12, EGERTON PLACE,

London, S.W.,

(1915?) JHC

R. A. Fisher Esq,.
    9 Horton Crescent,
    Rugby.

My dear Fisher,

            Sometime when you have a little leisure, will
you tell me whether you agree or disagree with the following
conclusions ?.

*Does this
ever
occur ?*

            (1) Where changes (and therefore differences) of
environment produce effects on all individuals proportionate
to
~~of~~ these changes, no effects are produced on the hereditary
correlation coefficient by the environmental factor.

            (2) Where changes (and therefore differences) of
environment produce differential quantitive effects on
different individuals dependant on the differences in their
qualities, then the hereditary correlation coefficients are
affected by the environmental factor.

            If this be so, when you are considering environmental
effects by your methods, you must, I suppose, neglect the first
of these two kinds of environment *effects.* ~~differentiations~~.

Lastly I presume that purity of breed (as distinct from selective or debarred mating) only reduces the hereditary correlation coefficient, if there are such differential environmental effects.

I keep working a little at my heredity and environment paper, and I enclose a copy of a paragraph where I have touched on these questions. Perhaps you would kindly read it at sometime. But these is no hurry about all this, as I do not know when I shall utilise this work.

Yours sincerely,

L. Darwin

P.S Forgive me bombarding you with questions.

or, in other works, in aggregates of various groups between
which breeding is limited or debarred, the correlation coeffic-
ients must obviously be higher than in the case of races of
purer breed where this is little selective mating.

In this connection it is as well also to remember that
Johannsen in his work on pure lines of descent in plants -
plants self fertilised for many generations - came to the
conclusion that no variations then observed were inherited,
or, in other words, that the hereditary correlation coefficients
were then zero. Though how far this conclusion will stand the
test of time it is impossible now to say, yet such experiments
do strengthen the belief that purity of breed also influences the
magnitude of hereditary coefficients. In fact in my opinion it
will have to be acknowledged that hereditary correlation
coefficients increase with an increase in the amount of selective
or debarred mating, with an increase in the impurity of the
breed, and with a decrease in the differential effects of
environment.

Note

*i'e putting
mutation
aside.*

It should perhaps be added that, where environment produces
no differential effects dependent on the qualities of the
individuals, the differences between the magnitudes if these
coefficients in any one species will depend almost entirely on
differences in the amount of the restrictions on mating. If these
views are correct it follows that though a knowledge of hereditary
correlation coefficients is of great value in many ways, yet they
cannot, as we have seen before, be regarded as directly measuring
the influence of any one factor.