of 1000 square miles, some of them attain a height of 400 feet, with craters 30 yards across.""

4. Lava-cones.—Volcanic cones composed entirely of lava are comparatively rare, but occur in some younger Tertiary and modern volcanoes. Fouqué describes the lava of 1866 at Santorin as having formed a dome-shaped elevation, flowing out quietly and rapidly without explosions. After several days, however, its emission was accompanied with copious discharges of fragmentary materials and the formation of several crateriform mouths on the top of the dome. Where lava possesses extreme liquidity, and gives rise to little or no fragmentary matter, it may build up a flat cone as in the remarkable examples described by



Fig. 59.—Plan of Lava-caldron, Kilauea, Hawaii (Dana, 1841 119).

Dana from the Hawaii Islands.<sup>118</sup> On the summit of Mauna Loa (Fig. 58), a flat lava-cone 13,760 feet above the sea, lies a crater, which in its deepest part is about 8,000 feet broad, with vertical walls of stratified lava rising on one side to a height of 784 feet above the black lava-plain of the crater-bottom. From the edges of this elevated caldron, the mountain slopes outward at an angle of not more than 6°, until, at a level of about 10,000 feet lower, its surface is indented Mauna Kea, 13,950 feet.

Fig. 58--. Profile of Lava-domes of Hawail

Mauna Loa, 13,760 feet

<sup>&</sup>lt;sup>117</sup> Lyell, "Principles," ii. p. 77.

<sup>&</sup>lt;sup>118</sup> In Wilkes's Report of U. S. Exploring Expedition, 1838–42, and Dana's "Characteristics of Volcanoes." See the works cited on p. 350.

<sup>&</sup>lt;sup>119</sup> For more recent maps showing the variations of this crater, see Dana's "Characteristics."