

year 79, not by eruption, but by upheaval. It was not produced by the repeated superposition of scoriæ and lava cast out or flowing from a central source, but by the uplifting of strata previously horizontal. The entire cone rose at once, such as we now see it, from the interior and middle of Somma, and has since received no accession of height, but, on the contrary, has ever since been diminishing in elevation.*

Although I consider this hypothesis of Von Buch to be quite untenable, I may mention some facts which may at first sight seem to favour it. These are recorded by M. Abich in his account of the Vesuvian eruptions of 1833 and 1834, a work illustrated by excellent engravings of the volcanic phenomena which he witnessed.† It appears that, in the year 1834, the great crater of Vesuvius had been filled up nearly to the top with lava, which had consolidated and formed a level and unbroken plain, except that a small cone thrown up by the ejection of scoriæ rose in the middle of it like an island in a lake. At length this plain of lava was broken by a fissure which passed from N.E. to S.W., and along this line a great number of minute cones emitting vapour were formed. The first act of formation of these minor cones is said to have consisted of a partial upheaval of beds of lava previously horizontal, and which had been rendered flexible by the heat and tension of elastic fluids, which rising from below, escaped from the centre of each new monticule. There would be considerable analogy between this mode of origin and that ascribed by Von Buch to Vesuvius and Somma, if the dimensions of the upraised masses were not on so different a scale, and if it was safe to reason from the inflation of bladders of half-fused lava, from fifteen to twenty-five feet in height, to mountains attaining an altitude of several thousand feet, and having their component strata strengthened by intersecting dikes of solid lava.

At the same time M. Abich mentions, that when, in August 1834, a great subsidence took place in the platform of lava within the great crater, so that the structure of the central cone was laid open, it was seen to have been evidently formed, *not by upheaval*, but by the fall of cinders and scoriæ which had been thrown out during successive eruptions.‡

Previous to the year 79, Vesuvius appears, from the description of its figure given by Strabo, to have been a truncated cone, having a level and even outline as seen from a distance. That it had a crater on its summit, we may infer from a passage in Plutarch, on which Dr. Daubeny has judiciously commented in his treatise on volcanos.§ The walls of the crater were evidently entire, except on one side, where there was a single narrow breach. When Spartacus, in the year 72, encamped his gladiators in this hollow, Clodius, the prætor, besieged him there, keeping the single outlet carefully guarded, and then let down his soldiers by scaling ladders over the steep precipices

* Von Buch, *Descrip. Phys. des Iles Canaries*, p. 342. Paris, 1836. sur le Vésuve et l'Etna. Berlin, 1837.

† Ibid. p. 2.

‡ *Vues Illust. de Phénom. Géol. Observ.* § 2d Edit. 1848, p. 216.

§ Dr. Daubeny, *Treatise on Volcanos*.