

and nutrition, may operate through the body on the germ, acting as stimuli on its variable primary constituents. This does not amount to saying that changes on the body can, *as such*, affect the germ and become transmissible; and the dominant idea of his Romanes lecture is, furthermore, that we call environmental forces efficient causes of change when we are only warranted in calling them stimuli.

Thus, as causes of variation, Weismann has suggested:—

(1) The influence of the environment on the germ-plasm of the primitive Protists.

(2) The permutations and combinations of vital substances and qualities involved in the processes of maturation and fertilization.

(3) The stimuli of nutritive and other environmental conditions upon the germ-plasm within the body.

The most recent and the most subtle of Weismann's theories bears the title "germinal selection". It is a suggestive hypothesis, but difficult to state in a few lines. All are familiar with the Darwinian concept of the struggle for existence, and the selection or elimination of individuals; Roux and others have elaborated the idea of a struggle of parts within the organism and of a corresponding intra-selection; there is also often a struggle among potential ova and among possibly effective spermatozoa; but Weismann, after his manner, has carried the selection idea a step further, and has pictured the struggle among the determining elements of the germ-cell's organization. It is at least conceivable that the stronger "determinants", *i.e.* the particles embodying the rudiments of certain qualities, will make more of the food-supply than those which are weaker, and that a selective process will ensue.

Let us suppose a case in which, through congenital variation, a structure is undergoing gradual degeneration; the germinal aspect of this *may be* that the determinants corresponding to the structure in question are weak in the germ-cell; but as the result of the germinal selection they will tend to be further weakened, until, indeed, they disappear.