

The gauge at Yarmouth, N.S. was fitted up originally in 1898 as a summer station without any provision for heating in winter, as the climate is milder there than at any of the other principal stations. (See comparative temperatures given in last year's report.) Some special precautions were taken to prevent the formation of ice in winter, as explained in last report; but notwithstanding these, more than a month of record was lost during the first winter, in February of 1899. During the past winter however, the only loss on account of frost was from February 5 to 7, and from February 28 to March 5, 1900; a total of nine days.

At St. John, N.B., there was repeated trouble between January and April, on account of the breakage of the fine platinum wire which connects the tide-float with the mechanism of the recording instrument. The trouble was finally remedied; but there remains much office work to be done, in filling in the parts of the tide-curves which are thus missing. The gaps can better be made up in this way, than by calculation.

At Halifax, the hair-spring of the driving clock of the gauge broke twice, in the months of June and July. Some spare hair-springs had been obtained from the makers of the gauge in Glasgow, and placed in charge of a leading watch-maker in Halifax; and because of this precaution, the interruption from these accidents was limited to one or two days on each occasion.

At Father Point, at the end of July, chokeage occurred in the intake pipe that admits the water to the gauge, by which five days record was lost. To remedy this, the outer end of the pipes had to be disconnected; and it was not until the low spring tides of the middle of August, that they could be re-laid. During the interval, the record of some low waters was lost, as the pipes did not then reach to the lowest tides.

At the other principal tidal stations, namely, Quebec, St. Paul island, and Forteau bay, there was no interruption in the record obtained.

The total amount of tidal record obtained at the principal stations up to the end of 1898, was given in a summary form in Table D, appended to last year's Report of Progress.

TIDE TABLES FOR 1900 AND 1901. IMPROVEMENTS, PUBLICATION, &c.

Several improvements on previous years have been made in the preparation and publication of the tide tables issued by this Survey. A considerable part of the advantage of the work which has now been done, will appear when the tide tables for 1901 are issued; whereas the reduction of additional record and its analysis to extend the basis from which the tide tables are calculated, will first benefit the tables for 1902. The progress made may be best explained, therefore, under the heading of the years in which the tide tables will be improved by the work now done.

Tidal differences in the Bay of Fundy.—In the tide tables of 1900 for the harbours of Quebec, Halifax and St. John, N. B., a slip was inserted giving the preliminary results of the tidal observations, in the Bay of Fundy. A complete set of tidal differences for the whole of this bay has now been prepared, which will appear in the tide tables for 1901. They are based upon a comparison of the tidal observations obtained at the stations of 1898, with the 'Establishments' as already determined by the Admiralty for intermediate points. This comparison affords a valuable check upon the Establishments themselves; and places the time of the tide throughout this bay upon a reliable basis. The importance to navigation of a correct knowledge of the tide in this bay is evident, when the range of the tide is so great. In addition to the tidal differences which enable the time of the tide to be found, the available draught of water at spring and neap tides is given, for points in the upper part of the bay. Navigation may there be said to be entirely dependent on the tide, as the wharfs do not extend beyond half-tide mark, and vessels can therefore only reach their berths at high water.

New Tide Tables for British Columbia.—These are based upon the record obtained from registering tide gauges erected in 1895 by the Department of Public Works. One of these is at Sand Heads at the outlet of the Fraser river, on the coast of the Strait of Georgia. It is thus centrally situated in that strait for comparison with the time of the tide at the harbours around it. Another tide gauge was originally placed at Victoria, in 1895; where two full years of tidal record have been secured. This gauge was

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