

June, 1877, began by an explosion that sent up a column of fine ashes to a prodigious height into the air, where it rapidly spread out and formed so dense a canopy as to throw the region below it into total darkness.⁵⁸ So quickly did it diffuse itself, that in an hour and a half, a previously bright morning became at Quito, 33 miles distant, a dim twilight, which in the afternoon passed into such darkness that the hand placed before the eye could not be seen. At Guayaquil, on the coast, 150 miles distant, the shower of ashes continued till the 1st of July. Dr. Wolf collected the ashes daily, and estimated that at that place there fell 315 kilogrammes on every square kilometre during the first thirty hours, and on the 30th of June, 209 kilogrammes in twelve hours.⁵⁹ During a much less important eruption of the same mountain on 3d July, 1880, the amount of volcanic dust ejected, according to Mr. Whympers, could not have been less, and was probably vastly more, than two millions of tons,⁶⁰ equivalent to a mass of lava containing more than 150,000 cubic feet.

The explosion of Krakatoa in August, 1883, was accompanied by the discharge of enormous quantities of volcanic dust, some of which was carried to vast distances. It was estimated that the clouds of fine dust were hurled from that volcano to a height of 17 miles, and the darkness which they caused extended for 150 miles from the focus of eruption. The diffusion and continued suspension of the finer particles

⁵⁸ During the comparatively insignificant eruption of the volcano in 1880 Mr. Whympers noticed that a column of inky blackness, formed doubtless of volcanic dust, went straight up into the air with such velocity that in less than a minute it had risen 20,000 feet above the rim of the crater, or 40,000 feet above the sea. "Travels amongst the Great Andes," p. 322.

⁵⁹ Neues Jahrb. 1878, p. 141. An account of this eruption is given by Mr. Whympers in his "Travels amongst the Great Andes," chap. vi.

⁶⁰ "Travels amongst the Great Andes," p. 328.