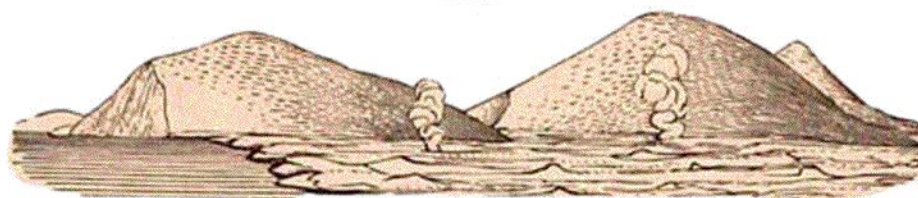


At the eruption of Kilauea in 1840, the first signal to the natives on the coast was not an earthquake, but a "fire in the woods." As a consequence of the action, six miles to the east a fissure opened, and some lavas escaped; in the next seven miles there were other fissures, giving out steam and making small patches of lava. Finally, 10 miles from the sea and 27

246.

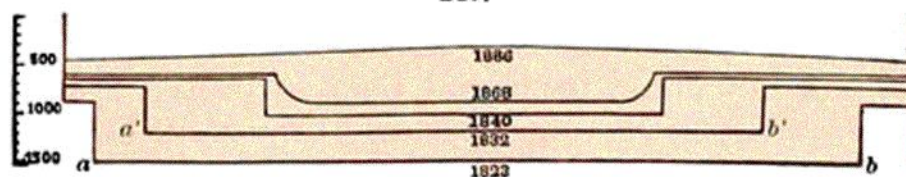


Three cinder-cones of 1840, on the seashore south of Nanawale. D. '49.

miles from Kilauea, at a height of 1250 feet above tide level, an outflow began from fissures which continued till it reached the sea, where there was a violent conflict of the hot lavas and water, and three cinder-cones were made, each probably over a separate fissure. The lavas in the crater at the same time sunk, as has been stated, nearly 400 feet in consequence of the outflow.

The following diagram (the height relatively much exaggerated) shows the change in depth of Kilauea (according to the best reports), in several great eruptions, commencing with that of 1823. In 1823, before the erup-

247.



Sections of Kilauea at different periods.

tion, the whole depth of the crater was 800 to 1000 feet; at the eruption, nearly the whole bottom sunk down to the level *ab*, or 600 to 800 feet, making the depth of Kilauea over this deeper, central part about 1500 feet.

In 1832, the depth before the eruption was 700 feet; after it, the center sunk to *a'b'*, making the depth 1150 feet; in 1840, the depth of the sinking was between 360 and 400 feet. Six years afterward, the lower pit was obliterated, reducing the depth of Kilauea to only 600 feet. It sunk again at an eruption in 1868. It is now only 480 feet deep where deepest near the northeastern walls, and less than 400 feet at the center.

At the last two of the eruptions, those of 1887 and 1891, the only sinking of the bottom that took place was within the great lake-basin called Halemaumau — half a mile in diameter — in the southwestern part of the crater. The map of the crater, Fig. 230, shows its condition immediately after the eruption of 1886, with the lake-basin empty to its bottom, 900 feet below the level at the Volcano House, and nearly 600 below the rim of the basin. (Emerson.) The walls of the basin began at once to fall, and in six months the condition was that represented in the adjoining figure 231. The basin contained a debris-cone made of the fallen blocks, and not at all of ejected material; and the progress afterward