

phoses, are those occurring in insects. Not merely is there a change of physiognomy and form observable, or an organ more or less formed, but their whole organization is modified. The animal enters into new relations with the external world, while, at the same time, new instincts are imparted to it. It has lived in water, and respired by gills; it is now furnished with air-tubes, and breathes in the atmosphere. It passes by, with indifference, objects which before were attractive, and its new instincts prompt it to seek conditions which would have been most pernicious during its former period of life. All these changes are brought about without destroying the individuality of the animal. The mosquito, which to-day haunts us with its shrill trumpet, and pierces us for our blood, is the same animal that, a few days ago, lived obscure and unregarded in stagnant water, under the guise of a little worm.

369. Every one is familiar with the metamorphoses of the silk-worm. On escaping from the egg, the little worm or caterpillar grows with great rapidity for twenty days, when it ceases to feed, spins its silken cocoon, casts its skin, and remains enclosed in its chrysalis state.* During this period of its existence, most extraordinary changes take place. The jaws with which it masticated mulberry leaves are transformed into a coiled tongue; the spinning organs are reduced; the gullet is lengthened and more slender; the stomach, which was nearly as long as the body, is now contracted into a short bag; the intestine, on the contrary becomes elongated and narrow. The dorsal vessel is shortened. The ganglions of the thoracic region approach each other, and unite into a single mass. Antennæ and palpi are developed on the head, and instead of simple eyes appear compound ones.

* In the raising of silk-worms this period is not waited for, but the animal is killed as soon as it has spun its cocoon.