days afterwards. The highest tide is as to the lowest in the proportion of 138 to 62, or of 7 to 3. The highest tides occur at the equinoxes, when the moon is in *perigee;* the lowest at the solstices, when she is in *apogee.* And the higher the sea rises when she is full, the lower it sinks when she becomes low. In our sea-ports the sea accordingly advances, or flows inland, twice daily; it is then said to be high water, and the phenomenon is called the *flood* or *flux:* it recoils twice, and subsides to low water; this is the *ebb* or *reflux.*

The tide is later by the clock about fifty minutes every day, because the lunar day is on the average twenty-four hours fifty minutes long. If, for example, it is high water at 2 o'clock this morning, to-morrow the tide will be up at 2.50. The low intermediary sea does not hold the mid-place between these two high waters. It is known that the tide rises much more quickly than it falls. At Havre and at Boulogne it occupies more than two hours and eight minutes in subsiding; at Brest, the difference is only sixteen minutes.

The retardation of high water on the passage of the moon to the meridian (at the epochs of the equinoxes) is always the same for any one locality, and ought to be determined by direct observation. This is called "the establishment" or "settlement" of the port; and is a fixed standard by which we may calculate the hour of high water for every day in the year.

The height of the tides varies in different regions of the globe, according to local circumstances. The eastern coasts of Asia and the western of Europe are exposed to extremely high and furious tides, while in the islands of the South Sea, where they are very regular, they do not rise more than 20 inches. On the west coast of South America the tides rarely attain 10 feet; on the west coast of Hindustan, they rise 18 to 22 feet; and in the Gulf of Cambaye upwards of 32 feet. This great difference is also felt in countries situated close to one another. Thus: a tide which, at Cherbourg, attains 19 to 22 feet, mounts, in the harbour of St. Malo, to 42½ feet. [According to Professor Airy, the rise at the entrance of the Bristol Channel, when spring-tides occur, is about 18 feet; at Swansea it is 30 feet; and at Chepstow, 50 feet. It may be taken, as a general rule, that the tide rises much higher *up* a gulf or tidal river than at its mouth; the *reason why* is obvious.*]

The highest known tide is said to take place in the Bay of Fundy, which opens to the south of the isthmus connecting Nova Scotia and New Brunswick; here the

* [See Professor Airy, "On Tides and Waves," *Encyclop. Metropol.*]