

which issue from crevices in the earth and which tell of the existence of heated water below, as plainly as the steam that escapes from a locomotive or from the spout of a tea-kettle. These hot-springs are generally known by the name Geysers.

Such then are the evident symptoms of subterranean heat—hot springs, jets of steam, fountains of boiling water—which are manifested unceasingly at the surface of the earth in every quarter of the globe. But its sometimes given to us to behold the flames of this subterranean fire itself and to contemplate its power under a more striking and awful form—its power as exhibited by volcanoes. From time to time in the fury of its rage, the fiery element bursts asunder the prison in which it is confined. Then flames seem to issue from the surface of the earth, the roaring as of furnaces is heard in the depths below, clouds of red-hot cinders are ejected high into the air, and from every crevice pour forth streams of incandescent liquid rock, which rolling far away through once smiling fields and peaceful villages, carry destruction and desolation in their track. These are the ordinary phenomena of an active volcano during the period of eruption.

However, before proceeding further it would be well to have a clear idea of what a volcano is. The definition I learned in my first lessons in geography was that “a volcano is a mountain of fire.” A very short definition and easily remembered no doubt, but it is as faulty as it is brief. This description is not merely incomplete and inadequate as a whole, but each of the ideas of which it is composed is grossly inaccurate, and what is worse, perversely misleading. In the first place, the action which takes place in volcanoes, is not ‘burning’ or combustion, and bears indeed, no relation whatever to that well known process with which students of chemistry are familiar. Nor are volcanoes necessarily ‘mountains’; usually they are just the reverse. Most volcanoes are only holes in the earth’s crust through which a communication is kept up between the surface and the interior of our globe. When mountains do exist at centres of volcanic activity, they are simply the heaps of materials thrown out of these holes, and must therefore be regarded not as an essential element, but as a consequence of volcanic action. Nor does the action always take place at the summit. On the contrary the eruptions more frequently occur on