

mass of rock added to the continent of America by the movement, or, in other words, the mass previously below the level of the sea, and after the shocks permanently above it, must have contained fifty-seven cubic miles in bulk; which would be sufficient to form a conical mountain two miles high (or about as high as Etna), with a circumference at the base of nearly thirty-three miles. We may take the mean specific gravity of the rock at 2.655,—a fair average, and a convenient one in such computations, because at such a rate a cubic yard weighs two tons. Then, assuming the great pyramid of Egypt, if solid, to weigh, in accordance with an estimate before given, six million tons, we may state the rock added to the continent by the Chilian earthquake to have more than equalled 100,000 pyramids.

But it must always be borne in mind that the weight of rock here alluded to constituted but an insignificant part of the whole amount which the volcanic forces had to overcome. The whole thickness of rock between the surface of Chili and the subterranean foci of volcanic action may be many miles or leagues deep. Say that the thickness was only two miles, even then the mass which changed place and rose three feet being 200,000 cubic miles in volume, must have exceeded in weight 363 million pyramids.

It may be instructive to consider these results in connection with others already obtained from a different source, and to compare the working of two antagonist forces—the levelling power of running water, and the expansive energy of subterranean heat. How long, it may be asked, would the Ganges require, according to data before explained, to transport to the sea a quantity of solid matter equal to that which may have been added to the land by the Chilian earthquake? The discharge of mud in one year by the Ganges equalled the weight of sixty pyramids. In that case it would require seventeen centuries and a half before the river could bear down from the continent into the sea a mass equal to that gained by the Chilian earthquake. In about half that number of centuries, perhaps, the united waters of the Ganges and Burrampooter might accomplish the operation.

*Cutch, 1819.*—A violent earthquake occurred at Cutch, in the delta of the Indus, on the 16th of June, 1819. (See Map, plate 10.) The principal town, Bhooj, was converted into a heap of ruins, and its stone buildings were thrown down. The shock extended to Ahmedabad, where it was very destructive; and at Poonah, four hundred miles farther, it was feebly felt. At the former city, the great mosque erected by Sultan Ahmed nearly 450 years before, fell to the ground, attesting how long a period had elapsed since a shock of similar violence had visited that point. At Anjar, the fort, with its tower and guns, were hurled to the ground in one common mass of ruin. The shocks continued some days until the 20th; when, thirty miles north-west from Bhooj, the volcano called Denodur is said to have burst out in eruption, and the convulsions ceased.

*Subsidence in the delta of the Indus.*—Although the ruin of towns