

or six thousand years. Put five or six thousand such blocks together; the aggregate would be a mountain range.

There are seasons when the proud river climbs over its bounds—climbs over the artificial restraints which have been imposed in the form of *levées*. Water and mud spread over hundreds of plantations. Then, as in the overflowing torrent of the Aar, the slackened motion of the water allows the fine sediment to subside. Corn lands and cotton lands receive a new contribution of fertilizing material. Such service the Nile performs for Egyptian agriculture—under the rule of the Khedives, as during the reigns of the Pharaohs. Thus the *deltas* of the great rivers are formed. Still the great preponderance of river silt passes on to the outlets. Not only the floating sediment, but a large amount of bottom mud, too thick to float and too loose to lie unmoved. This the stream *pushes* along into the sea—year by year into deeper and deeper water, as the shallower shore region becomes silted up. This is the *bar*. By the annual extension of the bar, the delta gradually protrudes a tongue of land into the sea. Look at a map of the mouth of the Mississippi, or the Nile, or the Ganges. Often the piled up bar-material so obstructs the exit through the main channel, that the water sets back up the stream during some flood, overflows its banks, and seeks a new route to the sea. This may be many times repeated. So these great rivers acquire numerous outlets. Look at the map again. The bar at the mouth of the Mississippi extends three hundred and thirty-eight feet into the Gulf annually.

Much of the Mississippi sediment, therefore, lies somewhat permanently on the Gulf bottom, near the shore. Through this Engineer Eads has staked out a channel, to which the current of the Mississippi is confined after entering the Gulf, until deep water is reached. Its velocity is thus preserved, and its mud is carried beyond into the deeper basin. Before this improvement, the water spread out fan-like, and slackened its velocity to such an extent that the mud was deposited in a region where the water was already so shallow that navigation became seriously obstructed.