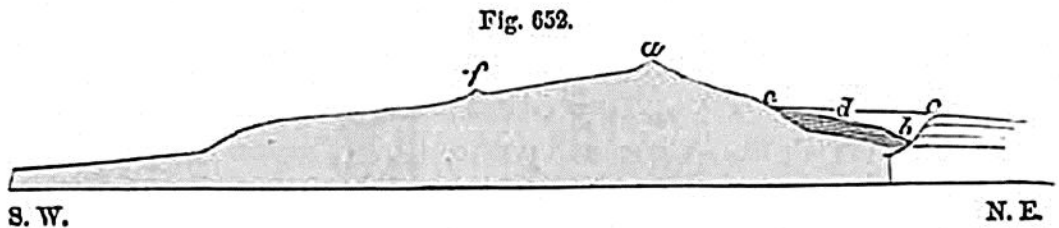


in 1854, will show the manner in which that lofty cone is encircled on more than two sides by what I consider as the ruins of an older cone, chiefly formed by eruptions from a summit which has disappeared. That ancient culminating point from which one or more craters probably poured forth their lavas and ejectamenta may not have been placed precisely where the present peak now rises, and may not have had the same form, but its position was probably not materially different. The great wall or semicircular range of precipices, *cc*, surrounding the atrium, *bb*, is obviously analogous to the walls of a Caldera like that of Palma; but here the cliffs are insignificant in dimensions when compared to those in Palma, being in general no more than 500 feet high, and rarely exceeding 1000 feet. The plain or atrium, *bb*, figs. 651 and 652, lying at the base of the cliffs, is here called Las Cañadas, and is covered with sand and pumice thrown out from the Peak or from craters on its flanks. Copious streams of lava, *dd*, have also flowed down from lateral openings, especially from a crater called the Chahorra, *f*, fig. 652, which is not seen in the view, fig. 651, as it is hidden by the Peak. The last eruption was as late as the year 1798.



Section through part of Teneriffe, from N. E. to S. W. On a true scale; as given in Von Buch's "Canary Islands."

- | | |
|--|----------------------------------|
| <i>a.</i> Peak of Teneriffe. | <i>b.</i> The Cañadas or atrium. |
| <i>c.</i> Cliff bounding the atrium. | <i>d.</i> Modern lavas. |
| <i>f.</i> Cone and crater of Chahorra. | |

To what extent the lavas, *dd*, figs. 651, and 652, may have narrowed the circus or atrium, *b*, or taken away from the height of the cliff *c*, no geologist can determine for want of sections; but should the Peak and the Chahorra continue to be active volcanoes for ages, the new cone, *a*, might become united with the old one, and the lava might flow first from *e* to *c* and then from *a* to *c*, fig. 652, so that the slope might begin to resemble that formed by lavas and ejectamenta from the summit *a* to Guia, on the southwestern side of the cone.

Madeira.—Every volcanic island, so far as I have examined them, varies from every other one in the details of its geographical and geological structure so greatly, that I have no expectation of finding any simple hypothesis, like that of "elevation craters," applicable to all or capable of explaining their origin and mode of growth. Few islands, for example, resemble each other more than Madeira and Palma, inasmuch as both consist mainly of basaltic rocks of subaerial origin, but, when we compare them closely together, there is no end of the points in which they differ.

The oldest formation known in Madeira is of submarine volcanic origin,