

sider this controversy, in the mean while, as almost useless. It is but seldom that we are in a condition, in any individual case of variation, to judge how much of it belongs to direct and how much to indirect adaptation. We are, on the whole, still too little acquainted with these exceedingly important and intricate relations, and can only assert, in a general way, that the transformation of organic forms is to be ascribed *either* to direct adaptation alone, *or* to indirect adaptation alone, or lastly, to the co-operation of both direct *and* indirect adaptation. The physiology of nutrition will have to solve the important problem, to investigate the different effects of these changes (experimentally if possible) and to trace them back to their elementary causes, to the physico-chemical processes in the change of substance, and in the growth of the organs.

Let us now turn our attention somewhat more closely to the different forms of variation, which we may meanwhile term the "laws of adaptation." We shall in the first place examine the variations of the first series, *indirect or potential adaptation*. Although the nature of these remarkable phenomena is still very obscure, and their primary causes have been but little investigated, one fact remains universally recognized and unquestioned, that organic individuals experience transformations and assume new forms in consequence of changes of nutrition not experienced by themselves, but by the parental organism. The transforming influence of the external conditions of existence, of climate, of nutrition, etc., shows its effects here not directly in the transformation of the organism itself, but indirectly in that of its descendants.

The principal and most universal of the laws of indirect