

Charlestown, in South Carolina, the sea carried away a quarter of a mile of land in three years, ending in 1786.*

Tidal wave called "the Bore."—Before concluding my remarks on the action of the tides, I must not omit to mention the wave called "the Bore," which is sometimes produced in a river where a large body of water is made to rise suddenly, in consequence of the contraction of the channel. This wave terminates abruptly on the inland side; because the quantity of water contained in it is so great, and its motion so rapid, that time is not allowed for the surface of the river to be immediately raised by means of transmitted pressure. A tide wave thus rendered abrupt has a close analogy, observes Mr. Whewell, to the waves which curl over and break on a shelving shore.†

The Bore which enters the Severn, where the phenomenon is of almost daily occurrence, is sometimes nine feet high, and at spring-tides rushes up the estuary with extraordinary rapidity. The finest example which I have seen of this wave was in Nova Scotia‡, where the tide is said to rise in some places seventy feet perpendicular, and to be the highest in the world. In the large estuary of the Shubenacadie, which connects with another estuary called the Basin of Mines, itself an embranchment of the Bay of Fundy, a vast body of water comes rushing up, with a roaring noise, into a long narrow channel, and while it is ascending, has all the appearance of pouring down a slope as steep as that of the celebrated rapids of the St. Lawrence. In picturesque effect, however, it bears no comparison, for instead of the transparent green water, and snow-white foam of the St. Lawrence, the whole current of the Shubenacadie is turbid and densely charged with red mud. The same phenomenon is frequently witnessed in the principal branches of the Ganges, and in the Megna. "In the Hoogly, or Calcutta river," says Rennell, "the Bore commences at Hoogly Point, the place where the river first contracts itself, and is perceptible above Hoogly Town; and so quick is its motion, that it hardly employs four hours in travelling from one to the other, though the distance is nearly seventy miles. At Calcutta it sometimes occasions an instantaneous rise of five feet; and both here, and in every other part of its track, the boats, on its approach, immediately quit the shore, and make for safety to the middle of the river. In the channels, between the islands in the mouth of the Megna, the height of the Bore is said to exceed twelve feet; and is so terrific in its appearance, and dangerous in its consequences, that no boat will venture to pass at spring-tide."§ These waves may sometimes cause inundations, undermine cliffs, and still more frequently sweep away trees and land animals from low shores, so that they may be carried down, and ultimately imbedded in fluvial or submarine deposits.

* Von Hoff, vol. i. p. 96.

† Phil. Trans. 1833, p. 204.

‡ See Lyell's Travels in N. Ame-

rica, in 1842, vol. ii. p. 166. London, 1845.

§ Rennell, Phil. Trans. 1781.