

and through the chains of islands from the south of Asia to New Zealand and the heart of the Pacific. (5) On a smaller scale the linear arrangement gives place to one in groups, as in Italy, Iceland, and the volcanic islands of the great oceans.

In the European area there are six active volcanoes—Vesuvius, Etna, Stromboli, Volcano, Santorin, and Nisyros. Asia contains twenty-four, Africa ten, North America twenty,¹⁴⁵ Central America twenty-five, and South America thirty-seven.¹⁴⁶ By much the larger number, however, occur on islands in the ocean. In the Arctic Ocean rises the solitary Jan Mayen. On the ridge separating the Arctic and Atlantic basins, the group of Icelandic volcanoes is found. Along the great central ridge of the Atlantic bottom, numerous volcanic vents have risen above the surface of the sea—the Azores, Canary Islands, and the extinct degraded volcanoes of St. Helena, Ascension and Tristan d'Acunha. On the eastern border lie the volcanic vents of the islands off the African coast, and to the west those of the West India Islands. Still more remarkable is the development of volcanic energy in the Pacific area. From the Aleutian Islands southward, a long line of volcanoes, numbering upward of a hundred active vents, extends through Kamtschatka and the Kurile Islands to Japan,¹⁴⁷ whence

¹⁴⁵ For an account of the remarkable extinct volcanoes of Northern California, Oregon and Washington Territory, see A. Hague and J. P. Iddings. *Amer. Journ. Sci.* xxvi. (1883), p. 222. On Volcanoes of Mexico see H. Lenk, "Beiträge zur Geologie und Palæontologie der Republik Mexico," Leipzig, 1890; of Central America, A. Dolfuss and E. de Monserrat, "Voyage Geologique," Paris, folio, 1868; K. von Seebach, *Abh. Kön. Ges. Wiss. Göttingen*, xxxviii. (1892).

¹⁴⁶ For a recent account of the volcanoes of the Andes of the Equator see Whymper's "Travels amongst the Great Andes."

¹⁴⁷ For the volcanoes of Japan, besides papers quoted on p. 364, see W. J. Holland, *Appalachia*, vi. (1890), 109. E. Naumann, *Zeitsch. Deutsch. Geol. Ges.* 1877, p. 364. Mr. Milne enumerates 100 active vents from the Kuriles to Kinshu (2,000 miles).