

At Pictou, the recording instrument of new design, already referred to, was used. At the other stations the instruments were of a smaller type than those at the principal tidal stations; they were of the Richard pattern, supplied by Casella of London, and were made with a scale specially adapted to this region. They are strong and simple in construction, so that the manipulation presented little difficulty to inexperienced observers. The complete tide-gauge was as follows:—firstly, a vertical plank box, to serve as a tide well, which could be strapped to the side of a wharf; holes were bored in the lower end sufficient to admit the water freely, but not to allow of inconvenience from wave motion. A shelter box containing the registering instrument, was placed directly on top of the tide well. As these tide-gauges were in operation during the summer months only, they did not require to be built in the same substantial manner as when they have to withstand the severity of the winter and to be provided with heating. They could thus be set up at small expense wherever a wharf or pier was found running out beyond the low-water line.

The readings of the instrument as regards elevation were checked by comparison with a graduated staff set up beside it; and the elevation of the zero of the staff was referred to a bench mark on shore. At most of the stations, time could be obtained from railway telegraph offices; but where there were no such facilities a meridian mark was placed, and the observer was supplied with a table giving the "Sun on meridian" in 60th standard time.

The results obtained at these five stations were supplemented by observations at places which stood next in importance, in obtaining correct tidal differences. On the coast between Miramichi Bay and Pictou, short series of staff readings were taken at Richibucto, Buctouche and Pointe du Chêne; and a gauge record during two months in all, was obtained at Cape Tormentine, where the strait is narrowest. Also, on the north coast of Prince Edward Island, a short gauge record was obtained at St. Peter's Bay and at Alberton, and staff readings at Rustico.

The total amount of tidal information obtained is shown in the following list. Throughout the progress of this work, a simultaneous record of the tide was obtained at the principal stations at Halifax, St. Paul Island and Anticosti. Also, where the observations were obtained by self-registering instruments, they were continuous day and night during the time indicated. The only interruption of consequence occurred at Charlottetown, where the partial choke of the inlet made the observations unreliable for a time.

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|----------------------|-------|----------------------|-----------------|
| Carleton.....        | June  | 29th till Nov. 9th.  | Gauge record.   |
| Neguac.....          | July  | 20th do Nov. 6th.    | do              |
| Richibucto.....      | Aug.  | 5th do Aug. 8th.     | Staff readings. |
| Buctouche.....       | Sept. | 15th.....            | do              |
| Pointe du Chêne..... | Sept. | 8th till Sept. 11th. | do              |
| Cape Tormentine..... | July  | 25th do Aug. 10th.   | Gauge record.   |
| do.....              | Aug.  | 31st do Oct. 10th.   | do              |
| Charlottetown.....   | June  | 20th do June 29th.   | do              |
| do.....              | July  | 18th do Nov. 25th.   | do              |
| Pictou.....          | June  | 3rd do Nov. 27th.    | do              |
| Souris.....          | June  | 11th do Nov. 24th.   | do              |
| St. Peter's Bay..... | Oct.  | 27th do Nov. 24th.   | do              |
| Rustico.....         | Oct.  | 20th do Oct. 24th.   | Staff readings. |
| Alberton.....        | Oct.  | 13th do Oct. 23rd.   | Gauge record.   |

Such tide tables as are now published in local almanacs for ports in this region, are based on constant differences from Halifax or some other Atlantic port; and it is, therefore, evident that they must necessarily be far from correct. Their error is greatest when the moon's declination is at its maximum, north or south of the equator. The observations of this season show that the time of high water as given in the local almanacs now published, is in error by the following amounts:—At Pictou 1 h. 25 m. early or late; at Charlottetown, 1 h. 12 m. early or late. These errors correspond approximately with the half-range of diurnal inequality, which at Pictou amounts to 1 h. 15 m.; and at Charlottetown also it is nearly as great.

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