

the top of these volcanoes, nothing obstructs the view of the bottom of the crater. The peaks of Teneriffe and Cotopaxi, on the contrary, are of very different construction. At their summit a circular wall surrounds the crater; which wall, at a distance, has the appearance of a small cylinder placed on a truncated cone. On Cotopaxi this peculiar construction is visible to the naked eye at more than 2,000 toises distance; and no person has ever reached the crater of that volcano. On the peak of Teneriffe, the wall, which surrounds the crater like a parapet, is so high, that it would be impossible to reach the Caldera, if, on the eastern side, there was not a breach, which seems to have been the effect of a flowing of very old lava. We descended through this breach toward the bottom of the funnel, the figure of which is elliptic. Its greater axis has a direction from north-west to south-east, nearly N. 35° W. The greatest breadth of the mouth appeared to us to be 300 feet, the smallest 200 feet, which numbers agree very nearly with the measurement of MM. Verguin, Varela, and Borda.

It is easy to conceive, that the size of a crater does not depend solely on the height and mass of the mountain, of which it forms the principal air-vent. This opening is indeed seldom in direct ratio with the intensity of the volcanic fire, or with the activity of the volcano. At Vesuvius, which is but a hill compared with the Peak of Teneriffe, the diameter of the crater is five times greater. When we reflect, that very lofty volcanoes throw out less matter from their summits than from lateral openings, we should be led to think, that the lower the volcanoes, their force and activity being the same, the more considerable ought to be their craters. In fact, there are immense volcanoes in the Andes, which have but very small openings; and we might establish as a geological principle, that the most colossal mountains have craters of little extent at the summits, if the Cordilleras did not present many instances to the contrary.* I shall have occasion, in the progress of this work, to cite a number of facts, which will throw some light on what may be called the external structure of volcanoes. This structure is as varied

* The great volcanoes of Cotopaxi and Rucupichincha have craters, the diameters of which, according to my measurements, exceed 400 and 700 toises.