

also liable to alteration from the local influence of winds, and it has been ascertained that in all gulfs and inland seas, the level is always higher than on the ocean. This is especially the case with those which are open only to the east, for they are more exposed to the great oscillation of the water from east to west, to which the ocean is periodically subject. By this movement, the water is carried into these inlets, and the more confined their openings, the higher will be the level. M. Humboldt made some experiments on the Isthmus of Panama, from which he deduces that the level of the Gulf of Mexico is from 20 to 23 feet higher than that of the Pacific. The influence of the tides is well known, and is observed more or less upon all bodies of water connected with the ocean. Winds also have an effect in destroying the level, not only by the formation of waves, but also by driving in one direction a body of water in greater volume than usual. Upon seacoasts this effect is frequently produced; and navigators are aware that in consequence of the easterly trade-winds, urging the waters of the ocean towards the African coast, the level of the Red Sea is always about twenty feet above the level of the ocean. These are the causes which produce an elevation of the level in some places; and there is one agent, evaporation, which sometimes lowers it. The Mediterranean Sea, for instance, is a little below the general level, for the waters it receives from the numerous rivers whose basin it is, are not sufficient to compensate for the loss by evaporation, and a constant supply is consequently furnished through the Straits of Gibraltar.

But although these disturbing causes are in action, there is a general ocean level, and even the variations are so entirely under the control of laws that are perfectly understood, that no change can be effected which is not capable of explanation, and usually of prediction. The necessity of these restraining laws is evident; for so powerful is the influence of a large body of water in motion upon the district over which it moves, that if it were governed by laws less capable of restraining its limits, such scenes of destruction would be constantly presented as would give an insecurity to all the provisions necessary for the sustenance of animal life. It would not be difficult to select instances in which the deranging causes now active have produced most alarming effects. The loss of life and destruction of property in St. Peters-