

a third of the whole of the coast-lines of the continents is fringed with such alluvial bars.¹⁷⁸

On a coast-line such as that of Western Europe, subject both to powerful tidal action and to strong gales of wind, many interesting illustrations may be studied of the struggle between the rivers and the sea, as to the disposal of the sediment borne from the land. De la Beche described an example from the coast of South Wales where two streams, the Towy and Nedd (*a* and *b*, Fig. 136), enter Swansea Bay, bearing with them a considerable amount of sandy and

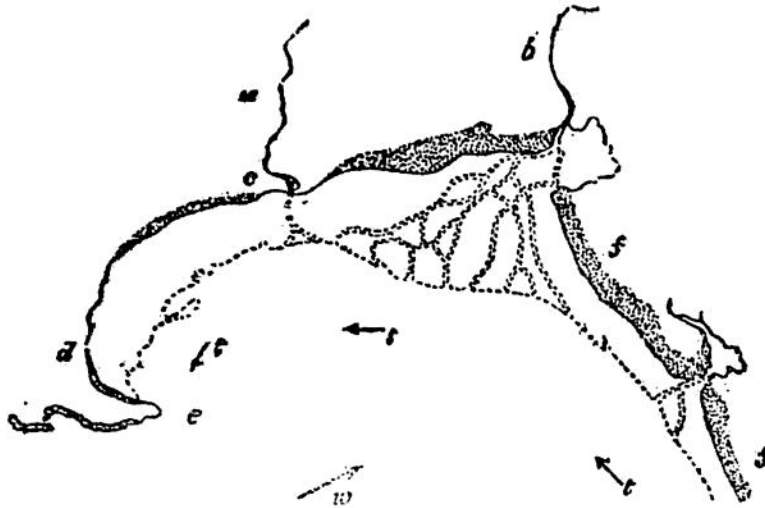


Fig. 136.—Action of rivers, tides, and winds in Swansea Bay (B.).

muddy sediment. The fine mud is carried by the ebb-tide (*t t t*) into the sheltered bay between Swansea (*c*) and the Mumble Rocks (*e*) but is partly swept round this headland into the Bristol Channel. The coarser sandy sediment, more rapidly thrown down, is stirred up and driven shoreward by the breakers caused by the prevalent west and southwest winds (*w*). The sandy flats thereby formed are partly uncovered at low water, and being then dried by the wind, supply it with the sand which it blows inland to form the lines of sand-dunes (*f f*).¹⁷⁹

(*f*) Deltas in the Sea.—The tendency of sediment to accumulate in a tongue of flat land when a river loses itself in a lake, is exhibited on a vaster scale where the great rivers of the continents enter the sea. It was to one of these mari-

¹⁷⁸ "Leçons de Géologie pratique," i. p. 249. In this volume some interesting examples of this kind of deposit are described.

¹⁷⁹ "Geological Observer," p. 88.