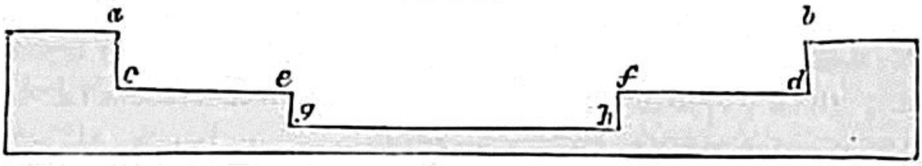
Thus in the same volcano examples are afforded of the overflowing of lava from the summit of a cone 2½ miles high, and of the underflowing of melted matter. Whether this last has formed sheets intercalated between the stratified products of previous eruptions, or whether it has penetrated through oblique or vertical fissures, cannot be determined. In one instance, however, for a certain space, it is said to have spread laterally, uplifting the incumbent soil.

The annexed section of the crater of Kilauea, as given by Mr. Dana, follows the line of its shorter diameter, *a*, *b*, which is about 7500 feet

Fig. 641.



Section of the crater of Kilauea in the Sandwich Islands. (Dana.)
a, *b*. External boundaries of the chasm in the line of its shortest diameter.
c, *e*, *f*, *d*. Black ledge. *g*, *h*. Lake of lava.

long. The boundary cliffs, *a*, *c* and *b*, *d*, are for the most part quite vertical and 650 feet high. They are composed of compact rock in layers, not divided by scoriæ, some a few inches, others 30 feet in thickness, and nearly horizontal. Below this, we come to what is called the "black ledge," *c*, *e* and *f*, *d*, composed of similar stratified materials. This ledge is 342 feet in height above the lake of lava, *g*, *h*, which it encircles. The chasm, *a*, *b*, and its walls have probably been due to a former sinking down of the incumbent rocks, undermined for a space by the fusion of their foundations. The lower ledge, *c*, *e* and *f*, *d*, may consist in part of the mass which sank vertically, but part of it at least must be made up of layers of lava, which have been seen to pour one after the other over the "black ledge." If at any future period the heated fluid, ascending from the volcanic focus to the bottom of the great chasm, should augment in volume, and, before it can obtain relief, should spread itself subterraneously, it may melt still farther the subjacent masses, and, causing a failure of support, may enlarge still more the limits of the amphitheatre of Kilauea. There are distinct signs of subsidences, from 100 to 200 feet perpendicular, which have occurred in the neighborhood of Kilauea at various points, and they are each bounded by vertical walls. If all of them were united, they would constitute a sunken area equal to eight square miles, or twice the extent of Kilauea itself. Similar accidents are also likely to occur near the summit of a dome like Mount Loa, for the hydrostatic pressure of the lava, after it has risen to the edge or lip of the highest crater, *a*, fig. 640, must be great and must create a tendency to lateral fissuring, in which case lava will be injected into every opening, and may begin to undermine. If, then, some of the melted matter be drawn off by escaping at a lower level, where the pressure