§ 1. Upheaval.—Various maritime tracts of land have been ascertained to have undergone in recent times, or to be still undergoing, what appears to be a gradual elevation above the sea. On the coast of Siberia, for 600 miles to the east of the river Lena, round the islands of Spitzbergen and Novaja Zemlja, along the shores of the Scandinavian peninsula with the exception of a small area at its southern apex, and along a maritime strip of western South America, it has been proved that the sea stands now at a lower level with regard to the land than it formerly did. In searching for proofs of such movements the student must be on his guard against being deceived by any apparent retreat of the sea, which may be due merely to the deposit of gravel, sand, or mud along the shore, and the consequent gain of land. Local accumulations of gravel, or "storm beaches," are often thrown up by storms, even above the level of ordinary high-tide mark. In estuaries, also, considerable tracts of low ground are gradually raised above the tide-level by the slow deposit of mud. The following proofs of actual rise of the land are chiefly relied on by geologists.<sup>200</sup>

Evidence from dead organisms.—Rocks covered with barnacles or other littoral adherent animals, or pierced by lithodomous shells, afford presumptive proof of the presence of the sea. A single stone with these creatures on its surface would not be satisfactory evidence, for it might have been cast up by a storm; but a line of large bowlders, which had evidently not been moved since the cirripeds and mollusks lived upon them, and still more a solid cliff with these marks of littoral or sub-littoral life

the sea, see H. Trautschold, Bulletin Societe Imp. des Naturalistes de Moscou, xlii. (1869), part i. p. 1; 1883, No. 2, p. 341; Bull. Soc. Geol. France (3), viii. (1879), p. 134; but more especially Suess, in his great work the "Antlitz der Erde."

<sup>&</sup>lt;sup>200</sup> See "Earthquakes and Volcances" (A. G.), Chambers's Miscellany of Tracts.