

shire\* of far greater losses of territory than that which the Lionnesse tale of Cornwall pretends to commemorate. They are all important, as demonstrating that the earliest inhabitants were familiar with the phenomenon of incursions of the sea.

*Loss of land on the coast of France.* — The French coast, particularly that of Brittany, where the tides rise to an extraordinary height, is the constant prey of the waves. In the ninth century many villages and woods are reported to have been carried away, the coast undergoing great change, whereby the hill of St. Michael was detached from the mainland. The parish of Bourgneuf, and several others in that neighbourhood, were overflowed in the year 1500. In 1735, during a great storm, the ruins of Palnel were seen uncovered in the sea.†

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## CHAPTER XXI.

### ACTION OF TIDES AND CURRENTS — *continued.*

Inroads of the sea upon the delta of the Rhine in Holland — Changes in the arms of the Rhine — Proofs of subsidence of land — Estuary of the Bies Bosch, formed in 1421 — Zuyder Zee, in the 13th century — Islands destroyed — Delta of the Ems converted into a bay — Estuary of the Dollart formed — Encroachment of the sea on the coast of Sleswick — On shores of North America — Tidal wave, called the Bore — Influence of tides and currents on the mean level of seas — Action of currents in inland lakes and seas — Baltic — Cimbrian deluge — Straits of Gibraltar — No under-current there — Whether salt is precipitated in the Mediterranean — Waste of shores of Mediterranean.

*Inroads of the sea at the mouths of the Rhine.* — THE line of British coast considered in the preceding chapter offered no example of the conflict of two great antagonist forces; the influx, on the one hand, of a river draining a large continent, and, on the other, the action of the waves, tides, and currents of the ocean. But when we pass over by the Straits of Dover to the Continent, and proceed north-eastwards, we find an admirable illustration of such a contest, where the ocean and the Rhine are opposed to each other, each disputing the ground now occupied by Holland; the one striving to shape out an estuary, the other to form a delta. There was evidently a period when the river obtained the ascendancy, when the shape and perhaps the relative level of the coast and set of the tides were very different; but for the last two thousand years, during which man has witnessed and actively participated in the struggle, the result has been in favour of the ocean; the area of the whole territory having become more and more circumscribed; natural and artificial barriers having given way, one after another; and many hundred thousand human beings having perished in the waves.

\* Meyrick's Cardigan.

† Von Hoff, Geschichte, &c. vol. i. p. 49.