another numerous series carries the volcanic band far south toward the Malay Archipelago, which must be regarded as the chief centre of the present volcanic activity of our planet. In Sumatra, Java, and adjoining islands, no fewer than fifty active vents occur. The chain is continued through New Guinea and the groups of islands to New Zealand.[148] Even in the Antarctic regions, Mounts Erebus and Terror are cited as active vents; while in the centre of the Pacific Ocean rise the great lava cones of the Sandwich Islands. In the Indian Ocean, the Red Sea, and off the east coast of Africa a few scattered vents appear.

Besides the existence of extinct volcanoes which have obviously been active in comparatively recent times, the geologist can adduce proofs of the former presence of active volcanoes in many countries where cones, craters, and all the ordinary aspects of volcanic mountains, have long disappeared, but where sheets of lava, beds of tuff, dikes, and necks representing the sites of volcanic vents have been recognized abundantly (Book IV. Part VII.). These manifestations of volcanic action, moreover, have as wide a range in geological time as they have in geographical area. Every great geological period, back into pre-Cambrian time, seems to have had its volcanoes. In Britain, for instance, there were probably active volcanic vents in pre-Cambrian ages. The Archæan gneiss of N. W. Scotland includes a remarkable series of dikes presenting some points of resemblance to the great Tertiary system. The Torridon sandstone of the same region, which is now known to be pre-Cambrian,

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[148] The great eruption of Tarawera, New Zealand, in 1886, is described by Prof. A. P. W. Thomas, "Report on the Eruption of Tarawera," published by the Government in 1888: also Prof. Hutton's "Report on the Tarawera Volcanic District, Wellington, 1887," Quart. Journ. Geol. Soc. xliii. (1887), p. 178.