

or shingle at the concave side of each sharp bend of a river-course. While the main upper current is making a more rapid sweep round the opposite bank, undercurrents pass across to the inner side of the curve and drop their freight of loose detritus, which, when laid bare in dry weather, forms the familiar sand-bank or shingle-beach. Again,



Fig. 127.—Section of a River-plain, showing heightening of channel by deposits of sediment (B.).

when a river, well supplied with sediment, leaves mountainous ground where its course has been rapid, and enters a region of level plain, it begins to drop its burden on the channel, which is thereby heightened, till it may actually rise above the level of the surrounding plains (Fig. 127).

This tendency is displayed by the Adige, Reno, and Brenta, which, descending from the Alps well supplied with detritus, debouch on the plains of the Po.<sup>169</sup> The Po itself has been quoted as an instance of a river continuing to heighten its bed, while man in self-defence heightens its embankments, until the surface of the river becomes higher than the plains on either side. It has been shown by Lombardini, however, that the bed of this river has undergone very little change for centuries; that only here and there does the mean height of the water rise above the level of the plains, being generally considerably below it, and that even in a high flood the surface of the river is scarcely ten feet above the pavement in front of the Palace at Ferrara.<sup>170</sup> The Po and its tributaries have been carefully embanked, so that much of the sediment of the rivers, instead of accumulating on the plains of Lombardy, as it naturally would do, is

<sup>169</sup> It is in the north of Italy that the struggle between man and nature has been most persistently waged. See Lombardini in *Ann. des Ponts-et-Chaussees*, 1847. Beardmore's "Tables," p. 172. The bed of the Yangtse-Kiang has been raised in places far above the level of the surrounding country by embanking. E. L. Oxenham, *Journ. Geog. Soc.* xlv., 1875, p. 182.

<sup>170</sup> Between Mantua and Modena the Po is said to have raised its bed more than 5½ metres since the 15th century. Dausse, *Bull. Soc. Geol. France*, iii. (3me ser.) p. 137.