

TIDAL LANDS

CHAPTER I

Tidal and Current Data

Tidal phenomena may be expressed as the resultant of the forces of mutual attraction between the earth and its attendant heavenly bodies. This attraction is directly proportional to their respective masses and inversely as the square of their respective distances. For practical purposes the movements of the sun and moon are the arbiters of tidal effect. The pull of the moon on the earth is rather more than double that of the sun, by reason of its comparative proximity.

Springs and Neaps.—The speed of revolution of the earth about its axis is such that the moon during each twenty-four hours occupies a period of about fifty minutes longer in reaching the same meridian. Setting aside minor perturbations of lunar movement, the result of this inequality of travel is that the times of high and low water lag some fifty minutes each day. This action results in what is described as the “priming” of the tide. The difference in height of the diurnal tides is due to the greater or less degree in which the attractions of the sun and moon are in opposition. When the moon is in its first and last quarters, or in quadrature, that is, when the positions of the sun and moon form a right angle with the earth-axis, the maximum retardation of tidal force results. This is the condition of *neap tides*. When the moon is at full and new the pull of sun and moon are in one and the resultant tidal lift is at its maximum. This is the condition of *spring tides*. Lunar full and change