This systematic resultant movement of the waste towards the east and west ends of the lake respectively from distinct nodal zones near the middle of the length of the lake, is seen to be directly associated with the size of the storm waves. In Lake Ontario storms from the southwest will roll waves of maximum size on the northeast shores, the wind and waves having a free sweep toward this section of the shore over the longest part of the lake. Similarly storms from the southeast and east will roll maximum waves toward the northwest shore of the lake. It is these storm waves with the strong longshore currents associated with them that perform the maximum amount of transportation, and are the cause of the resultant shifting movements in the directions indicated.

Not only from actual observation may the waves be seen to be greater at the eastern and western ends of the lake than towards the middle zone at times when storms are blowing toward one end or the other of the lake, but the greater power of these waves is well shown in the height and character of the storm beaches along the shores. Near the middle of the lake on both shores the storm beaches of coarse debris lie about six feet above water level. At the eastern and western ends they lie about fifteen feet above the same level, being a little higher at the east than at the west end. Also at or near the middle of the north and south shores below the storm beaches there is a large accumulation of finer pebbles, gravel, and sand. At the ends of the lake the entire beach is at times made up of very coarse materials, the finer having been rolled out below the calm water level. Wave-base will also lie deeper below the mean level of the lake at the east and west ends than near the middle of the north and south shores.

Character of the Shereline:—In its initial stages the shoreline of the basin now occupied by the present lake must have been very diverse in character. All later shore processes have tended to smoothen out these initial irregularities producing the long sweeping curves and beaches of graded waste that are its most characteristic feature. In the process of straightening and grading headlands were truncated, lines of sea-cliffs were formed, and bars and barrier beaches were built across many of the originally deep bays.