

ording to the nature of the rock underneath, a soil may vary from a stiff clay, through various clayey and sandy loams, to mere sand. The formation of soil is treated of in Book III. Part II. Section ii. § 1.

Subsoil—the broken-up part of the rocks immediately under the soil. Its character, of course, is determined by that of the rock out of which it is formed by subaerial disintegration. (Book III. Part II. Section ii. § 1.)

Blown Sand—loose sand usually arranged in lines of dunes, fronting a sandy beach or in the arid interior of a continent. It is piled up by the driving action of wind. (Book III. Part II. Section i.) It varies in composition, being sometimes entirely siliceous, as upon shores where siliceous rocks are exposed; sometimes calcareous, where derived from triturated shells, nullipores, or other calcareous organisms. The minute grains from long-continued mutual friction assume remarkably rounded and polished forms. Layers of finer and coarser particles often alternate, as in water-formed sandstone. On many coast-lines in Europe, grasses and other plants bind the surface of the shifting sand. These layers of vegetation are apt to be covered by fresh encroachments of the loose material, and then by their decay to give rise to dark peaty seams in the sand. Calcareous blown sand is compacted into hard stone by the action of rain-water, which alternately dissolves a little of the lime, and re-deposits it on evaporation as a thin crust cementing the grains of sand together. In the Bahamas and Bermudas, extensive masses of calcareous blown sand have been cemented in this way into solid stone, which weathers into picturesque crags and caves like a limestone of older geological date.¹¹¹ At Newquay, Cornwall, blown sand has been by the decay of abundant land-shells solidified into a material capable of being used as a building-stone.

River-sand, Sea-sand.—When the rounded water-worn detritus is finer than that to which the term gravel would be applied, it is called sand, though there is obviously no line to be drawn between the two kinds of deposit, which necessarily graduate into each other. The particles of sand range down to such minute forms as can only be distinctly dis-

¹¹¹ For interesting accounts of the Æolian deposits of the Bahama and Bermudas, see Nelson, Q. J. Geol. Soc. ix. p. 200, Sir Wyville Thomson's "Atlantic," vol. i.; also J. J. Rein, Senckenb. Nat. Gesellsch. Bericht. 1869-70, p. 140, 1872-73, p. 131. On the Red Sands of the Arabian Desert, see J. A. Phillips, Q. J. Geol. Soc. xxxviii. (1882), p. 110, also op. cit. xxxvii. (1881), p. 12.