

an increase, so that at Cromer, where the coast again retires towards the west, the rise is sixteen feet; and towards the extremity of the gulf called "the Wash," as at Lynn and in Boston Deep, it is from twenty-two to twenty-four feet, and in some extraordinary cases twenty-six feet. From thence again there is a decrease towards the north, the elevation at the Spurn Point being from nineteen to twenty feet, and at Flamborough Head and the Yorkshire coast from fourteen to sixteen feet.*

At Milford Haven in Pembrokeshire, at the mouth of the Bristol Channel, the tides rise thirty-six feet; and at King-Road near Bristol, forty-two feet. At Chepstow on the Wye, a small river which opens into the estuary of the Severn, they reach fifty feet, and sometimes sixty-nine, and even seventy-two feet.† A current which sets in on the French coast, to the west of Cape La Hague, becomes pent up by Guernsey, Jersey, and other islands, till the rise of the tide is from twenty to forty-five feet, which last height it attains at Jersey, and at St. Malo, a seaport of Brittany. The tides in the Basin of Mines, at the head of the Bay of Fundy in Nova Scotia, rise to the height of seventy feet.

There are, however, some coasts where the tides seem to offer an exception to the rule above mentioned; for while there is scarcely any rise in the estuary of the Plata in S. America, there is an extremely high tide on the open coast of Patagonia, farther to the south. Yet even in this region the tides reach their greatest elevation (about fifty feet) in the Straits of Magellan, and so far at least they conform to the general rule.

Currents. — The most extensive and best determined system of currents, is that which has its source in the Indian Ocean under the influence of the trade winds; and which, after doubling the Cape of Good Hope, inclines to the northward, along the western coast of Africa, then crosses the Atlantic, near the equator, where it is called the equatorial current, and is lost in the Caribbean Sea, yet seems to be again revived in the current which issues from the Gulf of Mexico. From thence it flows rapidly through the Straits of Bahama, taking the name of the Gulf Stream, and passing in a north-easterly direction, by the Banks of Newfoundland, towards the Azores.

We learn from the posthumous work of Rennell on this subject, that the Lagullas current, so called from the cape and bank of that name, is formed by the junction of two streams, flowing from the Indian Ocean; the one from the channel of Mozambique, down the south-east coast of Africa; the other, from the ocean at large. The collective stream is from ninety to one hundred miles in breadth, and runs at the rate of from two and a half, to more than four miles per hour. It is at length turned westward by the Lagullas bank, which rises from a sea of great depth to within one hundred fathoms of the surface. It must therefore be inferred, says Rennell, that the current here is more than one hundred fathoms deep, otherwise the main

* The heights of these tides were given
me by the late Captain Hewett, R. N.

† On the authority of Admiral Sir F.
Beaufort, R. N.