

still possible to add to them by my researches, and throw new light on volcanic knowledge. This I say not to arrogate to myself any merit, and still less to detract from that of others. The powers of the human mind are so limited, that it never can entirely exhaust the subject it investigates. Other naturalists who shall hereafter diligently explore the countries through which I travelled, it is not to be doubted, may improve this part of natural history with still new discoveries. In like manner, though others have written of the Phlegrean Fields, Etna, and the Eolian Isles, the observations I have made appear to me to merit publication.

The method in which I prosecuted my researches in these Travels was the following: I have endeavoured to study volcanic countries as mountains should be studied. The lithologist who would acquire an accurate knowledge of the latter, attentively considers their structure of rock, the whole of their huge masses, the position and direction of the various parts or strata which compose them, and the intertexture and relations of those strata. I have adopted the same mode of inquiry in the course of these travels. Fire in conjunction with elastic gases has formed whole mountains and islands; but all of them have not been produced in the same manner, nor are they composed of the same substance. Here we find large masses of tufa; there of scoriae and lavas; in another part, pumices, enamels, and glasses; and in another, a mixture of all these substances. It was therefore necessary to examine them on the spot, and observe, both when they were separate and intermingled, their relations, directions, mixtures, &c. without once losing sight of the peculiar composition of these volcanic mountains, every part and recess of which it was requisite I should explore.

In these inquiries I particularly directed my notice to two objects: the central summit of the islands and mountains, and their shores. The former is usually the first sensible effect of the subterranean conflagrations, the part which first emerges from the waves, which often preserves the crater entire, and sometimes burning, but more frequently only its recognizable traces. The shores of volcanic islands and mountains bathed by the sea, were also peculiarly entitled to attention, nor do I know that any volcanist who has hitherto travelled has made them one of the objects of his inquiry. We know how much it conduces to an accurate knowledge of the structure of mountains, to cross, or go round them in the beds of torrents which have corroded their foundations, and laid bare a part of their sides; thus revealing, if I may use the expression, their internal organization, which without this aid would have been sought in vain from external appearances. The sea, by incessantly beating with its furious waves the skirts of the islands, has caused fractures and ravages incomparably greater than those occasioned by rivers. By coasting, therefore, these shores in a boat, landing where they appear to invite particular attention, and examining their open sides, and rocks half fallen down and falling, we may observe a variety of important facts conducive to the improvement of that kind of science. I shall not here enlarge on the advantages to be derived from coasting volcanic islands; in the course of this work they will be proved by facts.

The researches I made in volcanic countries, though necessary, and highly instructive, were not, however, sufficient to complete my design. As lithologists are not satisfied with knowing the structure, stratification, and other general qualities of mountains, but endeavour likewise to discover the nature of their component parts, I resolved not to depart from the same method of enquiry. It is true that some volcanic productions are so altered by the fire, that it is difficult to ascertain the nature of the earths from which they have been produced, unless we call in aid the processes of chemistry. Such are enamels, glasses, and frequently pumices. But lavas, which, in the greater