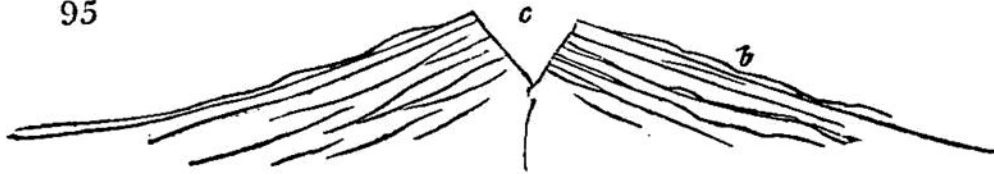


Etna and Vesuvius, whose changes of condition are matter of history, the prolific energy of heat has raised up islands in the sea, and mountains on the land, within our own days; and though these new volcanos are always near to the situation of old ones, and are really only new chimneys to the same subterranean fires which those conducted to the surface, the circumstances of their origin are very instructive.

In what form does the ground open for the formation of a new volcanic vent? This question has been answered by Von Buch's hypothesis of "craters of elevation," which, taken as the *origin* of a volcanic mountain, are described as being formed by the uplifting of the ground in a dome-shaped or conical elevation, with a central aperture. The correctness of this opinion has been disputed by Mr. Lyell, and both observation and calculation have been employed to determine the truth. What is now seen of volcanic mountains in general, proves them to be accumulations of ashes and lava currents, heaped in a conical shape round a central aperture. Supposing the aperture *made*, it is obvious that lava streams from its edges would flow only to limited distances, and scoria and dust would fall in showers round the opening: and thus every volcanic cone would show, in a vertical section, as *fig. 95.*, layers (*l*) more or less irregular, sloping

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each way from the crater (*c*). In a horizontal section, the *layers* of ashes and *streams* of lava would be distinguished, as in *fig. 96.*

[The dotted parts correspond to the depositions of ashes falling all round the crater, and enveloping the lava currents, which ran down different sides of the mountains at different times. In one part the lava is seen filling a cross rent in the mountain, like a dyke of older rocks.]