

## CHAPTER V.

THE LOWER COURSE OF THE RIVERS :—DELTAS—SAND-BARS—ESTUARIES—THE “ TIDE RACE ” OF RIVERS—“ BORES,” PROROROCAS, AND DOUBLE TIDES.



THE spoils which the rivers gather from the formations which they traverse are carried down into the plains, where their lower course, or third and final period, commences. This is known by the circumstance that their incline becomes less and less perceptible. The river Senegal, at its embouchure, has a descent of only an inch and a quarter in every thousand yards. Hence it results that the motion of a river grows much slower as it approaches its “resting-place,” the ocean. Its waters accordingly deposit the sand and mud with which they are loaded ; their bed is raised ; and thus are produced those serious obstacles to navigation, variously known as sand-bars, shallows, deltas, and the like.

The deposits formed by important rivers at their embouchures frequently give birth to considerable tracts of land, which increase the superficial area of the continents. The soil of Holland is, in a great measure, the production of the deposits of the Rhine, the Scheldt, and the Meuse. These streams still deposit every day, during the calms which accompany high water, considerable earthy sediments, with the necessary consequence of gradually elevating their shores. By protecting them with solid dikes and embankments against the tides, the inhabitants ensure the preservation of the new lands thus formed,—lands which the Dutch call *polders*, and which are remarkable for their fertility.

The riverine deposits eventually effect a separation and division of the waters to which they owe their origin, and the surface assumes, between the two currents, a triangular form, which, from its resemblance to the Greek letter  $\Delta$ , is called a Delta. The most celebrated is the Delta of the Nile, which is still increasing in area. The entire