

may spread destruction and the elements of change, and in another waste its energies upon the streams which bubble from the bowels of the earth to heal the diseases and minister to the infirmities of man.

Admitting that volcanoes, earthquakes, and thermal springs, and, we might add, gaseous exhalations, derive their being from the same cause, we must next inquire into the nature of that cause, and endeavour to show the influence which it has had in the arrangement of rocks.

THEORIES OF VOLCANIC ACTIVITY.

All persons agree that great internal heat is the principal cause of volcanic activity, but there is a difference of opinion as to the means by which that heat is produced. It is a matter of doubt whether we have sufficient data to give an appearance of certainty to any particular theory, and this has given the student liberty to form a theory for himself, or to modify that which pleases him best. The pages of our scientific journals and works on volcanoes are therefore crowded with new theories of volcanic action, all of which have found some defenders. We might have passed over a subject upon which there is so great a difference of opinion; but as there is no probability of ascertaining truth while the mind indulges error, there may be some advantage in exposing false opinions, and in breaking the fetters which prevent the intellect from healthy and vigorous activity. We shall therefore enumerate a few of the theories which have, at various times, engaged the attention of the learned, and state some of our objections to those which may appear the most plausible.

There is reason to believe that much of ancient fable derived its origin from an erroneous estimate of natural phenomena. The history of astronomy affords abundant evidence of this statement; and we believe that in every country where an idolatrous or superstitious population have been accustomed to the sight of volcanic phenomena, they have invariably ascribed them to occult deified agency. The Egyptians attributed all physical evil to the demon Typhon, and the Greeks, who adopted the science and superstitions of the Egyptians, have evidently symbolized the volcanic phenomena in their description of this personage. Typhon, they tell us, was a giant more powerful than all the children