

by De la Beche¹⁷⁵ to show that the portions of the town which did not disappear during the earthquake of 1692 were built upon solid white limestone, while the parts built on sand were shaken to pieces.¹⁷⁶

It has been observed that an earthquake shock will pass under a limited area without disturbing it, while the region all around has been affected, as if there were some superficial stratum protected from the earth-wave. Humboldt cited a case where miners were driven up from below ground by earthquake shocks not perceptible at the surface, and on the other hand, an instance where they experienced no sensation of an earthquake which shook the surface with considerable violence.¹⁷⁷ Such facts bring impressively before the mind the extent to which the course of the earth-wave must be modified by geological structure. In some instances, the shock extends outward from a common centre, so that a series of concentric circles may be drawn round the focus, each of which will denote a certain approximately uniform intensity of shock ("coseismic lines" of Mallet), this intensity, of course, diminishing with distance from the focus. The Calabrian earthquake of 1857 and that of Central Europe in 1872 may be taken in illustration of this central type. In other cases, however, the earthquake travels chiefly along a certain band or zone (particularly along the flanks of a mountain-chain) without advancing far from it laterally. This type of linear earthquake is exemplified by the frequent shocks which traverse

¹⁷⁵ "Geological Observer," p. 426.

¹⁷⁶ The opposite effect has been observed on the island of Ischia, the houses built on loose subsoil generally having suffered much less than the others. There appears, indeed, to be a considerable conflict of testimony on this subject. See Milne, "Earthquakes," p. 130.

¹⁷⁷ "Cosmos," Art. Earthquakes.