

up a laboratory of calorific matter suited to produce those phenomena acknowledged on all hands to result from a greatly increased temperature. Other persons imagine the earth to have been originally in a state of igneous fluidity; but, in proportion to the decrease of surface temperature, there must have been a condensation of aqueous vapour on its surface, and oceans, seas, rivers, and lakes, were consequently produced, with all those results which are now known to proceed from the motion of the aqueous fluid. To account for the primitive intumescent state of the earth, some have supposed it to be a part of a comet that was by some misfortune brought in the course of its wandering within the attractive influence of the sun, by whom it was enchained, and compelled to perform an undeviating attendance around him. Others have fancied that it must be a fragment from the body of the sun itself, ejected in a liquid and ignited state. La Place, the celebrated French astronomer, calculates its history from a period when it was floating in space as nebulous matter, having no greater consistence than the morning cloud. With these hypotheses we have nothing to do; they are monuments of record to the folly of great minds; but as they are without foundation, they cannot long exist, even to serve as warnings to future adventurous theorists.

Having shown the results to which we may be brought by deductions from well-authenticated experiments, and by imagination unrestrained by philosophy, it may not be undesirable to ascertain what may be gathered from some of those principles which philosophers universally admit as true. Whatever opinion may be entertained concerning the igneous liquidity of the interior of the earth, there can be no reasonable doubt, admitting the truth of the laws of gravitation, that there is an increasing subterranean temperature. Now, it has been proved in a former chapter, that atmospheric air has different densities, dependant on the pressure it undergoes, and the force of gravitation; and as air has a greater density at the level of the sea than on a high mountain, so its density must be greater in a deep mine than on the surface of the earth. But it is well known that heat is given out by bodies when they suffer condensation, and this, in part, accounts for the fact, that temperature increases as the elevation above the sea decreases. The very increase of atmospheric density would, therefore, raise the temperature of the air in deep