

*Strength and direction of the current ; resulting values for all the stations.*—Table I, appended, shows the final average results for the direction of flood and ebb and the strength at half tide at all the stations, when reduced or increased proportionately to correspond with the standard tidal range of 24 feet at St. John. This table is based on determinations of maximum velocity for 179 tides at the various stations, and on a much larger number of half-tide directions ; as for these, the results obtained at night gave a more continuous series. When the observations were at the neap tides only, the velocities were so much increased in bringing them into correspondence with the range of 24 feet, that a further mean was taken between these and the velocities actually observed. The treatment was consistent throughout ; the object being to make the results strictly comparative.

At two of these stations there are irregularities in the current, and the period of observation was not long enough to secure as good averages as might be desired. At Station N, within the mouth of the Bay of Fundy, the irregularity appears to be due to the sudden opening of the Bay immediately inside of Grand Manan island. At Station B, off Seal island, the flood was much stronger than the ebb at the date when the observations were taken. This will be referred to again, in discussing the relative strength of the flood and ebb.

| Station. | Period of observations.<br>1904. | Number of maximum<br>velocity measurements. | Velocity correspond-<br>ing to 24 feet range. |      | Ratio of the Ebb<br>velocity to the FLOOD. |
|----------|----------------------------------|---|---|------|--|
|          |                                  |   | Flood.  | Ebb. |  |
| H.       | July 26 to 29.....               | 9 flood ; 8 ebb.....                        | 2.34  | 2.37 | 101 per cent.                              |
| C.       | June 16 to 18.. . . .            | 8 flood ; 7 ebb.....                        | 1.82  | 1.87 | 103 per cent.                              |
|          | Sept. 7 to 12.....               |   |   |      |  |
| J.       | Aug. 8 to 13.....                | 8 flood ; 9 ebb.....                        | 3.25  | 3.19 | 98 per cent.                               |
| A.       | June 23 to 30.....               | 13 flood ; 10 ebb.....                      | 1.67  | 1.62 | 97 per cent.                               |
|          | Aug. 15 to 18.....               |   |   |      |  |

*Relative strength of flood and ebb.*—In the above table, the ratio of the ebb velocity to the flood is given for four stations lying in the order shown, between Cape Sable and the mouth of the Bay. These are the best adapted for the comparison, as they are the most open stations, least liable to local influences.

In obtaining the ratios, the velocities are first reduced to correspond with the standard tidal range of 24 feet at St. John. The advantage of this treatment will be evident from the reasons already explained. To arrive at any better relation of flood to ebb, a long series of observations would be required ; or else observations at two different times at which the diurnal inequality is reversed.

According to this comparison the current in the flood and ebb directions does not differ more than 3 per cent. in its strength. This is probably as near as a comparison of the kind can be relied upon. This result has two different bearings which it will be necessary to consider separately.