

the cone. This is the valley which separates the highest and principal summit of the mountain from Monte Somma, a fragment of an ancient crater of much larger size than the modern one. The height of Vesuvius varies from 3,900 to 4,300 feet. Monte Somma stands 3,642 feet. The slope of the mountain near the base is 10° , while the active cone has a gradient of 29° to 30° . Monte Somma rises almost perpendicularly from the Atrio del Cavallo, while on the opposite side, it slopes to the plain at an angle of three degrees.

The entire mountain, so far as can be seen, is a vast pile of lava, lapilli (stones) sand and ashes (powder-like lava) resulting from a long succession of eruptions. The molten mineral matter thrown out is lava. It escapes from the regular crater or bursts out through some new fissure near the summit, around which the erupted materials may accumulate and form a subsidiary crater. The molten lava has a temperature above 2000° Fah. Often vapor of water escapes with the lava, and throws the molten mineral up with such violence as to break it into fragments, the larger of which are known as lapilli and scorixæ, while the minuter fragments constitute volcanic sand and ashes. The vapors rise to a height of about ten thousand feet, and spread over the mountain like a vast umbrella or Cedar of Lebanon. Indeed, the height sometimes attained by this enormous canopy of vapor and ashes has been shown by measurements to reach twenty-three thousand to twenty-six thousand feet. Enormous quantities of ashes borne upward with the vapor, give the cloud a dark and angry appearance, and its frowning aspect is confirmed by the flashes of lightnings which dart through it. By night the vivid reflection of the light thrown upward from the crater gives the appearance of terrific flames roaring from the summit of a burning mountain. But no proper combustion exists. Often the condensation of the vapor results in rain which descends in a torrent. The ashes mingled with water convert the storm into a deluge of mud. This rushes down the mountain with destructive effects, and in several instances, whole villages and even cities have been buried in mud.