

are still awaiting, the matter lies beyond the scope of this historical sketch.

(2) Virchow has urged against Weismann what appear to him to be cases of the direct inheritance of climatic changes and pathological variations. But he appears to differ from Weismann in his definition of acquired characters, which, for the latter, do not include anything that can reasonably be traced back to a germinal variation. Ziegler has discussed the whole question of the inheritance of pathological characters, and comes to a conclusion harmonious with that of Weismann. Nor are the slow results of acclimatization good cases in the present discussion, since Weismann expressly allows that in long-continued conditions affecting the whole system the germinal cells may be directly affected along with, though not exactly by, the other elements of the organism.

(3) A criticism of a different nature has been suggested by several, but is well stated by Eimer. If the source of variation be restricted by hypothesis to the keimplasma intermingled in sexual reproduction, is this sufficient to account for the facts? "In what way, one must ask, have *new* characters first been introduced into the series? The sexual mixture could produce nothing; it could only work with what was already given." Professor M'Kendrick has forcibly emphasized a similar objection. There is no doubt, at any rate, that Weismann's theory, which excludes the direct assistance of environmental and functional variations, throws a still heavier burden than Darwin did on the shoulders of Natural Selection, which many believe to be already somewhat overweighted.

At the same time, it seems premature to conclude that the transmission of modifications is *impossible*, simply because we can find no proof of it, nor understand how it could be effected. In this connection it may be useful to recall a few general facts.

Every one allows the general conception of the various organs as symbions in a common life. We constantly speak of correlated variations, and though these generally work from the centre or germinal plasma outwards,