

the Mexican axolotl, and she has demonstrated that by certain treatment, under certain conditions, the aquatic axolotl, breathing by means of gills, can be transformed into the terrestrial amblystoma, which breathes by means of lungs. Younger specimens were more easily transformed than older ones, but axolotls changed more rapidly into amblystomas if kept in water containing little air. In richly aerated water the conversion was slow. It was further shown that if external compulsion toward change was carried up to a certain point, they would complete it in spite of hindrance. In some cases, after the individual had become completely adapted to a terrestrial life, it retained for a long time the power to live in water, though the gills were absorbed. This power disappears after the first moulting. Return to the former life was then impossible. On the other hand, axolotls which had lived for months in damp moss, but had not changed their skins, were perfectly at home when placed again in the water. The following metamorphoses occurred in the life of an axolotl of three years and a half:—"The first fifteen months it spent naturally, without interference, in the water; its development was then artificially accelerated, and in twelve days it was transformed into a lung-breathing animal; it then lived on land for fifteen and a half months; it was next, during a lapse of six days, brought back to the water, where it spent three and a half months; in the space of eleven days it was again so modified that it could once more live on land, where it remained for more than six months up to its death." These experiments show that the external conditions of life—the most important of which are water, air, and heat—can transform the nature of an animal; but, in opposition to these external agencies, there are powerful internal forces, acquired by inheritance, which can be directed, but never entirely suppressed. This caused the failure of many experiments. In Miss Chauvin's experimental tub occurred again what happened after "the dry land appeared," and the vertebrates, discarding gills for lungs, became land animals.