

	Feet.
Bench-mark on chimney, as above described .....	108.53
On hydrant at the corner of Cliff and Main streets.....	137.31
Elevation above Yarmouth town datum = 141.88.	
On hydrant at the foot of Horton street, near Water street .....	103.87
On hydrant at the foot of Brown street, corner of Water street.....	103.32
Top of stone post at south-east corner of L. E. Baker's office; at head of the Yarmouth S.S. company's wharf .....	94.81
Elevation above Yarmouth town datum = 99.54.	
Highest high water observed in the season of 1898; July 4, p.m. ....	90.45
Lowest low water observed in that season; July 5, a.m. ....	74.15
Zero of Tide Scale; as originally set in 1898. ....	72.36
" " after being replaced more than once by a new scale. Elevation in September, 1901.....	72.37

The above levels were taken in 1901 and 1902; and as in the case of all the Tidal Survey levels published, they are reliable within 0.01 of a foot. The zero of the tide scale in 1901 was checked by two series of measurements made by two different methods; and the alteration in elevation since 1898 may be disregarded where the range of tide is sixteen feet.

#### OBSERVATIONS OF THE CURRENTS IN THE SEASON OF 1902.

*Northumberland Strait.*—The current at the narrowest part of this strait was observed during last winter by noting the movements of the ice as seen from the two sides at Cape Tormentine and Cape Traverse. There was, however, less ice than usual during the season. Again, in the summer, notes were taken of the time of the turn of the current in mid-strait between these two capes. The notes were taken during the lobster season by fishermen while setting or hauling their traps. Independent notes from two men were secured under the supervision of Mr. E. Crosby, the station agent at Cape Traverse, who already had the experience of observing the drift of the ice in winter. Observations have thus been secured in winter from February 3 to March 29, and in summer from June 2 to August 23, with a comparatively slight expenditure.

*Neighbourhood of Cape Sable, N.S.*—In the offing of the coast from Cape Sable to Pubnico bay, some observations were taken this season by arranging with the fishermen to note the time of the turn of the current. The object in view was to obtain the first indraught of the current into the Bay of Fundy, with relation to the rise and fall of the tide as recorded simultaneously by the gauges on the shore opposite. The in-shore fishermen in these parts do not anchor their boats, however, which makes their notes less definite than might be desired. Also, the season was unusually foggy, which occasioned much interruption in the record they were able to make. The result though thus imperfect, may give indications which will be of service until the work can be better done with adequate appliances.

*South Coast of Newfoundland.*—Information regarding the currents was obtained wherever possible while travelling during the season; from the captains of coasting steamers, and schooners accustomed to fish on the outlying banks. With regard to the alleged indraught into the bays on the south coast of Newfoundland, the best information obtained this season goes to corroborate the statements already given out by this Department, which were based upon inquiries previously made by this Survey. (See Notice to Mariners, No. 103 of 1901.) What has now been learned will also be of value as a guide in the further investigation of the currents on that coast.

Respectfully submitted,

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Engineer in charge of Tidal Survey.