

In using this table, the new moon is taken as the central point of the month, and the tide falling nearest to it in time is marked 0. The tides are then numbered successively from this in each direction; and the full moon will always fall between two numbers as indicated, since the number of tide-intervals in the synodic month is odd. In the same way, the moon's perigee is taken as the central point of the anomalistic month, and the numbering is carried both ways from it. For greater convenience in calculating a combined table was prepared from these two; by making the perigee fall successively upon each lunar day throughout the synodic month. In this way, a series of twenty-five 'types of month' were obtained, which covers all cases possible, with sufficient accuracy for practical purposes. These types are designated by the letters of the alphabet for reference. It is this combined table which is used in the Survey office for the calculation of the tides at Father Point from the Quebec tide tables; but it is not necessary to publish this here.

It is to be noted however, that a closer degree of accuracy has now been secured for the whole series of St. Lawrence tides; as the basis from which the Quebec tide tables themselves are calculated, has now been extended to four years of tidal observations. These observations afford 35,064 individual heights of the tide hour by hour; the whole of these being reduced to one uniform datum throughout, and corrected for all errors in time which occurred, from variation in the driving clock of the recording instrument.

The current in the Traverse.—A very good series of observations of the turn of the current in the Upper and Lower Traverse, were obtained in the season of 1900. This may be considered as the crucial point on the Lower St. Lawrence; as the currents there attain their greatest strength. Care was taken to secure correct time for the observations, by the use of a chronometer at the Pier in the Upper Traverse, and a time signal thence to the light-ship in the Lower Traverse, in the manner described in last Report. There is no slack water at the turn of the current; but it veers completely round in turning. The time of the turn of the current was therefore taken as the moment at which the current in veering runs directly across its direction at flood or ebb, in the general line of the channel. The observations extended from May 16 to September 15. They were taken during daylight only, in the Upper Traverse; but in the Lower Traverse the swing of the light-ship enabled both the day and night tides to be noted. The swing of the buoys at the opposite side of the channel was also observed; and from the double observations, the true time of the turn of the current in mid-channel was deduced.

On the Admiralty chart of the Traverse, the turn of the current is referred to the time of the tide at Orignaux Point; which was itself unknown however, until the present observations were taken by this Survey. Accordingly, a comparison was first made with Orignaux Point; but the observations there were of shorter duration than elsewhere, as they only extended from June 23 to September 11. Further, the time of the tide at Orignaux Point itself is referred to Father Point; and it was found that the difference in the time of the tide between these two places, was unusually free from variation, on account of the continuous deep channel which runs from the one to the other. The time of the turn of the current in the Traverse was therefore referred directly to the tide at Father Point; for which tide tables are now available. A similar comparison was also made with Quebec in the other direction; but the reference to Father Point was found much the better of the two. The Lower Traverse was selected for the comparison, because both day and night observations were obtained there. The great constancy in the monthly averages of the difference in time, appears from the following summary.

*See map of Lower St. Lawrence, Plate I.

Lower Tr

Ebb Stream in L

June 1 to 30.
July 1 to 31.
Aug. 1 to 31.
Sept. 1 to 15.

Flood Stream in

June 1 to 30.
July 1 to 31.
Aug. 1 to 31.
Sept. 1 to 15.

The method of observations of the reduction. These have the light-ship; and the turn of the current is navigation from April to the tidal record at result was obtained from 684 observations.

3h. 13m. after High
From 679 observations begins 3h. 55m. after

When the difference allowed for, these of the way they were it is to be noted that the method of time accord with the above

Upper and

At High Water
verse 22 minutes late
At Low Water
verse 10 minutes late

The current at the point at which the St. Lawrence crosses above L'Islet. The noting the time of the tide at the centre of the pier, as nearly as allowance, the turn of the tide at Quebec, as of

From the average 57 minutes before High
From the average Low Water at Quebec