

current there during five hours set directly on-shore ; as it ran from directions between E.S.E. and N.E. with a velocity which ranged from 1.04 to 1.35 knots per hour. The under-current however from 30 fathoms downwards ran more nearly parallel with the coast. Also, at the same station on September 20th the current while veering in direction set off-shore during two hours ; but it was then slack, having a velocity of little over half a knot per hour.

At a station  $4\frac{1}{2}$  miles N.E. by N. from Fame Point, on the night of September 9th, the current while veering in direction set off-shore for one hour, but with a velocity of little over half a knot. Also at a station further from shore, 11 miles from Fame Point, on September 13th the current while slack ran during two hours from directions which set on-shore. As the current between this and the shore was irregular in its direction at the time, it is probable that this on-shore direction would not continue far without changing to some other course.

A similar instance occurred on July 11th at a station  $11\frac{1}{2}$  miles E. $\frac{1}{2}$  N. from Griffin Cove. The current while veering in direction near the time of high water, set on-shore during three hours ; and it had the same direction again during two hours at the next high water on the following night ; the velocities varying from 0.66 to 1.25 knots per hour. At this time however the current nearer the shore was running steadily along the coast without veering with the tide.

These off-shore and on-shore directions are thus more likely to occur at points some distance out ; because there as already explained, the current veers more widely in direction under the influence of the tide. But between this and the shore, the usual constant current along the Gaspé coast will generally be found ; and the on-shore directions of the current will thus be intercepted.

On the Anticosti side of the passage, where the direction of the current veers as a rule through a wide range, the off and on shore directions are more common. Three stations were occupied off the south coast of Anticosti, and one of them twice ; and almost always some such directions of the current were found to occur.

A station 6 miles S.W. from Ellis Bay was occupied on July 22nd and 23rd for 42 hours ; and the current at four different times set on-shore for periods of six hours, three hours, one hour, and one hour ; and also off-shore for one hour. These periods came irregularly with the veering of the direction of the current, and did not appear to have any relation to the tide. The under-current however from 20 fathoms downwards was more nearly parallel to the coast. The velocity of the current was nearly as great as in other directions ; but it did not exceed one knot per hour. This station was again occupied for 12 hours on the night of September 13th when the current ran more steadily along the shore. It veered to an on-shore direction during one hour however ; but with a speed of little over half a knot.

A station 15 miles to the north-westward of South-west Point, and  $6\frac{1}{2}$  miles from the coast of Anticosti, was occupied during 26 hours on July 24th and 25th. This was chosen because it was on the line marked "Constant current," on the chart, as already explained ; but the current was found to be weak and variable in direction. It veered from north to east and back to north ; then through west to south, and on through east to north ; and again from north through east to south. Some of these directions were necessarily off and on shore ; and on the whole during the 26 hours, the current set off-shore at three different times, for periods of four hours, three hours, and two hours ; but only once on-shore, during three and a half hours. The current however was weak, and seldom exceeded half a knot per hour.

At a station 6 miles S.S.E. from South Point, Anticosti, the current on the night of September 4th was found to run steadily for 10 hours, from directions between E.S.E. and S.S.E. some of which set obliquely on shore.

The above instances will serve to illustrate the character of the current on the Anticosti side ; although comparatively little time was spent there, because of the greater importance of the Gaspé side in this region with relation to the leading steamship routes.

*Return flow.*—As the usual volume of the out-flowing water of the Gaspé current is vastly greater than the volume of the St. Lawrence River, there must be some return flow to compensate for it. The Gaspé current, whether it flows near the coast or in the