

The late Dr. Whewell laid down on some ably-constructed charts the onward movement of the great tidal wave through the seas of the globe. It is there shown that the colossal billow traverses the Atlantic from the 50th parallel of north latitude to the 50th parallel of south latitude in twelve hours, and at the rate of upwards of 56 miles an hour. The rate of advance, however, is less in the shallower parts of ocean ; as, for example, in the vicinity of St. Helena. In the North Sea its velocity does not exceed 20 miles.

The tidal wave, after wheeling round the northern coast of Scotland, and

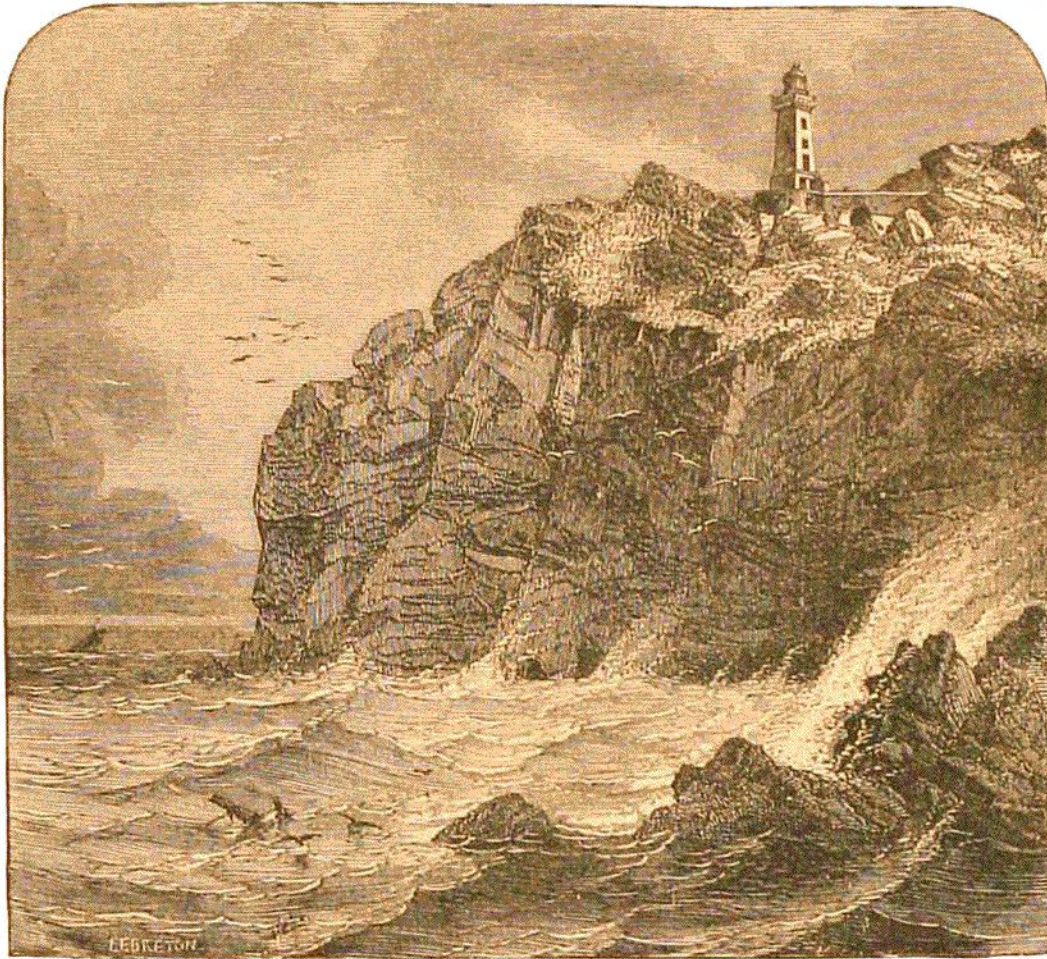


FIG. 219.—EFFECT OF THE BREAKERS ON THE PROMONTORY OF THE RAZ, ON THE COAST OF FINISTERRE

occupying 3 hours and 38 minutes in flowing from Lerwick harbour to Dundee, traverses the German Ocean, washes the English coast, and between England and Ireland, in St. George's Channel, encounters the wave of the following tide; the collision of these two adverse currents produces some remarkable and complicated phenomena; there is even a point where the tidal movement is completely annihilated.

Upon the height of the tides a marked influence is exercised by the winds. When they add to the impulse given by the attracting star, they considerably augment the normal elevation of high water; if they blow in a contrary direction, they will entirely neutralize the flow. This occurs in the Gulf of Vera Cruz, where, at times, a tide occurs only once in three days, if the wind rises to a gale. An analogous phenomenon occurs on the coast of Tasmania.