he says, 'a river consisted of a single stream, without branches, running in a straight valley, it might be supposed that some great concussion or some powerful torrent had opened at once the channel by which its waters are conducted to the ocean; but when the usual form of a river is considered, the trunk divided into many branches, which rise at a great distance from one another, and these again subdivided into an infinity of smaller ramifications, it becomes strongly impressed upon the mind that all these channels have been cut by the waters themselves; that they have been slowly dug out by the washing and erosion of the land; and that it is by the repeated touches of the same instrument that this curious assemblage of lines has been engraved so deeply on the surface of the globe.'[1] The independence of each hydrographical basin, the nice adjustment of all its parts, the union of minor in larger basins, and the combination of the whole in one great system of drainage, point not to random outbreaks of underground violence, but to the graduated and orderly operations of the streams themselves.

A familiar analogy to this process of valley-excavation may often be seen on flat, sandy, or muddy shores from which the tide has retired. The water that oozes out from below high-tide mark gathers into tiny runnels; these gain in size and speed as they descend the beach, often coalescing, and then, with their augmented current, cutting for themselves narrow and tortuous channels in the sand. They may be seen undermining their banks, forming miniature gorges, and sweeping along their load of sediment to throw it down on

[1] *Illustrations of the Huttonian Theory*, § 99. This classic ought to be read and re-read by every geological student. As a model of terse, clear, and elegant exposition of the truths of physical geology it still stands unrivalled.