OURRENTS AT THE ENTRANCE OF THE BAY OF FUNDY

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DIFFERENCE IN THE CURBENT. WITH CHANGE OF POSITION.

Local features in the currents.—There are localities where special features are the ble in the currents, which may deserve mention. This is due to islands which directly on the route which the current would otherwise take; or to the great rise the tide, 18 to 28 feet, which is sufficient to make the configuration of the shore terially different at high and low water, in the vicinity of shoals and islands.

The principal obstruction in the way of the current, is Grand Manan island and to surrounding shoals, which lie in the entrance to the Bay proper. This island appears a obstruct the ebb more than the flood. The flood and ebb are fairly equal in the channel to the westward, and also on the straight Nova Scotia shore opposite to it. But off its southern end (Station K) the ebb is exceptionally strong, and nearly double the flood strength. Again, on its eastern side (Station L) the flood is obstructed and quite weak. Thus at points in its vicinity which are only a few miles apart, there is a marked change in the current, and a full hour of difference in the time of slack water ; u will be seen by comparing Stations K and L in Tables I and II. These apparent irregularities are no doubt due to the configuration of this island, and its position.

At Station M, in the channel west of Grand Manan, at low water slack the set is across the channel to the north-westward. Similarly at high water slack, the current in turning veers through the south-eastern quarter. This shows that both the rise and fall of the tide begin first on the Grand Manan side ; thus causing a cross current in the channel, though necessarily a weak one. Also, the under-cu: rent sets in the ebb direction first, while the surface current in still veering. This tends to make up for the greater strength of the flood, and helps to equalize the flow in the two directions through this channel.

There is no doubt that similar local irregularities would be found in the currents among the islands and shoals bordering the south-western end of Nova Scotia. The above examples may serve to show how such effects may be explained when all the circumstances of topography tide and under-current are taken into account. Such local effects were avoided in these investigations; as the object was to obtain information on the leading steamship routes which keep outside the 30 fathom line.

Change in the character of the current with change in position.—When an anchorage was made a second time at the same station, the current was found to act as before. The direction of the current and the time of slack water is thus remarkably constant at any given point, the only variation being a fluctuation in strength as usual with the course of the month. But it is important for the navigator to note that a change in position of only a few miles, may make a marked alteration in the strength of the current and in the time at which slack water is met with. This is a noteworthy feature in the behaviour of the currents in this region. The following examples may be given in illustration.

If a vessel enters the Bay of Fundy along its centre line, from Station A to N, midway between the 50-fathom lines on each side, it would find an ebb current of only l_2^1 to $2l_2^1$ knots against it; but if it passes nearer either shore, some eight miles to the right or left, it would have against it a current of 3 or \pm knots or more at the springs.

Also, as regards time, at five miles off Brier island, (Station J) the ebb continues to run for l_2^1 hours after it slacks at an offing of 15 miles. A vessel would thus find