VOLCANOES AND EARTHQUAKES.

ABSTRACT OF A LECTURE

BY

T. STERRY HUNT, LL. D., F. R. S.

It is proposed in the present lecture to discuss the nature and causes of volcanoes and earthquakes, with their related phenomena, and to consider the reason of their peculiar geographical distribution. Violent movements of the earth's crust are confined to certain regions of the globe, which are at the same time characterized by volcanic activity; from which it is reasonably inferred that the phenomena of earthquakes and volcanoes have a common origin. The discharge through openings in the earth's crust of ignited stony matter, generally in a fused condition, and the disengagement of various gases and vapors, accompanied by movements of elevation or subsidence of considerable areas of the earth's surface, sometimes rapid and paroxysmal, and attended with great vibratory movements, are evidences of a yielding crust of solid rock resting upon an igneous and fluid mass below. To the same conditions are also to be ascribed the slow movements of portions of the earth's surface shown in the rise and fall of continents in regions remote from centres of volcanic activity. The unequal tension of the yielding crust and the sudden giving way of the overstrained portions are probably the immediate cause of earthquake phenomena; the seat of these, according to the deductions of Mallet, is to be found at depths of from seven to thirty miles from the surface.

A brief description of the phenomena of volcanoes will be necessary as a preliminary to the inquiry which constitutes the object of our lecture. Volcanoes are openings in the earth's crust through which are discharged solid, liquid, and gaseous matter, generally in an intensely heated condition. Sometimes the ejected material is solid, and consists of broken comminuted rock, or the so-called volcanic ashes. Oftener, however, it is discharged in a more or less completely fused condition, constituting lava, which is sometimes fluid and glassy, but more frequently pasty and viscid, so that it flows slowly and with difficulty. The ejected