

hot cinders and dust were quickly succeeding each other, while forked lightning, accompanied by rattling thunder, darted from all directions within the column now darkened with dust, greatly increased in volume, and distorted by sudden gusts and whirlwinds." The latitude of this island is, or rather was, $37^{\circ} 11'$ north, and longitude east $12^{\circ} 44'$.

At the beginning of January in the following year, the top of the island was somewhat below the surface of the sea, and at the latter end of February, soundings had been made at different times, which discovered depths of from fifty to one hundred and fifty feet, from the surface of the sea to the cone of the volcano. This sudden sinking down of the volcano must be attributed to the subsidence of the ground beneath it.

The French geologists who visited this submarine volcano describe the island as being a crater of eruption (*cratère d'éruption*), while the base below the sea is supposed to have been formed by the up-heaving of solid rocks, or to be a crater of elevation (*cratère de soulèvement*.)

Craters of eruption are formed by the accumulation of lava or other volcanic matter around the orifice from whence they flowed, or were projected. Such is, perhaps, the origin of the greater number of volcanic craters. That eminent geologist, Von Buch, however, maintains, that beds of primary, or other rocks, have been sometimes raised from beneath the sea to considerable elevations, before the subterranean fire had opened a passage for the eruption of lava or scoriæ. Suppose successive beds of lava to have been poured through a chasm over the bottom of the ocean, and afterwards consolidated, and the chasm to become covered by an immense mass of solid lava; in a succeeding paroxysm, the volcanic energy being unable to force a passage through the former opening, and thus acting with compressed intensity, might upheave the beds of submarine lava and the subjacent rocks to a considerable height above the sea, before a new passage was opened for a subsequent eruption. This would be a crater of elevation. With the ancient lava, the lower beds of granite or other rocks might also be raised up. This mode of volcanic operation is so analogous to that which has up-heaved mountain masses in every part of the globe, that I am at a loss to conjecture on what principle it has been objected to. Let the reader refer to the position of the beds at Wren's Nest Hill, near Dudley, and their contiguity to basalt (Plate III. fig. 4.); or, what may be more directly to the purpose, let him turn to the section of Crich Cliff (page 95.), in which the strata encircle and cover the hill, like the coats of an onion, and in which there is a mass of toadstone near the centre. Few geologists will deny that the beds have been up-heaved by a power acting from beneath; or that the protrusion of beds of volcanic toadstone was the original cause of the elevation of the strata. If the up-heaving power at Crich Cliff had