

On such rocky coasts, the line of high-water is sometimes admirably defined by the gray crust of barnacles adhering to the rocks. Where the beach is flat, and the rise and fall of the tide great, many square miles of sand or mud may be laid bare in one bay at low-water.

The height of the tide varies from zero up to 60 or 70 feet. It is greatest where, from the form of the land, the tidal wave is cooped up within a narrow inlet or estuary. Under such circumstances the advancing tide sometimes gathers itself into one or more large waves, and rushes furiously up between the converging shores. This is the

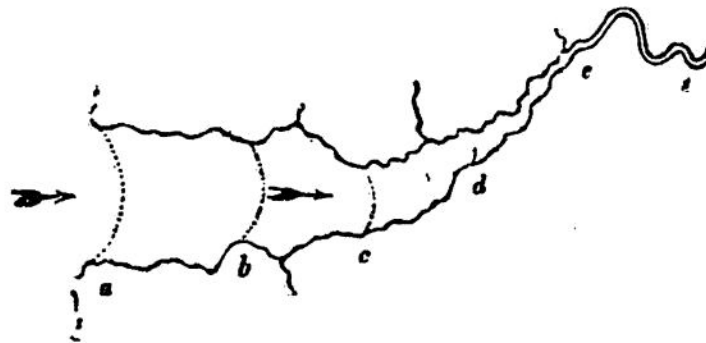


Fig. 162.—Effect of converging shores upon the Tidal Wave.

The tidal wave, running up in the direction of the arrows, rises successively higher at *a*, *b*, and *c* to *d*, after which it slackens and dies away at the upper limit of tides, *f*.

origin of the "bore" of the Severn, which rises to a height of 9 feet, while the rise and fall of the tide at Chepstow amounts to a maximum of 50 feet. In like manner, the tides which enter the Bay of Fundy, between Nova Scotia and New Brunswick, are more and more cooped up and rise higher as they ascend that strait, till they reach a height of 70 feet. The bore on the Tsien-Tang Kiang, 70 miles from Shanghai, rushes up the estuary as a huge breaker 20 feet or more in height, with a loud roar and a speed of sometimes eight knots an hour.<sup>260</sup>

While the tidal swelling is increased in height by the

<sup>260</sup> Report to the Admiralty by Commander Moore, R.N., 1888.