

velocity corresponding to the tide. This continuous current might be in either direction according to the direction of the wind.

In this strait also, where the range of the tide is only about four feet, and the current seldom exceeds two knots per hour, the effect of the wind upon the current is all the more marked in proportion. It must not be too hastily assumed however that the wind alone is the cause of the movement of the water in the same direction, as it appears probable that the tendency of the current to flow in the same direction as the wind, is due to the combined influence of the wind itself, and to difference in barometric pressure over wide areas.

CURRENTS IN THE STRAIT AS OBSERVED IN 1894.

The current in the Strait of Belle Isle was examined in both July and September, at the narrowest part of the strait near Amour Point. To avoid the tide rips which occur off this point, a section line was chosen a little to the eastward, on a line from Green Island, at the south side, to the red cliffs on the north shore, which lie immediately east of Loup Bay. The width of the strait is there $1\frac{1}{2}$ miles; and three stations were chosen on this section. The usual depth is 30 to 40 fathoms; but the water is much deeper near the north shore. The bottom appears to be bare rock running in ridges parallel with the direction of the strait. The surveying steamer was anchored at these stations for one or two days at a time; and was moved from one to another to ascertain any difference in the current at the two sides of the strait, while the same conditions of wind and weather prevailed. The tides were observed simultaneously at Forteau Bay within 12 miles of these stations, in order to ascertain the relation between the rise and fall of the tide and the direction of the current in the strait.

Comparisons of the current on the north and south sides of the strait were made by the best means available, to detect any difference between them. The best simultaneous observation of the currents on the two sides was obtained on September 15th, while the steamer was anchored three miles off Green Island, and an iceberg was drifting up and down with the tide, four miles from the north shore. At that time the current was running east and west in fair harmony with the tides; and complete data were obtained from the iceberg, as its height was measured immediately afterwards. This observation showed that the current on the north side of the strait ran inwards from the east for a longer time than on the south side, and outwards from the west for a shorter time. Also, on the north side, the current from the east, as shown by the path of the iceberg, was stronger than the current from the west, while on the south side the currents were practically equal in the two directions. On another occasion, during a period of persistent current from the east (September 8th), observations made while the steamer was at anchor near the north side, compared with the speed of icebergs near the south shore, showed that the current was practically equal at the two sides of the strait.

From these observations, and also from a comparison of the current as measured successively at the different stations, it appears that there is on the whole a tendency on the south side to greater tidal regularity, and on the north side to greater persistency of flow in one direction or the other. This is probably due to the greater depth on the north side, and consequently, the greater momentum of the water there, as compared with the frictional resistance.

With this explanation regarding the amount of difference in the current on the two sides of the strait, we may proceed to a closer comparison of the relation between the tides and currents, based upon observations during such times as the current ran in harmony with the tides, and turned in regular correspondence with them. Also, the best instances that were observed of a persistent or predominant current for several days, from the east or west respectively, and the conditions under which this took place.

The tide itself, as recorded at Forteau Bay, had a range which did not exceed five feet. The difference between the spring and neap tides was not very marked;

while on the other equality in the tides characteristics; there neap tides, as the difference would amount marked when this the current in either exceed two knots per

The dates during regularity and the directions of the wind the strait itself. The

Monday, July 9 variable in direction, averaging 9 miles per

Thursday, July 24th to 26th) there was and 12 hours of east July 26th to 29th, hour.

Monday, September previous, or in all first winds, averaging 15 miles per hour.

The following summary which in these periods relation between the the current in the mentioned,

Velocity of the Current the most improved form depth of 18 feet, which

July 9th to 11th

July 12th and 13th

Current from the east

Current from the west

July 26th to 28th

Current from the east

Current from the west

September 17th

Current from the east

Current from the west

The inequalities inequality in the tide

Comparison of the relation between the low water as observed

During the period inward from the east water, or still count length of time after two hours and fifteen west during the fall time after low water five minutes.