For comparison with the observations of the current, continuous records of the tide at St.John, N.B. and at Halifax were secured simultaneously throughout the two seasons. The tide curves obtained from these registering gauges, afforded complete data for comparison. It was found that the currents and the time of slack water, as far as Cape Sable, were in close correspondence with the tide at St. John; while beyond that point, the weaker currents off the south-east coast of Nova Scotia accorded better with Halifax. This result also corresponds with the dividing line between the ports which can be referred to St. John and Halifax respectively, as found by the tidal observations taken along these shores in 1902.

Stajj.- The investigations were carried out under the personal direction of Dr. W. Bell Dawson, with the assistance of Mr. S. C. Hayden in both seasons, and Mr. H. W. Jones in 1904 and Mr. C. L. Blois in 1907. The night observations were taken by the officers of the vessel or assistants engaged temporarily. Captain T. G. Taylor, the master of the vessel, gave valuable co-operation in the work, in addition to his ordinary duties. Mr. Hayden had also charge of the meteorological observations on board, and Mr. Jones afterwards assisted largely in the office reductions of the observations.

The simultaneous tidal observations at St. John, N.B., were taken by Mr. D. L. Hutchinson, and at Halifax by Mr. G. J. T. Russell. Tidal observations at Yarmouth were taken during 1904 by Captain J. E. Murphy, who is also in charge of the meteorological station there, at which continuous observations were taken in both seasons.

Reduction of the Observations, and the Results.—The half-hourly observations were first brought into relation with the time of high water, to determine for each station the average direction and velocity at every even hour before and after high water. This gave satisfactory results for direction; but it is evident that the velocities thus obtained require further to be brought into relation with some uniform standard of comparison. For it would obviously be untrustworthy to compare the springs at one place with the neaps at another; and in this region the tides not only vary in the ordinary way from springs to neaps, but they present the special feature of an equally pronounced variation with the change in the moon's distance from perigee to apogee. The standard or average velocities at springs and neaps, would therefore only be obtained when the moon is also at its mean distance.

It was found on investigation that the maximum strength of both flood and ebb is closely proportional to the rise or fall of the corresponding tide at St. John, N.B.; as both the variations in the range of the tide are also observable in the current, and this keeps the two in accord with each other. This proportional relation holds good as far as the ofling of Cape Sable. Accordingly, the velocity of the current, at different times and places, can be correctly compared by bringing it into relation with the mean or average range at St John, which is 21 feet. The velocities as given in the tables, are brought to this standard. When the range of the tide is greater or less than this amount, the currents will be proportionately stronger or weaker.