfactory.

I agree that if absolute measures are considerably more variable, this is because, being less useful than relative measures, selection has acted less on them. I don't doubt that this is the case. You say it would be difficult to prove that the variability is less than natural selection would lead one to suspect. True; but is it not equally difficult to prove that it should not be more, granting the character of little use?

In Africa and South America there are, I believe, adjacent tribes differing much

in height. Let us assume that they  
 were found to differ more in height than  
 in relative measure; supposing such a  
 comparison possible. This would mean that  
 they differed more in the qualities least  
 affected by natural selection. Is not this  
 the reverse of what one would expect?  
 Natural selection has been pulling the two  
 apart, and they should therefore differ in  
 the character in which the pull is  
 applied. Or, if the character is useless,  
 should we not expect ~~the~~ specimens in  
 each ~~tribe~~ tribe of all the different heights?  
 My explanation is a tendency to  
 uniformity in each tribe by intermarriage,  
 and something we may call chance  
 deciding the average height of each tribe.  
 If the height were correlated with some  
 character in which one tribe as a whole  
 differed from the other, then we could get  
 an explanation there. This seems to me  
 improbable. My point is to suggest for  
 your consideration what could be worked  
 out by the comparison between absolute

(nearly  
 uniformly)

measures and relative measures of  
 closely similar varieties whose no interbreeding  
 takes place. Land snails in some  
 adjacent valleys, I forget where, have  
 been suggested to me for some such  
 enquiry.

I have written far more than I  
 had intended; and hastily so that it  
 may be both erroneous and unclear.  
 So don't trouble yourself to answer,  
 please -

Your sincerely,

J. Darwin

Turner Must you assume that the sexual  
 act has anything whatever to do with  
 the division of the ovum? May not  
 what may be called the female gamete  
 divide some time before that act?