

500 square miles. . . . For twelve miles above the Grand Falls the St. John river is deep, ranging from fifteen to thirty feet. The Grand Falls, like many of the lakes of the province, owes its origin to the Glacial period. The channel, in which the river formerly flowed, was filled with boulder clay, and so a natural dam was formed backing up the water for a long distance. The water then ran over the lowest point of its obstruction which happened to be the rocky cliffs. The solid rock has been worn away for three-quarters of a mile to a depth of 150 feet or more, forming what is known as the Gorge, through which the waters rush with tremendous force, the whole forming a scene which rivals the fall itself. Below Grand Falls the river valley is deep, the sloping banks rising to a height of 400 feet in places. Along these slopes are numerous gravel terraces rising one above another, forming a very noticeable feature of this part of the valley. . . . The river in its lower part forms a lake-like expansion, including the Long Reach, Grand Bay, etc. About four miles from its mouth it flows through the Narrows, where it has worn out a deep channel for itself. Opposite Indiantown it again opens out into a broad basin nearly a mile wide, but before it reaches the Bay its waters are forced through a gorge about 200 feet wide; a ledge of rock extends across this gorge, forming a dam, preventing the free passage of the water so that at low tide there is a fall outward and at high tide a fall inward, when the water rushes up with great force and a very swift current. On account of this obstruction, when it is high tide in St. John harbor, below the "Falls," the water at Indiantown, above the "Falls," is at least ten feet lower, and the tide continues to pour in for an hour or more after it is high water outside. It continues to flow upward till the tide has fallen nearly ten feet, the waters thus reaching a common level when the surface of the fall is calm and may be navigated with safety.¹

Another physical feature may be referred to. Along the east coast bordering the carboniferous sandstones, in many places, there are large banks or ridges of wind-blown sand; at some points these

¹ This "common level" occurs twice in every tide, about two hours before and two hours after high water, except in times of high spring freshets when high water in the harbor just reaches the level of the water in the river. For further description of the "Falls" see Nicholas Denys' "Description of the River St. John," edited by W. F. Ganong, No. 3 of this series.—EDITOR.