

of prey, parrots, and monkeys. The elephant, also, and the animals of prey of the bear genus, in captivity hardly ever produce young ones. In like manner many plants in a cultivated state become sterile. The two sexes may indeed unite, but no fructification, or no development of the fructified germ, takes place. From this it follows with certainty that the changed mode of nutrition in the cultivated state is able completely to destroy the capability of reproduction, and therefore to exercise the greatest influence upon the sexual organs. In like manner other adaptations or variations of nutrition in the parental organism may cause, not indeed a complete want of descendants, but still important changes in their form.

Much better known than the phenomena of indirect or potential adaptation are those of *direct or actual adaptation*, to the consideration of which we now turn our attention. To them belong all those changes of organisms which are generally considered to be the results of practice, habit, training, education, etc.; also those changes of organic forms which are effected directly by the influence of nutrition, of climate, and other external conditions of existence. As has already been remarked in direct or actual adaptation, the transforming influence of the external cause affects the form of the organism itself, and does not only manifest itself in that of the descendants.

We may place *the law of universal adaptation* at the head of the different laws of direct or actual adaptation, because it is the chief and most comprehensive among them. It may be briefly explained in the following proposition: "All organic individuals become unequal to one another in the course of their life by adaptation to different conditions