by the elevation of the volcano, which varies from the inconsiderable height of a hill (as the volcano of Cosima, one of the Japanese Kurile islands) to that of a cone above 19,000 feet in height. It has appeared to me that relations of height have a great influence on the occurrence of eruptions, which are more frequent in low than in elevated volcanoes. I might instance the series presented by the following mountains: Stromboli, 2318 feet; Guacamayo, in the province of Quixos, from which detonations are heard almost daily (I have myself often heard them at Chillo, near Quito, a distance of eighty-eight miles); Vesuvius, 3876 feet; Ætna, 10,871 feet; the Peak of Teneriffe, 12,175 feet; and Cotopaxi, 19,069 feet. If the focus of these volcanoes be at an equal depth below the surface, a greater force must be required where the fused masses have to be raised to an elevation six or eight times greater than that of the lower eminences. While the volcano Stromboli (Strongyle) has been incessantly active since the Homeric ages, and has served as a beacon-light to guide the mariner in the Tyrrhenian Sea, loftier volcanoes have been characterized by long intervals of quiet. Thus we see that a whole century often intervenes between the eruptions of most of the colossi which crown the summits of the Cordilleras of the Andes. Where we meet with exceptions to this law, to which I long since drew attention, they must depend upon the circumstance that the connections between the volcanic foci and the crater of eruption can not be considered as equally permanent in the case of all volcanoes. The channel of communication may be closed for a time in the case of the lower ones, so that they less frequently come to a state of eruption, although they do not, on that account, approach more nearly to their final extinction.

These relations between the absolute height and the frequency of volcanic eruptions, as far as they are externally perceptible, are intimately connected with the consideration of the local conditions under which lava currents are erupted. Eruptions from the crater are very unusual in many mountains, generally occurring from lateral fissures (as was observed in the case of Ætna, in the sixteenth century, by the celebrated historian Bembo, when a youth*), wherever the sides

* Petri Bembi Opuscula (*Ætna Dialogus*), Basil, 1556, p. 63: "Quicquid in Ætnæ matris utero coalescit, nunquam exit ex cratere superiore, quod vel eo inscondere gravis materia non queat, vel, quia inferius alia spiramenta sunt, non fit opus. Despumant flammis urgentibus ignei rivi pigro fluxu totas delambentes plagas, et in lapidem indurescunt."