

by valleys, but form continuous sheets. Yet within the limits of this first epoch proofs of alteration manifest themselves. The loose scoriæ and cinders are washed down to lower levels, the cones are attacked and the lavas begin to be trenched. As these changes advance, the flow of running water gradually cuts through the sheets of lava, and forms valleys across them. The epoch embraced all the ages required for this erosion, and during its continuance repeated outflows of lava took place. Each of these currents of melted rock would seek the lowest levels, and would thus mark the valley-bottom of its time, in the long process of excavation.

In the records of the second epoch, the scoriæ and ashes have been swept away, the cones have entirely disappeared, and the streams of lava have been cut into separate patches by the erosion of the valleys, above which they are now left perched as high plains or plateaux. Notwithstanding the stupendous results thus achieved, Desmarest seeks no vast terrestrial disturbance to account for them. He finds their explanation in the working of the very same meteoric agents which are still carrying on the same process of degradation. The cellular parts of the lavas, under the influence of the weather, crumble down into mere loose earth, which is easily washed away by rain and melted snow, leaving only the harder and more resisting core of more solid rock. In like manner, the loose materials of the cones are removed, until perhaps only masses of lava remain behind that may have solidified at their bottoms. By this series of operations an entire transformation is wrought on the