

The crust forming upon lava soon becomes a good non-conductor of heat; and hence the mass requires a long time to cool; *ex. gr.*, the case of Jorullo, in Mexico, 1,600 feet high, which was ejected a hundred years ago, but is not yet cool.

This explains a curious fact. In 1828, a mass of ice was found on Etna, lying beneath a current of lava. Probably before this flowed over it, the ice might have been covered by a shower of volcanic ashes, which are a good non-conductor of heat, and might have prevented the immediate melting of it, while the superimposed lava has preserved it from the period of its eruption to the present.

When lava is thrown out upon the dry land, with only the pressure of the atmosphere upon it, it is apt to become vesicular and scoriaceous; but when cooled slowly and under great pressure, it becomes compact and may be even crystalline. The porous varieties result from the cooling of the lava while expanded with the contained gases. Scoria and pumice may often be regarded as the froth or foam of the volcano.

*Volcanoes constantly Active.*—A few volcanic vents have been constantly active since they were first discovered. They always contain lava in a state of ebullition; and vapors and gases are constantly escaping.

EXAMPLES.—1. Stromboli, one of the Lipari Islands, has been observed longer probably than any volcano of this class; and for at least 2,000 years it has been unremittingly active. The lava here never flows over the top of the crater; though it is sometimes discharged through a fissure into the sea, killing the fish, which are thrown upon the shore ready cooked. It is said to be more active in stormy than in fair weather; likewise more so in winter than in summer; a fact explained by the different degrees of pressure exerted by the air upon the lava at different times. When the air is light, the internal force predominates; but when heavy, it restrains the energy of the volcano.

2. In Lake Nicaragua is a volcano which is constantly burning. Villarica, in Chile, so high as to be seen 150 miles, is never quiet. The same is said to be the case with Popocatepetl, in Mexico. Ever since the Spanish conquest of Mexico it has been pouring forth smoke. Kilauea is the most remarkable active volcano on the globe, and has already been described.

*Seat of Volcanic Power.*—Volcanic power must be deeply seated beneath the earth's crust.

*Proof.*—1. The melted lava is forced out from beneath the oldest rocks, as gneiss and granite; for masses of these rocks are frequently broken off and thrown out. 2. Lines or trains of volcanoes indicate some connection between the vents; and the great length of these lines, several thousand miles in some instances, can be explained only by supposing that the fissure or cavity by