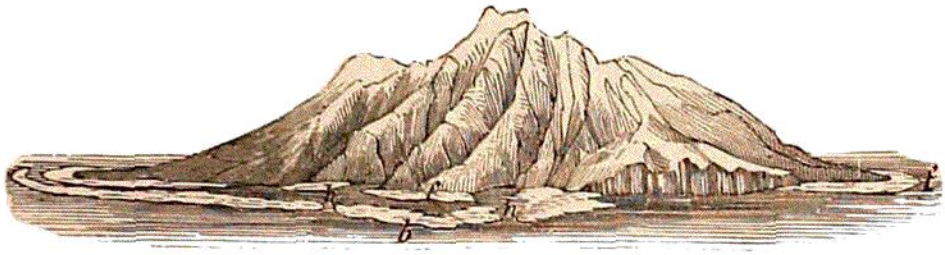
tends by its escape to keep one or more passages open, which, when sufficiently deep, make entrances for shipping.

2. *Coral Reefs.*

The coral reefs around other lands or islands rest on the bottom along the shores. They are either *fringing* or *barrier* reefs, according to their position. *Fringing* reefs are attached directly to the shore, while *barrier* reefs, like artificial moles, are separated from the shore by a channel of water. The island represented in Fig. 147 has a fringing reef (*f*), and a barrier reef (*b*) with an intervening channel. To the right of the middle the reef is wanting, because of the depth of water; and, farther to the right, there is only a fringing reef. Fig. 149 is a map of an island with a fringing reef; and Figs. 150–152, others, with barrier reefs. At two points through the barrier reef, in Fig. 147, there are openings to harbors (*h*). The channels from harbor to harbor around an island are sometimes deep enough

147.



View of a high island with barrier and fringing reefs.

for ship navigation, and occasionally, as off eastern Australia, fifty or sixty miles wide; but they are generally too shallow for boats. The barrier sometimes becomes wooded for long distances, like the reef of an atoll; but commonly the wooded portion, if any exists, is confined to a few islets. Barrier and fringing reefs are formed like atoll reefs; and special explanations are needless.

The reefs adjoining lands have sometimes great width. On the north side of the Fijis, the reef-grounds are five to fifteen miles in width. In New Caledonia, they extend 150 miles north of the island, and 50 south, making a total length of 400 miles. Along northeastern Australia, they stretch on, although with many interruptions, for 1000 miles, and often at a distance, as just stated, of 50 or 60 miles from the coast, with a depth of 300 or 360 feet between. But the reefs, as they appear at the surface, even over the widest reef-grounds, are in patches, seldom over a mile or two broad. The patches of a single reef-ground are, however, connected below by coral rock, which is struck, in sounding, at a depth usually of 10 to 40 or 50 feet.

The transition in the inner channels, from a bottom of coral detritus to one of common mud or earth derived from the hills of the encircled island, is often very abrupt. Streams from the land bring in this mud, and distribute it according to their courses through the channels.