

(1) "Acquired characters are those which result from external influence upon the organism, in contrast to such as spring from the constitution of the germ."

(2) "Characters can only be inherited in so far as their rudiments (Anlagen) are already given in the germinal protoplasm (Keimplasma)."

(3) "Modifications which are wrought upon the formed body, in consequence of external influences, must remain limited to the organism in which they arose."

(4) "So must it be with mutilations, and with the results of use or disuse of parts of the body."

(5) "No such modifications of the body (affected by environment or by use and disuse) can be transmitted to the germ-cells, from which the next generation springs. They are, therefore, of no account in the modification of the species."

(6) "The only principle that remains for the explanation of the modification of the species, is direct germinal variation." "The intermingling of the sex elements is the origin of the variations on which natural selection in the usual way operates."

Weismann's position is thus clear and definite. The sole fountain of specific change is found in the germ-plasm of the sex-cells. The environment does make dints upon the organism, but only upon its body; the reproductive cells, through which alone the variation could be transmitted, are either unaffected or are not affected in such a specific way as to bring about the transmission of the acquired character. The effects of use and disuse may be marked enough, and important for the individual, but they are not transmitted, and therefore of no account in the history of the species. The ground is taken from under the feet of Lamarckians and Buffonians, and the whole burden of progress is laid upon germinal variation and natural selection.

(1) Various naturalists have brought forward what appear to them to be examples of the genuine transmission of individually-acquired characters. Thus Detmer and Hoffmann among botanists, and Eimer among zoologists, may be quoted. The latter especially gives numerous examples to prove the untenability of Weismann's position. To some of the instances urged against him, Weismann has replied; but as each case has to be carefully tried on its own merits, and as sufficient decisive experiments

Criticisms of
Weismann's
Position.