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Tide Theory not altogether satisfactory—Properties of Water—Wind Waves—Height of Waves depends upon “Fetch”—Occasional groups of waves larger than usual—Storm Waves—Earthquake Waves, and Tidal Waves—Curious effect of Earthquake Waves—Tidal Waves—Tides caused by joint attraction of Sun and Moon—Diagrams—Duration of a Tide—Superior and Inferior Tides—“Full and Change”—Spring Tides—Equinoctial Springs—Information about the Moon—Irradiation—Datum Line for Soundings used on Admiralty Charts—Neap Tides—Diagram—Priming and Lagging—Half-tide, or Mean Sea Level—Tidal Diagram—Cosmical Attraction or Gravitation—How the Tides are formed by Attraction—Diagram—Sun’s influence on the Tides—Sun’s Mean Distance—Moon’s Mean Distance—Planetary Orbits—Velocity of Tidal Wave—Retard or age of the Tide—Tidal Wave and Tidal Current—Propagation of Light, Heat, and Sound—Waves of Translation—Effect of Shoaling on Waves—Surf and Breakers—Rule as to Height of Breakers—Piers and Breakwaters, how constructed in the present day—Properties of unbroken Waves—Effect of Oil in preventing the sea breaking—Bores—Tides in open ocean and inland seas—Lake Michigan—Tide Current—Ocean Currents—Co-tidal Map of the British Islands—Effect produced on river tides by engineering operations—Offing and inshore Tides—Tide and Half-tide—Carrying the flood up Channel—Rise and Fall, as distinguished from Flow and Ebb—Peculiarities of tides in narrow inlets—Tides in Straits of Magellan—Diagram—Popular idea as to Night tides being always higher than Day ones—Diurnal Inequality—Diagram—Enumeration of circumstances affecting both time and height of Tides—Interferences—Tidal Peculiarity at Southampton—Havre—Dover the Standard Port of Reference for Tides in English Channel—Direction taken by Tidal Wave round Great Britain and Ireland—Head of Tide in Irish Channel—Head of Tide in English Channel—Liverpool the Standard Port of Reference for Tides in Irish Channel—Nodal Points for Irish Channel Tides—Nodal Points for English Channel Tides—Comparison of English, Irish, and Bristol Channel Tides—How the tide may be carried for twelve hours in one direction—Admiralty Tide List—Nautical Almanac Tide List—Tide Hour—Establishment of the Port—Vulgar Establishment of the Port—Correct Establishment of the Port—Semi-mensual inequality of Times—Semi-mensual inequality of Heights—Table shewing Tidal Rise and Fall at intervals of twenty minutes—How to estimate Tidal Rise for the day—Table shewing the depth of water over the Plane of Reference at any given time of tide—Example—Example when the Plane of Reference is below the level of Low Water Ordinary Springs—Tidal Diagram explaining the construction of the Table—Rule to construct the Diagram—Influence of Tides in retarding the Rotatory Motion of the Earth—Newton’s First Law of Motion—Moon turns but once on its axis whilst making a single revolution round the Earth—Deduction as to age of the Earth Page 317—350.