

be studied from the remains of former convulsions. Their importance, however, has not yet been generally recognized in Europe, though acknowledged in America, where they have been largely developed. Much still remains to be done before their mechanism is as well understood as that of the lesser type to which all present volcanic action belongs. In the succeeding narrative an account is first presented of the ordinary and familiar volcano and its products; and in § 3, ii., some details are given of the general aspect and character of fissure-eruptions.

The openings by which heated materials from the interior now reach the surface include volcanoes (with their various associated orifices) and hot-springs.

The prevailing conical form of a volcano is that which the ejected materials naturally assume round the vent of eruption. The summit of the cone is truncated (Figs. 39, 45), and presents a cup-shaped or caldron-like cavity, termed the crater, at the bottom of which is the top of the main funnel or pipe of communication with the heated interior. A volcano, when of small size, may consist merely of one cone; when of the largest dimensions, it forms a huge mountain, with many subsidiary cones and many lateral fissures or pipes, from which the heated volcanic products are given out. Mount Etna (Fig. 39), rising from the sea to a height of 10,840 feet, and supporting, as it does, some 200 minor cones, many of which are in themselves considerable hills, is a magnificent example of a colossal volcano.²

² The structure and history of Etna are fully described in the great work of Sartorius von Waltershausen and A. von Lasaulx cited on p. 327—a treasure-house of facts in volcanic geology. See also G. F. Rodwell, "Etna, a history of the mountain and its eruptions," London, 1878; O. Silvestri, "Un Viaggio all' Etna," 1879. Notices of recent eruptions of the mountain will be found in *Nature*, vols. xix., xx., xxi., xxii., xxv. (observatory on Etna, p. 394), xxvii., xlvi.; *Compt. rend.* lxvi. The work of Mercalli, cited on p. 327, gives descriptions of this and the other Italian volcanic centres.