

long been considered possible to explain the more ancient revolutions on its surface by means of these still existing causes ; in the same manner as it is found easy to explain past events in political history, by an acquaintance with the passions and intrigues of the present day. But we shall presently see, that unfortunately the case is different in physical history :—the thread of operations is here broken ; the march of Nature is changed ; and none of the agents which she now employs, would have been sufficient for the production of her ancient works.

There still exist, however, four causes in full activity, which contribute to alter the surface of our continents. These are, rains and thaws, which waste down the steep mountains, and precipitate the fragments to their bottoms ; running waters, which carry off these fragments, and deposit them in places where their current is abated ; the sea, which undermines the foundations of elevated coasts, forming steep cliffs, and which throws up great banks of sand upon the low coasts ; and, lastly, volcanoes, which pierce through the solid strata from below, elevate these strata, or spread over the surface vast quantities of ejected matter *.

* Regarding the changes of the surface of the earth, known from history or tradition, and consequently dependent on causes still in operation, see the German work of M. de Hof,