and never yet answered are the following:—First, in most calderas, as in Palma, the rim of the great cavity and the circular range of precipices surrounding it remain entire and unbroken on three sides, whereas it is difficult to conceive that a series of volcanic strata 2000 or 3000 feet thick could have once extended over an area six or seven miles in its shortest diameter, and then have been upraised bodily, so that the beds should dip at steep angles towards all points of the compass from a centre, and yet that no great fractures should have been produced. We should expect to see some open fissures on every side, widening as they approach the caldera. The dikes, it is true, do undoubtedly attest many dislocations of the mass, which have taken place at successive and often distant periods. But none of them can have belonged to the supposed period of terminal and paroxysmal upheaval, for, had the caldera existed when they originated, the melted matter now solidified in each dike must, instead of filling a rent, have flowed down into the caldera, tending so far to obliterate the great cavity.

The second objection is the impossibility of imagining that so vast a series of agglomerates, tuffs, stratified lapilli, and highly scoriaceous lavas could have been poured out within a limited area without soon giving rise to a hill, and eventually to a lofty mountain. Such heavy angular fragments as are seen in the agglomerates, single beds of which are sometimes 200 or 300 feet thick, must when hurled into the air have fallen down again near the vent, and would be arranged in inclined layers dipping outwards from the central axis of eruption. It is in perfect accordance with this hypothesis that we should behold agglomerates, lapilli, and scoriæ predominating in the walls of the Caldera; whereas in the ravines nearer the sea, where the inclination of the beds has diminished to 10 and even to 5 degrees, the proportion of stony as compared to fragmentary materials is precisely reversed. It is also natural that the dikes should be most numerous where the ejectamenta are to the more solid beds in the proportion of 3 to 1, as at *b*, fig. 645, p. 496; while the dikes are few in number where the stony lavas predominate (as at *c*, ibid.). Many of the scoriaceous beds at *b* may be the upper extremities of currents which became stony and compact when they reached *c*, and flowed over a more level country; but this suggestion cannot be assented to by the advocates of the upheaval theory, for it assumes the existence of a cone long before the time had arrived for the catastrophe which according to their views gave rise to a conical mountain.

If, however, we reject the doctrine that the beds were tilted by a movement posterior to the accumulation of all the compact and fragmentary rocks, how are we to account for the steepness of the dip of some stony lavas high up in the walls of the Caldera? These masses are occasionally 50 or 100 feet thick, of lenticular shape, as seen in the cliffs from below, and to all appearance parallel to the associated layers of scoriæ and lapilli. But unfortunately no one can climb up and determine how far the supposed parallelism may be deceptive. The solid