

is 1-0230; and as far down as a depth of nearly twenty fathoms it is still both warmer and fresher than the Belle Isle water. If therefore the Belle Isle water has any influence on this current it can only be of a very indirect character. The greater speed which it is reported to have in the spring of the year, may be due in some measure to the incoming water at Belle Isle, if at that season its volume is considerable; for even if the water itself does not reach Cabot Strait, it may still act by displacement, as the total volume of the Gulf must remain nearly the same. Even this measure of influence cannot, however, be definitely asserted.

There is not only this difference in the character of the water in these two straits, but also a want of connection between them. The few observations obtained along the west coast of Newfoundland show that there is a slight current from the S.W., or in the contrary direction to that which the theory supposes. It is also stated by Lieut. Betty, navigating lieutenant of H.M.S. "Pelican" who has spent more than one season cruising along the west coast of Newfoundland, that the current there, between Cape Gregory and Rich Point, runs almost constantly from the S.W., and is only intercepted by the ebb and flood tides running in and out of the larger bays on the coast.

It might still be supposed however, that any water entering through the Strait of Belle Isle would be most likely to pass out at Cabot Strait as a cold under-current along the bottom. The total depth of Cabot Strait is 250 fathoms; the coldest water forms a layer between the depths of 30 and 50 fathoms, and below this the water is again warmer but with a higher density, which ranges from 1-0254 to 1-0260. As this cold layer occurs in other parts of the gulf area also, it cannot be taken as an indication of any special direction; and the characteristics of the deep water from 100 fathoms downwards, show how different it is from the Belle Isle water. The indications so far as obtained, also show that the deep water from 100 fathoms downwards is entirely quiescent.

There is therefore no confirmation to be found for the theory that a constant current enters the Gulf by the Strait of Belle Isle and leaves again by Cabot Strait; but on the contrary, all the evidence so far met with, is directly against it.

GENERAL EXAMINATION OF THE SOUTH-WESTERN SIDE OF THE GULF.

For the survey of the currents this season, the ss. "Lansdowne" was again made available for three months, from June 26th until September 27th. 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 stormy, which also occasioned some loss of time. The surveying party consisted of myself and Mr. H. M. MacKay as assistant; the night observations were taken by Mr. G. E. Hardie during July and August, and Mr. R. E. Tyrwhitt in September. Meteorological observations were also taken by Mr. MacKay throughout the season. Captain G. J. W. Bisett commanding the ss. "Lansdowne," and the other officers, also gave their co-operation in facilitating the work.

There was considerable inconvenience for want of suitable anchorage appliances as provision had to be made for anchoring in all depths up to 250 fathoms, and on account of the low state of the funds available, it was towards the end of the season before appliances of a satisfactory character could be obtained.

In the investigations of last season to ascertain whether any general current could be traced across the gulf from the Strait of Belle Isle, the examination of Cabot Strait furnished an indication which pointed in an entirely different direction. The out-flowing water around Cape North was found to be appreciably fresher or lower in density than the water at the central part of that strait and towards the Newfoundland side. The value of this indication was remarked in last year's report; as it pointed to a possible connection with the constant current which was shown on the charts as flowing eastward along the Gaspé coast at the entrance to the St. Lawrence, and which might also be presumed to have a low density. These currents although 200 miles apart both flow towards the south-east, or in an outward

direction in relation reason to believe that

It was accordingly in the Gaspé region could be traced across water at Cape North

The entrance to lies on the line of a nel runs in from the and Misaine Bank depth of nearly 250 width and depth and between the Gas rence nearly to the to 150 fathoms at a channel also extends Strait of Belle Isle.

At the beginning between the Gaspé examined to ascertain purpose of tracing colour of the water the gulf, this is not times be helpful. I are the temperature

In examining the numerous observations it soon became evident any definite indication temperature in the proceeding downwards fathoms it is only 3 depths are met with There are considerations and where the condition

It appears, the merely rises with the should become wary its limitations, however has yet been found September.

In the Gaspé region between the depths of the same low temperature towards regions. As these have also been found obtained, it appears generally over the direction of movement

Below this cold temperature from 1 41°. This result was actual temperature precautions taken in year's report. Du found at these depths further in than Ca