

selves to ideas generally interesting, and seek, in the study of nature, for answers to the following questions :—

Is the conical mountain of a volcano entirely formed of liquified matter heaped together by successive eruptions, or does it contain in its centre a nucleus of primitive rocks covered with lava, which are these same rocks altered by fire? What are the affinities which unite the productions of modern volcanoes with the basalts, the phonolites, and those porphyries with bases of feldspar, which are without quartz, and which cover the Cordilleras of Peru and Mexico, as well as the small groups of the Monts Dorés, of Cantal, and of Mézen in France? Has the central nucleus of volcanoes been heated in its primitive position, and raised up, in a softened state, by the force of the elastic vapours, before these fluids communicated, by means of a crater, with the external air? What is the substance, which, for thousands of years, keeps up this combustion, sometimes so slow, and at other times so active? Does this unknown cause act at an immense depth; or does this chemical action take place in secondary rocks lying on granite?

The farther we are from finding a solution of these problems in the numerous works hitherto published on Etna and Vesuvius, the greater is the desire of the traveller to see with his own eyes. He hopes to be more fortunate than those who have preceded him; he wishes to form a precise idea of the geological relations which the volcano and the neighbouring mountains bear to each other: but how often is he disappointed, when, on the limits of the primitive soil, enormous banks of tufa and puzzolana render every observation on the position and stratification impossible! We reach the inside of the crater with less difficulty than we at first expect; we examine the cone from its summit to its base; we are struck with the difference in the produce of each eruption, and with the analogy which still exists between the lavas of the same volcano; but, notwithstanding the care with which we interrogate nature, and the number of partial observations which present themselves at every step, we return from the summit of a burning volcano less satisfied than when we were preparing to visit it. It is after we have studied them on the spot, that the volcanic phenomena