by becoming cooled into a very thin firm crust. The crust, on first cooling, must have covered the whole surface of the terrestrial sphere as a continuous smooth and thin shell. But soon it must have become uneven and hummocky; for since, during the continued cooling, the fiery fluid nucleus became more and more condensed and contracted, and consequently the diameter of the earth diminished, the thin cold crust, which could not closely follow the softer nuclear mass, must have fallen in, in many places. An empty space would have arisen between the two, had not the pressure of the outer atmosphere forced down the fragile crust towards the interior, breaking it in so doing. Other unevennesses probably arose from the fact that, in different parts, the cooled crust during the process of refrigeration also contracted, and thus became fissured with cracks and rents. The fiery fluid nucleus flowed up to the external surface through these cracks, and again became cooled and stiff. Thus, even at an early period there arose many elevations and depressions, which were the first foundations of mountains and valleys.

After the temperature of the cooled terrestrial ball had fallen to a certain degree, a very important new process was effected, namely, the *first origin of water*. Water had until then existed only in the form of steam in the atmosphere surrounding the globe. The water could evidently not condense into a state of fluid drops until the temperature of the atmosphere had considerably decreased. Now, then, there began a further transformation of the earth's crust by the force of water. It continually fell in the form of rain, and in that form washed down the elevations of the earth's crust, filling the depressions with the mud carried along,