

stride with which he had advanced beyond the next fifty years, partly from its defective empirical foundation, and from the somewhat one-sided character of some of his arguments. Lamarck quite correctly recognizes *Adaptation* as the first mechanical cause which effects the continual transformation of organic forms, while he traces with equal justice the similarity in form of different species, genera, families, etc., to their blood-relationship, and thus explains it by *Inheritance*. Adaptation, according to him, consists in this, that the perpetual, slow change of the outer world causes a corresponding change in the actions of organisms, and thereby also causes a further change in their forms. He lays the greatest stress upon the effect of *habit* upon the use and disuse of organs. This is certainly of great importance in the transformation of organic forms, as we shall see later. However, the way in which Lamarck wished to explain exclusively, or at any rate mainly, the change of forms, is after all in most cases not possible. He says, for example, that the long neck of the giraffe has arisen from its constantly stretching out its neck at high trees, and from the endeavour to pick the leaves off their branches; that as giraffes generally inhabit dry districts, where only the foliage of trees afford them nourishment, they were forced to this action. In like manner the long tongues of woodpeckers, humming-birds, and ant-eaters are said by him to have arisen from the habit of fetching their food out of narrow, small, and deep crevices or channels. The webs between the toes of the webbed feet in frogs and other aquatic animals, he says, have arisen solely from the constant endeavour to swim, from striking their feet against the water, and from the very movements of swimming.