

strength of the current in the two directions, and its relation to the tide as observed simultaneously at Forteau Bay, are shown in Plate I. The behaviour of the current in two differ nt months (July and September) is there given for periods during which the weather was moderate and the conditions may be considered as normal. The times of high and low water only were observed in July; but in September, after the tide gauge at Forteau Bay was erected, a continuous record of the tide was obtained. At other times, during heavy winds, especially when easterly or westerly in direction, (that is in the direction of the Strait itself which the winds usually follow) the current which runs with the wind becomes stronger than the current against it; and eventually the current may come to be continuous in the same direction as the wind. The behaviour of the current under the various conditions of wind and weather are fully described in the last report on this Survey. (See Annual Report, Department of Marine and Fisheries, for 1895, Appendix No. 3; pages 74 to 87). In that report it is also explained that all the evidence met with during two seasons, is entirely against the theory of a constant current inward at Belle Isle and outward through Cabot Strait into the Atlantic. On the contrary, it is now clear that no great inflow of water into the Gulf can take place through the Strait of Belle Isle.

A confirmation of the tidal character of the current in the Strait of Belle Isle, appears in an old report by Mr. M. H. Warren, addressed to the Colonial Secretary of Newfoundland, and dated as far back as February, 1854. Mr. Warren states that he had been more than twenty times through the Straits in sailing vessels, and thrice in a steam sloop; and as Superintendent of Fisheries for the Newfoundland Government, he had spent the months of July and August of the previous season cruising in the Straits, and had anchored several times in every harbour and also rowed in a boat from harbour to harbour. He was accordingly requested to report on the navigation of the Strait, and in the course of his report he says:—"The tides in the Straits of Belle Isle are generally regular, flowing east and west; on the rising tide setting to the westward, on the falling tide to the eastward alternately every six hours. When the wind prevails east or west several days, it influences the tides; sometimes with a prevalence of east or west winds, on the change of tide there is merely slack water. In the event of a calm, there is scarcely any danger of the tide hauling a vessel on-shore on the Labrador coast, the tides generally setting off the Points. On the coast of Newfoundland from Cape Bauld to Cape Norman, the tides are not regular but set into Sacred and Pistolet Bays, which are very dangerous."

In the passage between the Gaspé coast and Anticosti, which forms the entrance to the St. Lawrence, there is a current which runs almost constantly from the north-west, or in an outward direction with reference to the River. This current may follow the line of the Gaspé coast, or it may at times lie further out, in the middle of the passage between Gaspé and Anticosti. There is in either case a flow of water from the St. Lawrence into the Gulf area, which is fairly constant; and this water was found to be fresher or lower in density than ordinary sea water.

Again in Cabot Strait, there is a current flowing outward from the Gulf, which occupies a width of some 10 or 15 miles on the side next Cape North. This current appears to be very constant; and it also proved to be lower in density and warmer than the water in the greater portion of that Strait.

It appeared probable that a connection might be found to exist between these two currents; for although they are 200 miles apart, they both flow towards the south-east or in an outward direction in relation to the River and Gulf of St. Lawrence; they both proved to be unusually fresh or low in their density; and there was good reason to believe that they were both of a constant character. It was therefore proposed during the season of 1895 to ascertain whether any connection could be traced between them; and also to examine the current in the Gaspé region as thoroughly as possible in the time.

For this purpose the S. S. "Lansdowne" was again set apart for three months, from June 26th to September 27th, which was as long as it could be spared from its ordinary duties. During this time it was necessary to call twice for coal, and also to spend several days in obtaining fresh water. In the month of August the weather was

unusually broken and considerable inconvenience to be made for anchoring state of the funds available satisfactory character of the currents through of current meters regist previous season, these m secure a continuous rec vessel while at anchor; avoided. As the wind it was necessary to near otherwise the side of th The draught of the "La fore measured at the sta this survey. It has also the velocity between th of 18 feet, the meter co of the current by its pos the direction was obtain by a line from the stern

The under-current which it was found pr ascertain by means of through each other at an area of $3\frac{1}{2}$ square feet, with a patent sounding the dial of this machine give a reasonable inclin current might have; an meter, very fair ratios f itself was so small. T times when the surface tion to each other. T water from 100 fathoms able would not reach th

Meteorological obsc of the barometer and w themselves.

Temperature and d of the water chiefly to l density. The colour of different parts of the definite character, thou

An examination o Gaspé coast and Labr beginning of the season be relied upon for the p The temperatures of the vatons already obtaine could not be relied upo the water. The surface 50° to 65° Fahrenheit; until at a depth of 40 o point. Where the grea be appreciably warmer. less than 50 fathoms, a