


VOLCANOES.

LECTURE DELIVERED BEFORE STUDENTS' SCIENTIFIC SOCIETY

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N developing the modern theory of Geology, writers have all along assumed that the crust of the earth has been subject to frequent disturbances from the earliest ages of the world. The crust of the earth, we are assured, is not that unyielding and immovable mass which men commonly take it to be. On the contrary, it has been from the beginning ever restless, rising here and subsiding there, sometimes with a convulsive shock capable of upturning, twisting, disturbing hard and stubborn rocks as if they were but flimsy layers of pliant clay ; sometimes with a gentle, undulating movement, which, while it uplifts islands and continents, leaves the general aspect of the surface unchanged, the arrangement of the strata undisturbed and even the most tender fossils unharmed. Disturbances of this kind have taken place in various parts of the world, even within the period of history ; and they may be distinctly traced to the action of subterranean heat.

In support of their theory, geologists bring forward the direct evidence of facts. They tell us that the deeper we penetrate into the crust of the earth the warmer it becomes. This seems contrary, no doubt, to what some of us have experienced. I myself have found it much cooler in a well thirty feet deep than in one ten feet deep. However, the reason I found it cooler below than above was because I did not reach the point where the sun's heat ceases to be sensibly felt. This limit in our climate, is at about 50 feet below the surface, and beyond this limit the deeper we go the warmer it becomes.

Again, all students of physical geography are familiar with the existence of hot springs which come from unknown depths in the earth's crust, and which appearing as they do in all parts of the world, testify in unmistakable language to the existence of internal heat. Then we have, in many countries, jets of steam