vation, if the time of high water had been accurately ob­served at a sufficient number of ports throughout the world ; and, on the other hand, if the earth were covered in all parts with a fluid of great and nearly uniform depth, the tides of this fluid would be so regular, that a very few ob­servations would be sufficient to enable us to deduce the whole of the phenomena from theory, and to trace the great waves, which would follow the sun and moon round the globe, so as to make its circuit in a day, without any mate­rial deviation from uniformity of motion and succession. Having collected, for the actual state of the sea and conti­nents, an abundant store of accurate observations of the precise time of high water with regard to the sun and moon, for every part of the surface, and having arranged them in a table according to the order of their occurrence, as ex­pressed in the time of any one meridian, we might then suppose lines to be drawn on a terrestrial globe, through all the places of observation, in the same order ; and these lines would indicate, supposing the places to be sufficiently nume­rous, so as to furnish a series of tides very nearly contempo­rary, the directions of the great waves, to which that of the progress of the tides in succession must be perpendicular. If, however, we actually make such an attempt, we shall soon find how utterly inadequate the observations that have been recorded are, for the purpose of tracing the forms of the lines of contemporary high water with accuracy or with certainty, although they are abundantly sufficient to show the impossibility of deducing the time of high water at any given place from the Newtonian hypothesis, or even from that of Laplace, without some direct observation. It might at least be supposed very easy to enumerate the existing observations, scanty as they may be, in a correct order ; but there is a number of instances in which it is wholly uncer­tain whether the time observed at a given port relates to the tide of the same morning in the open ocean, or to that of the preceding evening. This inconvenience may, how­ever, in some measure be remedied, by inserting such places in two different parts of the table, at the distance of twelve and a half hours from each other. The following table is the result of an approximation obtained in this man­ner, the principal hour-lines having been partially traced on a map of the world, in order to afford some little direction to the correct insertion of the times of high water without the material error of half a day.

*Time of High Water at the Full and change of the Moon, reduced to the Meridian of Greenwich.*

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Longitude.** | **H. W. Gr. T.** |  | **Longitude.** | **H. W. Gr. T.** |  | **Longitude.** | **H. W. Gr. T** |
| **S. Georgia** | **H. Μ.**  **2.26 W.** | **B. Μ.**  **1.24** | **Brest** | **H. Μ.**  **0.18** | **H. Μ.**  **15.36** | **Sυcotora and C.** | **Η. Μ.**  **20.30 W.** | **Η. Μ.**  **21.30** |
| **Cape of Good Hope...**  **St Helena** | **1.14 E.** | **1.20** | **Bavonne** | **0. 6** | **16. 6** | **Guardafui.....** |
| **0.23W.** | **5.13** | **C. St Vincent** | **0.36** | **1«. 6** | **Ulietea** | **10. 6** | **21.39** |
| **Cape Corse** | **0. 7** | **3 35** | **Corunna** | **0.37**  **0.12W.** | **16. 7** | **Huaheine** | **10. 4** | **21.55** |
| **Rio Janeiro** | **2.53** | **4.58** | **Belleisle** | **16.12** | **Shoreham** | **0. 1** | **22. 1** |
| **1. Martin Vaz** | **1.56** | **0.41** | **Palmiras Pt** | **18.12** | **16.12** | **Foul Pt. Mad** | **20.41** | **22. 1** |
| **I. Ascension** | **0.57**  **4.46** | **6.27** | **Port Cornwallis** | **17.49**  **0. 5** | **16.19** | **Botany Bay** | **13.55** | **21. 55** |
| **Christmas Sound** | **7.10**  **13.34** | **Rochelle** | **16.20** | **St Valery en Caux....**  **Macao** | **0. 3 E.** | **22.12** |
| **St Jago** | **1 34** | **Vannes** | **0.11**  **0.16** | **16.24** | **16.26 W.** | **22.16** |
| **Port Désiré** | **4.20** | **8.35** | **St Paul de Leon**  **Morlaix**  **Roch fort** | **16.38 or** | **St Valerv sur Somme** | **0. 6 E.** | **22.24** |
| **St Helena, S. A** | **4.40** | **8.40** | **18. 0** | **Dunnose** | **0. 5W.** | **22.20** |
| **Quibo** | **5.29** | **8.59** | **0. 4** | **16.49** | **Brighton** | **0. 1** | **22.31** |
| **Sierra Leone** | **0.53** | **9. 8** | **Bear Island** | **5.20** | **17 20**  **17.24**  **17∙30**  **16.48** | **Dublin** | **0.25 W.** | **23.35** |
| **Raster I** | **7∙19**  **4.35** | **9.19** | **Christmas Island.......** | **19.24** | **Abbeville** | **0. 7 E.**  **0. 1 E.** | **22.57**  **22.59** |
| **St Julian’s** | **9.20** | **Chiloe** | **5. 0** | **Beachy Head** |
| **Marngnon Mouth**  **St John’s, Newf.** | **3.20** | **9.20** | **Cape Clear** | **0.38** | **Cowes** | **0. 6W.** | **23. 5** |
| **3.30** | **9.20** | **Annamocka** | **11.39** | **17.39**  **18. 1** | **Needles** | **0. 6 W.** | **23. 6** |
| **Guadaloupe** | **4. 7** | **10. 7** | **St Peter and Paul Awatsha** | **Anholt** | **0.47 E.**  **0. 6** | **23.13** |
| **Panama** | **5.21** | **7.47**  **10.51** | **13.25** | **Boulogne** | **22.33** |
| **Tortugas** | **4.01** | **Kinsale** | **0.34** | **17.3**  **18.18** | **Hastings** | **0. 3** | **22.21** |
| **Cape Blanco** | **8.16** | **10.54** | **Eddistone** | **0.18** | **Deal Castle** | **0. 6** | **22.36** |
| **Bermudas** | **4.14** | **11.14** | **Falmouth** | **0.20** | **1820** | **Dover** | **0. 5** | **22.40** |
| **Martinique** | **4∙ 5** | **11.35** | **Rotterdam I** | **12.21** | **18.21** | **Dungeness** | **0. 4** | **22.26** |
| **Guayaquil** | **5.17** | **11.17**  **11.36** | **Drake’s I. Plymouth**  **Plymouth**  **Avranches.** | **0.17**  **0.17**  **0. 5** | **17.32**  **17.47**  **18.39** | **Dieppe** | **0. 4** | **22.46** |
| **Senegal** | **1. 6** | **Almirantes**  **Eagle I**  **Curreuse...** | **21.28 W.** | **23.48** |
| **Callao** | **5. 8** | **10.55** | **21.17**  **0. 4W.** | **25.27**  **23.36** |
| **Halifax** | **4.14** | **11.44** | **Eaoowe** | **11.38** | **18.38** | **Portsmouth.** |
| **Marquesas** | **9.16 to** | **11.46 to** | **St Maloes** | **0. 8** | **18.3850 ft** | **Ostend** | **0.12 E.** | **24. 8** |
| **9.17** | **12.16** | **Londonderry** | **0.29** | **18.59** | **Nieuport** | **0 11** | **23.44** |
| **Quebec** | **4.44** | **12.14** | **Tonga Taboo....,** | **12.20** | **19.10** | **Gravelines** | **0. 8 E.** | **24.22** |
| **Cape La Hogue**  **Gibraltar** | **0. 8** | **12.38** | **Granville** | **0. *6*** | **17.48**  **19.31** | **Alderney** | **0. 9W.** | **21. 0** |
| **0.20** | **12.00** | **Pudyona** | **13. 1** | **Bergen** | **0.21 E.** | **22. 3** |
| **Tahoga, Pan. Bay**  **Funchal** | **5.22** | **13.10** | **St Francisco** | **8. 8** | **19∙33** | **False Bay Bay** | **22.45 W.** | **25.16** |
| **1. 8** | **13.42** | **Cork** | **0.34** | **17.10**  **19.10** | **Drontheim** | **0.41 E** | **25.34** |
| **Portobello** | **5.19** | **13.19** | **Bristol** | **0.10** | **Rouen** | **0. 4 W.** | **25.41** |
| **Cape Bojador** | **0.58** | **13.28** | **Barfleur** | **0. 5** | **20.55** | **Aberdeen** | **0. 9** | **25.34** |
| **Churchill R.** | **Cherbourg** | **0. 6** | **19.24** | **North Cape** | **1.43 E.** | **26. 1** |
| **P. of Wales Fort...** | **6.17** | **13.37** | **Venus Pt. Olah** | **9.58** | **22. 0** | **Leith and Edinburgh Amsterdam** | **0.13 W.** | **26.33** |
| **Terceira** | **1.49** | **16.10** | **Mauritius** | **20.10** | **21.12** | **0 19 E** | **27.11**  **27 12** |
| **New York** | **4.57**  **5. 1**  **0.25**  **10.24** | **13.33** | **Lizard.** | **0.21** | **20.45** | **Rotterdam** | **0.18** |
| **Cape Henlυpen, Virg.**  **Cadiz** | **14. 1**  **14. 5** | **Nootka Sound** | **8.27**  **0. 9** | **20.47**  **20.54** | **London Bridge** | **0. 0** | **27.15**  **27.24**  **27.32**  **29.20** |
| **Guernsey** | **Archangel** | **2.36 E.** |
| **Karakakooa Bav** | **14. 9** | **Pulo Condore** | **18.53** | **21. 9** | **Bordeaux** | **0.2 W.** |
| **Virgin Cape, Pat**  **Valparaiso** | **4.32** | **14.32** | **Calcutta** | **16. 6** | **21.11** | **Hamburg** | **0.40 E.** |
| **4.49** | **14.21** | **Seychelles Alm** | **20.18** | **21.12** | **Bremen** | **0.35 E.** | **29.25** |
| **Cape Charles** | **4.57**  **1.10** | **14.57**  **15.10** | **Strom ness** | **0.14** | **21.20** | **Antwerp** | **0.18 E.** | **23.46** |
| **Goree Island** | **N. Zealand**  **Ronfleur** | **12.13** | **21.23** | **Scolt Head** | **Ο. 3** | **30.17**  **30.43** |
| **York Fort** | **6. 9** | **15.19** | **12.55** | **23 54** | **Lvnn** | **0. 2** |
| **Lisbon** | **0.37**  **0. 6** | **15.22** | **0. 1 E** | **21.29** | **Hague** | **0.17**  **0. 7** | **31.58** |
| **Nantes, Rhè** | **15.26** | **Havre** | **0. 0** | **21.30** | **Leos tone** | **34.23** |
| **Tanna** | **11.19** | **15.41** | **Caen** | **0. 1** | **21.31** | **London Bridge** | **0. 0** | **(39.45)** |
|  |  |  |  |  |