destruction of the barriers upon the rivers seems in some cases to have been violent, in others gradual. In the former case, it would probably result that a mass of earth and rock, proportionate to the body of water liberated, would be swept down from the shore in the neighborhood of the ruptured dam. This may have been the cause of removal of the large masses of gneiss which have been torn from their bed below the Pisgnouse, as already mentioned and scattered along the shore of the Columbia. These evidently originated in the immediate neighborhood, as they are not worn by transportation, and the strata above them seem to have been disruptured. Under any circumstances, as where a rapid current prevailed, but more particularly where its egress was sudden and violent, if the valley was circuitous the terraces consisting of sand and loose stone would be swept away in great measure, unless protected by the bends of the river in which case they would appear alternately on the different sides of the stream.

Where on the other hand the fall was slower, as from the subsidence of the water by gradual and steady drainage, the terraces would remain perfect on both sides. So too if the subsidence were altogether checked from time to time for a considerable period, or occurred only at irregular intervals, successive steps would be formed of greater or less height according to the amount of water escaped, and of greater or less width, according to

0497