

The water of the Rhine transports, according to Mr. Horner's experiments at Bonn, about $\frac{1}{16000}$ th part of its own volume of mud; and the extent of alluvial land, at the mouth of this and other German rivers which enter the North Sea, shows that in some earlier times the conditions of that sea were such as to favour accumulation, and permit of secure embankments. But, for some hundreds of years, a different scene has been presented; both natural and artificial barriers have yielded to the increased pressure of the sea, large tracts of the main land are lost in the waves, while the islands that still fringe the coast, relics of a once continuous tract, have been diminished, and are still undergoing waste. In 1421, the wide surface of the Bies Bosch was overwhelmed; in the thirteenth century the Zuyder Zee was excavated; and since the year 800, Heligoland, with other islands, has been nearly swept away; and, from Belgium to Jutland, the whole coast has more or less changed its form in consequence of the incessant attack of the sea. The history of Nordstrand and other islands belonging to Sleswig, formed of alluvial land, which was deposited, fortified, and afterwards devastated by the sea, as given by De Luc (Geol. Travels, vol. i.), is extremely instructive, and places in a clear light the contrast between what may be termed the ordinary processes, whereby sediment is accumulated, and the extraordinary and wasteful violence of the North Sea when swollen by high tides, and urged by powerful north-westerly winds.

By Capt. Denham's survey of the estuary of the Mersey, it appears that a cubic yard of water of the flood tide holds 29 cubic inches of mud in suspension, and a cubic yard of water of the ebbing tide 33 inches; and the quantity of water moving up and down is such, that with every ebb tide 48,065 cubic yards of sediment pass out of the estuary, and are detained by the banks outside the Rock Narrows, excepting that part which the succeeding ebb tide disturbs. The excess of silt thus accumulated from 730 reflexes of the year's