

The whole series of stations, with the length of tidal record secured at each, and the names of the observers, are as follows:—

Quebec	Permanent tidal station.	Continuous record.
Grosse Isle	Captain C. Langlois.	May 4 to Oct. 15
L'Islet	Réal Pelletier.	" 12 to " 15
Orignaux Point	T. Grindrod.	June 22 to Sept. 11
Rivière du Loup	M. McCarthy.	" 30 to Oct. 17
Tadousac	L. N. Catellier	July 6 to Sept. 15
Father Point	Permanent tidal station.	Continuous record.
Cape Chatte	J. S. Russell.	July 17 to Oct. 1

Equipment of the Tidal Stations.—All the stations were provided with self-registering gauges of the Richard type. The gauges were fitted with a pulley-wheel of special diameter, to adapt the scale to the height of the tide in this region, and bring it within the range of the instrument. The total range thus provided for, was 24 feet; and diagrams with corresponding graduations were specially printed. The accuracy of the scale was checked by a direct test before the instruments were used.

The gauge was actuated by a float, six inches in diameter, which rose and fell with the tide within a column of planking, of which the inside dimensions were 10 inches by 14 inches. This gave room enough for the protection of the counterweight, on a line with the off-side of the pulley-wheel of the instrument. The column was built in 12-foot lengths, and set against the side of a wharf, in a truly vertical position. The necessity for its being vertical, usually made substantial bracing necessary; as the batter of the side of the wharf gave the column an offset of two or three feet at the upper end. It was often difficult to find a position where the column would not be struck by vessels using the wharf; and at the same time to place it far enough out towards the head of the wharf, to secure a sufficient depth of water. Special care was given to the design of the inlet which admitted the water at the bottom of the column, and to such other details as would prevent wave-motion within the column, which has always proved so troublesome in rough weather. The means adopted to this end were eminently successful, the details often requiring adaptation to local conditions; but they need not here be described at length.

Correct time for the observations.—It is very evident that correct time for these observations was essential, when one of the primary objects was to obtain time-differences with relation to the tide. Where there is any uncertainty in the accuracy of the time used, the tidal record itself becomes valueless for its chief purpose. In the extensive series of simultaneous observations in the Bay of Fundy, there was practically more loss of record from this cause, than from interruptions through damage by storms or in any other way. This experience emphasised the need of making effective provision to secure correct time.

It might seem at first sight, that no special arrangements to secure correct time would be needed in this region. On the Inter-colonial Railway, running parallel to the south shore of the estuary, a time signal is transmitted every day at the moment of noon; and there is also a telegraph line along each shore. Practically however, the tidal gauges nearest to the railway, were at four to six miles distant from the railway stations; and some were on islands or in isolated positions. The expense of hiring conveyances to take advantage of the railway signals, would therefore be considerable; as time comparisons would be required at least twice a week during the season. It was therefore found best to supply most of the tidal stations with chronometers. With one already belonging to this Survey, five additional ones were found sufficient. They were carefully rated in advance; and if the rate was at all large, the observer was given a table of corrections to apply to the face reading during the season. Their rate was also checked during the season, by exchange of time by telegraph with the observatory at Quebec; which the meteorological observer, M. Arthur Smith, kindly undertook to transmit whenever desired. A watch of high grade, running at a steady rate, was also used to carry the time from place to place, when the stations were visited for inspection during the season. These were the arrangements adopted in general, with modifications adapting them to local circumstances, which need not be detailed.