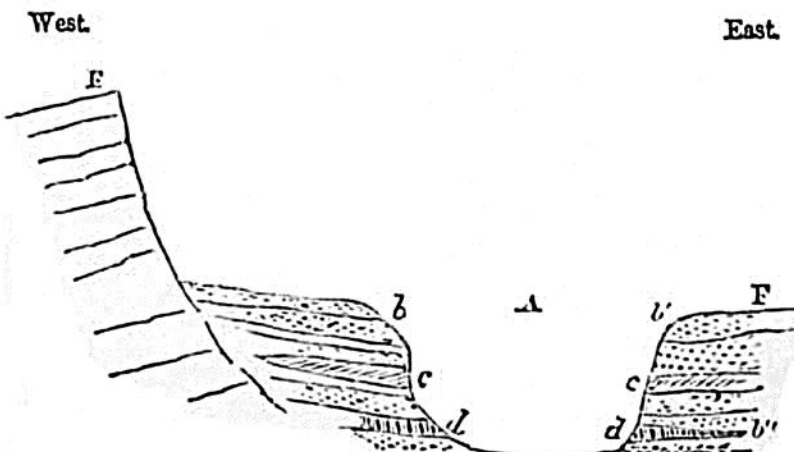


the old volcano and its Caldera were formed was so vast a thickness of gravel formed, to be afterwards cut through to a depth of 800 feet? The ravine through which the torrent now flows has been excavated to that depth through the old conglomerate. The occurrence of two or three layers of contemporaneous lava, intercalated between the strata of puddingstone, ought not to surprise us; for even in historical times eruptions have been witnessed in the southern half of Palma. Such basaltic lavas, one of them columnar in structure, have not come down from the Caldera, but from cones much nearer the sea, and immediately adjoining the Barranco, like the cone of Argual (see map, p. 495) and others. These lavas, of the same age as the conglomerate, consist of three or four currents of limited extent, for in many parts of the river-cliffs no volcanic formation is visible on either bank. On the right bank of the Barranco, the conglomerate, when traced westward, is soon found to come to an end as it abuts against the lofty precipice E (fig. 647), which is a prolongation of the western wall of the Caldera. Its extent eastward from *b'*, may be more considerable, but cannot be ascertained, as it is concealed under modern scoriæ and lava spread over the great platform, F.

Fig. 647.



- A. Ravine or Barranco de las Angustias, near its termination in Palma.
b, b', b''. Conglomerate, 800 feet thick in parts.
c, c'. Lava intercalated between the beds of conglomerate.
d, d'. Another and older current of basaltic lava, columnar in parts.
 E. Cliff of ancient volcanic rocks of the Upper Formation (p. 500), a prolongation of the western wall of the Caldera.
 F. Platform on which the town of Argual stands.

As we could find no organic remains in the old gravel, we have no positive means of deciding whether it be fluvial or marine. The height of its base above the sea, where it is 800 feet thick; may be about 350 feet, but patches of it ascend to elevations of 1000 and 1500 feet near the top of the Barranco, as shown at *k*, &c., in section, fig. 646, p. 497. Such a mass of gravel, therefore, bears testimony to the removal of a prodigious amount of materials from the Caldera by the action of water. Whether a river or the sea was the transporting agent, it is obvious that a large portion of the volcanic materials, consisting of sand, lapilli, and scoriæ, before described (p. 498), as be-