

# The Eugenics Education Society.

*"Eugenics is the study of agencies under social control that may improve or impair the racial qualities of future generations either physically or mentally."*

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10 a.m. to 5 p.m.  
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Dear Mr. Fisher,

Major Darwin has asked me to send you his notes on Dr. Hagedoorn's book "The Relative Value of the Processes causing Evolution". I expect he is writing to you about it direct, but I believe he is going to ask you to undertake the review of it.

I am sending you Dean Inge's "Outspoken Essays". Please would ~~it~~ return it soon as there is still quite a run on it.

Yours sincerely,

S. C. SEARS.



The Relative Value of the Processes causing Evolution.  
Hagedoorn. (Martinus Nijhoff, The Hague, 1921).

This work is certainly worthy of the most careful attention of the students of genetics; for it breaks new ground in a stimulating manner. Whether the main propositions put forward will receive general assent is, however, quite a different matter. The author starts with the assumption, based on slender evidence, that the carriers of the hereditary influence, the genes, are relatively simple chemical substances, and from this he argues that they must be invariable. This view is supported in the author's opinion by the experiments on pure lines, which generally indicate that, when the uniting genes are identical, selection produces no results. Indeed he speaks of the law of Johanssen — that "the nature of the genes does not admit of qualitative variation" (p.209) — and compares it to Newton's law of gravity (p.210). This leads to the view that variations are only due to new combinations of previously existing genes. Species, he holds, never alter except as the result of crossing with other species. Let it be freely admitted that he has the courage of his opinions, for he boldly states the logical conclusion to be derived from these premises, namely that "within the nucleus the original set of genes, such as is inherited by [from] the original zygote, is conserved intact" (p.207). From the pure line experiments he also draws the conclusions, which some believers in the results thus obtained have failed to draw, that acquired characters are not inherited; for on this hypothesis all the differences in characters found in pure lines are acquired differences.

It must be confessed that his premises drive him to use rather startling arguments. He sees clearly the difficulty of accounting for the adaptation of different structures through selection if the genes are unalterable. He is, therefore, led to say that if we gradually weight the head of a young horse with shot, until it bears a weight equal to that of a moose's antlers, "it may be that the musculation of its back will closely approximate that of a bull-moose". Then, again, he holds that the organism selects its environment, rather than the environment selecting the suitable organism (p.128). For example, as to the evolution of the giraffe, he considers it most reasonable to suppose that a "group of very long necked individuals found it possible to reach the leaves of trees and thus was able to migrate into regions where short necked animals would not live." If the long neck of the giraffe appeared suddenly it was a miracle. If it appeared by slow degrees, that is merely an instance of the ordinary operation of natural selection.

The most novel and interesting arguments in the book relate to a unifying process which has without doubt been inadequately explored hitherto. This process depends on the fact that chance is continually weeding out some of the rarer types, with the inevitable result that as time goes on a freely interbreeding group must become more and more uniform in character. This theme is developed in many directions with great ability; but we feel that it tends to run away with the author. When a horse runs away with a rider it proves that the horse is not lame and that the rider at all events has courage enough to attempt to ride such a horse.

Unquestionably this influence must be taken into account, but we feel that it will have far less effect than is here depicted.