

Culbute fall is much broader and rocks rarely appear along its course except at the crossing of the road north from Chapais. Below this the shores are of clay or sand till the end of the Island is reached where the Pembroke channel joins the Culbute, flowing over broad ledges of Black River limestone, and forming what is known as the Paquette Rapid which is about a fourth of a mile south of the junction of the two channels.

The Pembroke channel which flows past the south side of Allumette Island is not deep. At the upper end rapids extend partly across the river and there are many small granite islets. Along the south shore of the river especially above the mouth of the Petewawa the banks are entirely of sand and in some places are from fifty to eighty feet high.

At the town of Pembroke a depression comes to the river from the south and the Musquash River here joins the Ottawa. This stream flows north-west against the regular course of the Ottawa and discharges the Musquash and Mud Lakes, the former of which is about ten miles in length. The stream is for the most part sluggish, flowing through a clay flat for some miles. On the north side of Musquash Lake a ridge of crystalline rocks rises abruptly, and on the south side Palæozoic rocks, mostly of Black River age, form outliers, which have steep scarped sides towards the north as if cut down by the agency of running water.

At the upper end of Musquash Lake a stream flows in which discharges a chain of long and narrow lakes, and these continue for some miles in a depression into the township of Horton. Along these lakes, which are surrounded by great masses of sand the action of water is very evident. Some of them are long and very narrow but have a depth of over a hundred feet, though only a few chains in width. They present all the features of an old river channel which has been blocked up by great deposits of sand, gravel and boulders, so that the original channel is now defined simply by the line of the depression and the remnants of the old river left in the narrow series of lakes.

This depression extends out to the river again, reaching it near what is known as the Chenaux rapids, about four miles below the junction of the two channels which surround Calumet Island,