

ble above the drifting sand. Large dunes occur also on the eastern borders of the Caspian Sea, where the sand spreads over the desert region between that sea and the Sea of Aral, into which latter sheet of water the spread of the sand has driven the course of the Oxus, once a tributary of the Caspian.

In the interior of continents, the existence of vast arid wastes of loose sand, situated far inland and remote from any sheet of fresh water, suggest curious problems in physical geography. In some instances, these tracts have been at a comparatively recent geological period covered by the sea. Yet the disintegration of rock in torrid and rainless regions is so great (ante, p. 559), that the existing sand is doubtless mainly, if not entirely, of subaerial origin. The sandy deserts of the high plateaus of Western North America, which have never been under the sea for a long series of geological ages, show, as we have already found (p. 560), the mode and progress of their formation from atmospheric disintegration alone. In Asia lie the vast deserts of Gobi, where in some places ancient cities have been buried under the sand.³² In Rajputana, wide tracts of sandy desert present a succession of nearly parallel ridges or waves of sand, varying up to 180 feet from trough to crest, and presenting long gentle slopes toward southwest, whence the prevalent winds blow, but with northeastern fronts as steep as the sand will lie.³³ To the east of the Red Sea stretch the great sand-wastes of Arabia; and to the west those of Libya. The sandy wastes of the Sahara have in recent years been partially explored, especially by French observers from the Algerian frontier. According to M. Rolland, the sand is entirely due to the action of the wind, and though there is a transport of sand and fine dust, the position of the large dunes, sometimes 70 metres in height, remains on the whole unchanged.³⁴ In the southeast of Europe, over the steppes of southern Russia and the adjacent territories, wide areas of sandy desert occur. Captain Sturt found vast deserts of sand in the interior of Australia, with long bands of

³² For important information regarding the Central Asiatic wastes, see Richthofen's "China," i. Also Tchihatchef, *Brit. Assoc.* 1882, p. 356. T. D. Forsyth, *Journ. Roy. Geog. Soc.* xlvii. (1878), p. 1.

³³ Major C. Strahan in "Report of Survey of India," 1882-83.

³⁴ G. Rolland, *Bull. Soc. Geol. France*, 3d ser. x. p. 30. See also A. Par-
ran, *op. cit.* xviii. (1890), p. 245.