

of the plain, Sodom and Gomorrah, as represented in the Bible, seems to have been caused by volcanic agency. Some suggest that Sodom and Gomorrah were built upon a mine of bitumen, that lightning kindled the combustible mass, and that the cities sunk in the subterranean conflagration. The principal difficulties in the way of this hypothesis are, first, to see how the bitumen, buried beneath a considerable thickness of soil, could have burnt rapidly enough suddenly to destroy the cities and their inhabitants; and secondly, to conceive of a bed of bitumen so thick, as by its combustion to sink the surface from the present high-water mark to the bottom of the sea. Dr. Robinson describes the high-water mark as seen by him "a great distance," south of the margin of the sea at that time. The surface, therefore, must have suffered a great depression. Would it not somewhat relieve these difficulties to suppose volcanic action combined with the combustion of the bitumen? No geologist will doubt the correctness of Von Buch's opinion, that a fault extends from the Red Sea through the valley of Arabah and the Jordan to Mount Lebanon; and along that fissure we might expect volcanic agency to be active. But it might have produced very striking effects without the ejection of lava. Earthquakes sometimes cause the surface to sink down many feet, and flames have been seen to issue through the fissures which they produce. Thus might the *slime pits* (literally *wells of asphaltum*) have been set on fire, immense volumes of steam, smoke and suffocating vapors have been set at liberty, perhaps, too, the remarkable ridge of rock salt called Usdam have been protruded, and finally, by the subsidence of the surface after the destruction of the cities, might the waters of the lake have flowed over the spot. In a similar manner was the city of Euphemia, in Calabria, destroyed in 1638. "After some time," says Kircher, who was near the spot, "the violent paroxysms (of the earthquake) ceasing, I stood up, and turning my eyes to look for Euphemia, saw only a frightful black cloud. We waited till it had passed away, when nothing but a dismal and putrid lake was to be seen, where once the city stood."

Mt. Ararat in Asia, is an extinct volcano. A large proportion of the lofty peaks of the Andes and the mountains of Mexico belong to the class of extinct volcanoes, as well as large districts of the region between the Rocky Mountains and the Pacific Ocean.

The size of ancient volcanic cones and craters was often very large.

In the middle and southern parts of France, extinct volcanoes cover several thousand square miles. Between Naples and Cuma, in the space of 200 square miles, according to Brieslak, are sixty craters; some of them larger than Vesuvius. The city of Cuma has stood three thousand years in a crater of one of these volcanoes. Vesuvius stands in the midst of a vast crater, whose remains are still visible, called Somma. The volcanic peak of Teneriffe stands in the centre of a plain, covering 108 square miles, which is surrounded by perpendicular precipices and mountains, which were probably the border of the ancient crater. According to Humboldt, all the mountainous parts of Quito, embracing an area of 6,300 square miles, may be considered as an immense volcano, which now gets vent sometimes through one, and sometimes through another of its elevated peaks; but which must have been more active in former times to have produced the results now witnessed. Of the two ancient craters of Kilauea, one is fifteen and the other twenty miles in circumference. Two other ancient craters exist in Maui, one of the Sandwich Islands, the one twenty-four and the other twenty-seven miles in circuit.

From such facts many geologists have inferred that volcanic agency in early times was more powerful than at present, and