

mark, that it seemed much louder to persons out at sea, and at a great distance from land, than to those within sight of land, and near the burning volcano.

The distance in a straight line from the volcano of St. Vincent to the Rio Apure, near the mouth of the Nula, is two hundred and ten leagues.* The explosions were consequently heard at a distance equal to that between Vesuvius and Paris. This phenomenon, in conjunction with a great number of facts observed in the Cordilleras of the Andes, shows that the sphere of the subterranean activity of a volcano is much more extensive than we should be disposed to admit, if we judged merely from the small changes effected at the surface of the globe. The detonations heard during whole days together in the New World, eighty, one hundred, or even two hundred leagues distant from a crater, do not reach us by the propagation of the sound through the air; they are transmitted by the earth, perhaps in the very place where we happen to be. If the eruptions of the volcano of St. Vincent, Cotopaxi, or Tunguragua, resounded from afar, like a cannon of immense magnitude, the noise ought to increase in the inverse ratio of the distance: but observations prove, that this augmentation does not take place. I must further observe, that M. Bonpland and I, going from Guayaquil to the coast of Mexico, crossed latitudes in the Pacific, where the crew of our ship were dismayed by a hollow sound coming from the depth of the ocean, and transmitted by the waters. At that time a new eruption of Cotopaxi took place, but we were as far distant from the volcano, as Etna from the city of Naples. The little town of Honda, on the banks of the Magdalena, is not less than one hundred and forty-five leagues† from Cotopaxi; and yet, in the great explosions of this volcano, in 1744, a subterranean noise was heard at Honda, and supposed to be discharges of heavy artillery. The monks of San Francisco spread a report that the town of Carthagena was besieged and bombarded by the English; and the intelligence was believed throughout the country. Now

* Where the contrary is not expressly stated, nautical leagues of twenty to a degree, or two thousand eight hundred and fifty-five toises, are always to be understood.

† This is the distance from Vesuvius to Mont Blanc.