

perceived in some situations, it may be inferred, that this gas is hydrogen or sulphuretted hydrogen. In other instances, it may be steam, which condensing again would produce a vacuum, and occasion the external air to press downwards; this has been observed in mines, immediately after the shock of an earthquake.

The space over which the vibration of the dry ground is felt is very great, but generally wider in one direction than another; and where a succession of earthquakes has taken place in the same district, it is observed that the noise and shock approach from the same quarter. It has been before mentioned, that the earthquakes are most frequent in volcanic districts; but the shocks are not the most violent in the immediate vicinity of volcanoes. On the contrary, they are stronger in the more distant part of a volcanic country. The ground is agitated with greater force, as the surface has a smaller number of apertures communicating with the interior. "At Naples and Messina, and at the foot of Cotopaxi and Tungurahua, earthquakes are dreaded only when vapours and flames do not issue from the craters."—*Humboldt*.

The connexion of earthquakes with volcanoes was noticed by ancient writers, and the latter were properly regarded as the openings through which the inclosed vapour and ignited matter, that occasion earthquakes, found a passage. Strabo, in his *Geography*, states, that "the town of Regium, situated on the Italian side of the Straits of Messina, was so called, according to *Æschylus*, from the circumstance that the island of Sicily was rent off from the continent by earthquakes. Proofs of this arise out of the phenomena attending *Ætna*, and other parts of Sicily and the Lipara Islands, and even the opposite continent. Now, indeed, when craters are opened, through which fire and ignited matter and water are poured out, it is said that the land near the Straits is seldom shaken by earthquakes: but formerly, when all the passages to the surface were obstructed, the fire and vapour confined in the earth occasioned frequent earthquakes, and the land, being rent, admitted the ocean. At the same time, *Prochyta* and an adjacent island were also torn off from the continent, while other islands rose from the ocean, as frequently happens at this day."—(Strabo flourished in the reign of Augustus.)

It is highly probable that every extensive earthquake is followed by a volcanic eruption, more or less remote, unless (as not unfrequently happens) the elastic vapour immediately escapes from fissures made at the time, in the countries that are the most violently convulsed. An earthquake was strongly felt in Geneva when I was there, February 19, 1622, and did considerable damage, in several towns and villages in Savoy and France. A few weeks afterwards, I travelled from Geneva to Lyons, and from thence to the ancient volcanoes near Clermont. In the course of my route, I made frequent inquiries respecting the effects of the earthquake: it appeared to have been most strongly felt along the valley of the Rhone, and the