

is, however, as Von Buch observes, that part of the Andes which is least known, being thinly peopled, and in some parts entirely desert. The volcanos of Peru rise from a lofty platform to vast heights above the level of the sea, from 17,000 to 20,000 feet. The lava which has issued from Viejo, lat. $16^{\circ} 55' S.$, accompanied by pumice, is composed of a mixture of crystals of albitic felspar, hornblende, and mica, a rock which has been considered as one of the varieties of andesite. Some tremendous earthquakes which have visited Peru in modern times will be mentioned in a subsequent chapter.

The volcanos of Quito, occurring between the second degree of south and the third degree of north latitude, rise to vast elevations above the sea, many of them being between 14,000 and 18,000 feet high. The Indians of Lican have a tradition that the mountain called L'Altar, or Capac Urcu, which means "the chief," was once the highest of those near the equator, being higher than Chimborazo; but in the reign of Ouainia Abomatha, before the discovery of America, a prodigious eruption took place, which lasted eight years, and broke it down. The fragments of trachyte, says M. Boussingault, which once formed the conical summit of this celebrated mountain, are at this day spread over the plain.* Cotopaxi is the most lofty of all the South American volcanos which have been in a state of activity in modern times, its height being 18,858 feet; and its eruptions have been more frequent and destructive than those of any other mountain. It is a perfect cone, usually covered with an enormous bed of snow, which has, however, been sometimes melted suddenly during an eruption; as in January 1803, for example, when the snows were dissolved in one night.

Deluges are often caused in the Andes by the liquefaction of great masses of snow, and sometimes by the rending open, during earthquakes, of subterranean cavities filled with water. In these inundations fine volcanic sand, loose stones, and other materials which the water meets with in its descent, are swept away, and a vast quantity of mud, called "moya," is thus formed and carried down into the lower regions. Mud derived from this source descended, in 1797, from the sides of Tunguragua in Quito, and filled valleys a thousand feet wide to the depth of six hundred feet, forming barriers by which rivers were dammed up, and lakes occasioned. In these currents and lakes of moya, thousands of small fish are sometimes enveloped, which, according to Humboldt, have lived and multiplied in subterranean cavities. So great a quantity of these fish were ejected from the volcano of Imbaburu in 1691, that fevers, which prevailed at the period, were attributed to the effluvia arising from the putrid animal matter.

In Quito, many important revolutions in the physical features of the country are said to have resulted, within the memory of man, from the earthquakes by which it has been convulsed. M. Boussingault declares his belief, that if a full register had been kept of all

* Bull. de la Soc. Géol. tom. vi. p. 55.