

mass equal to the 12,694th of an inch, would be sufficient to produce a violent eruption. M. Cordier then proceeds to state that, allowing five eruptions every year, the difference between the contraction of the solid crust and that of the internal mass would not shorten the radius of that mass more than $\cdot 03937$ of an inch in a century.*

That volcanic eruptions are the effects of a high interior temperature we have no doubt, but many valid objections might be urged against M. Cordier's theory.

From the short analysis we have given of the facts and reasonings by which a high interior temperature may be proved, it will be evident that it is not easy to determine the general laws by which it is governed. If the central portion of the earth be in a condition of igneous liquidity, the solid crust which envelops it may be supposed to be of various thickness, as all mineral substances have not the same power of conducting heat. Hence there must be a considerable difference in the amount of radiated heat, unconnected with the situation of the place on the surface of the globe. This view of the subject connects it with the question of climates, the diversity of which has long attracted the attention of philosophers. But at present we cannot even guess the influence which the determination of this question may have upon the solution of many problems that have long perplexed the philosopher. In the present condition of our knowledge, the details that have been given may be somewhat uninteresting to the general reader; but we anticipate that, when those principles are determined which are within the reach of experiment and physico-mathematical reasoning, the subject will be second to none in importance or interest.

If it be true that temperature increases with the depth, there will be little difficulty in explaining many phenomena, the causes of which are now matters of conjecture. The disturbances suffered by the ancient rocks, and the ejection of volcanic products among them, as well as the existence of modern volcanoes, earthquakes, and thermal springs, are easily accounted for, should the statements we have advanced be true. We have no doubt of their accuracy, and shall consequently proceed to an explanation of the appearances which we suppose to result from them, and review the

* See page 107.