

Steamboat Inspection.

In the early part of July the current was found to flow with regularity in that offing. The weather at that time was very moderate, and the conditions generally appeared to be normal. From June 26th to July 6th the wind did not exceed 17 miles an hour, and its direction was variable; the barometer ranged in its daily mean from 30.27 to 29.75 which is higher than the average for the months of June and July, 1895. The observations taken on a cross-line running N.E. from Fame Point, from July 2nd to 6th may therefore be considered as typical of the normal condition of the current. Also, as the moon was full on the 6th, the velocity so far as it may be affected by the tide, should be about the average.

The current was observed at two stations $3\frac{1}{2}$ miles N.N.E. from Fame Point and $5\frac{1}{2}$ miles N.E. $\frac{1}{2}$ N. from that point during a period of 64 hours, from July 2nd to 5th. The depth at these stations ranged from 140 to 205 fathoms. The observations were continuous, day and night, throughout that period, with the exception of four hours, when the anchor dragged, and a new position had to be taken at the other station. These stations were in the strongest part of the current; and the velocity was measured at the standard depth of 18 feet. The result is shown on Plate II, where the tide at South-west Point is given for comparison. During the whole period of 64 hours, the current ran continuously from the north-west, and only veered in direction from N. to N.W. by W. The greatest velocity observed was 2.81 knots per hour on July 5th; as the current appeared on the whole to increase in velocity towards the spring tides, although this increase is less evident in the tide curve itself on account of the diurnal inequality. The fluctuation in the velocity of the current corresponds distinctly with the tide; as in general it decreases during the rise of the tide, and increases during the fall of the tide. This is to be expected, as the tide enters the estuary of the St. Lawrence against the direction of the current.

At a depth of 10 fathoms, the current was sometimes stronger than at the surface; but usually the velocity decreased regularly with the depth. At 20 fathoms it was only 50 per cent of the surface velocity; and at 30 fathoms 20 per cent. This rate of decrease would give the current a total thickness of 40 fathoms.

In order to ascertain the width and thickness of the current further out, another station was occupied on July 5th and 6th at 12 miles N.E. $\frac{1}{2}$ N. from Fame Point. The current there ran constantly from the N.W. during 23 hours, with a velocity which ranged from 0.33 to 1.48 knots per hour; and a thickness which extended at times to 40 fathoms, but usually averaged 30 fathoms.

Further out still, at 24 miles from Fame Point, or midway between the Gaspé coast and Anticosti, the current was found to run slowly from quite another direction; and this point was therefore beyond the limit of the constant current.

It would appear from the above that the constant outward current had at that time a width of approximately 14 miles; and a thickness of 40 fathoms near the Gaspé coast, which decreased towards the outer edge. Its surface velocity where the current was strongest, ranged from 1.10 to 2.81 knots per hour. Its temperature ranged from 53° at the surface, to 33° at 30 fathoms, and 32° at 50 fathoms. Its average density, as shown by the section of July 13th, for a width of 14 miles and between the surface and 10 fathoms was 1.02195; and to a depth of 40 fathoms was 1.02368.

The character of the current was also observed immediately afterwards, on another cross-line sixteen miles further to the eastward, in the offing of Griffin Cove. The weather however was not so settled; as from July 7th to 13th the wind during five days was from the S.S.W. rising as high as 19 miles per hour on the daily average; and this was interrupted on the 10th and 11th by a return wind from the N.N.W. averaging 31 miles per hour for 27 hours. This corresponds with the nearest approach of a storm centre which passed over Halifax on the 10th. The barometer fell to 29.64 on the 9th and had risen again a little above 30.00 on the 12th and 13th. The current was observed at a station 5 miles E. $\frac{1}{2}$ N. from Griffin Cove during a period of 48 hours, from July 8th to 10th. Throughout that time it ran continuously from the N.N.W., veering only from N.W. to N. and with a velocity ranging from 0.79 to 2.15 knots per hour. The current here also, in the same way as at Fame Point, had a tendency to be strongest at low water and weakest at high water; although the variation was usually much less