

in the fissures of Vesuvian lavas. In the spring of 1873 the author observed delicate brown filaments of tenorite (copper-oxide, CuO) forming in clefts of the crater of Vesuvius. They were upheld by the upstreaming current of vapor until blown off by the wind. Fouqué has described tubular vents in the lavas of Santorin with crystals of anorthite, sphene, and pyroxene, formed by sublimation. In the lava stalactites of Hawaii needle-like fibres of breislakite abound.

2. **Water.**—Abundant discharges of water accompany some volcanic explosions. Three sources of this water may be assigned: (1) from the melting of snow by a rapid accession of temperature previous to or during an eruption; this takes place from time to time on Etna, in Iceland, and among the snowy ranges of the Andes, where the cone of Cotopaxi is said to have been entirely divested of its snow in a single night by the heating of the mountain; (2) from the condensation of the vast clouds of steam which are discharged during an eruption; this undoubtedly is the chief source of the destructive torrents so frequently observed to form part of the phenomena of a great volcanic explosion; and (3) from the disruption of reservoirs of water filling subterranean cavities, or of lakes occupying crater-basins; this has several times been observed among the South American volcanoes, where immense quantities of dead fish, which inhabited the water, have been swept down with the escaping torrents. The volcano of Agua in Guatemala received its name from the disruption of a crater-lake at its summit by an earthquake in 1540, whereby a vast and destructive deluge of water was discharged down the slopes of the mountain.¹² In the beginning of the year 1817, an eruption took place at the large crater of Idjèn, one of the volcanoes of

¹² For an account of this mountain see K. v. Seebach, *Abh. Gesell. Wiss. Göttingen*, xxxviii. (1892) p. 216.