

bed of the stream is the mean water level at the mouth.* But even without this the evidence is complete; for I have obtained specimens of water from both surface and bottom at Fredericton and Indiantown at high water and their specific gravities reduced to 0° C. I find to be

Fredericton,	{ Surface water,	1.0005 }
	{ Water from bed,	1.0003 }
Indiantown,	{ Surface water,	1.0054 }
	{ Water from bed,	1.0109 }

Thus to within one-fiftieth of one per cent the water at Fredericton has the same density at surface and bottom. Even at Indiantown the process of mixing of salt water and fresh water is well advanced, for the density of the surface water is raised to 1.0054, and that of the bottom is lowered from about 1.026 which is the average density of sea water to 1.0109. When the diffusion has proceeded thus far even at Indiantown, it is evident that the tide will not have progressed many miles up river before the mixing is practically complete. How far salt water actually does travel up stream cannot be stated. It has been known as far as Gagetown.

As regards the amount of tidal current, I may note that on the morning of Monday, August 4th, I saw at Oromocto a log float one and a quarter miles up stream in the main channel in two and a half hours. That was at high water of a spring tide. That it was an unusual amount of up-current was evident from the extent to which it seemed to puzzle a ferryman. Also at Fredericton on Aug. 22nd, at 4 p. m., I observed a feeble current up. A careful examination of this whole question would be of great importance in such discussions as to whether the discharge of sewage into the river below Fredericton could affect the waterworks above the city.

In conclusion I wish to express my indebtedness to Mr S.W. Kain and Mr. Percy G. Hall, of the Natural History Society, also to Mr. Thomas Loggie, of Fredericton, Professor Davidson, of Fredericton, and Mr. E. T. P. Shewen, of St. John, besides the gentlemen previously mentioned, all of whom have been so kind as to supply me information or assistance.

* See Young's General Astronomy, p. 477. Airy's Article, Tides and Waves—Ency. Metropolitana.